



# COMMUNITY FOOD WASTE BEHAVIORS AND SOLUTIONS

**Meglyn Masters**

Final Project submitted to the faculty of the Design Management Program at the Savannah College of Art and Design on May 30, 2022 in partial fulfillment of the requirements for the degree of Master of Arts in Design Management.

Professor Christine Miller | Spring 2022 | DMGT 748 Final Project

## EXECUTIVE SUMMARY

Food waste is a global problem that creates a vast array of issues – hunger, resource waste, loss of nutrients, economic loss, and environmental detriment. The majority of food waste in the United States occurs at the consumer level. In most of the United States, neighborhood communities rely on a single stream waste disposal service that goes straight to landfill. The problem is not just food wasted and the associated loss, but wasted food going to landfill, creating additional environmental issues. There is a lack of education, awareness, and programs that give consumers a better option. There is an opportunity to improve these issues through the creation of neighborhood organized food waste management programs that are accessible and easy for residents to participate in.

The Northfork Community Food Waste drop off program is a solution for food waste to be deferred from landfill at the neighborhood level. This program will establish convenient and local drop off sites for Northfork residents to dispose of their food waste. The food waste will then be hauled away by a contracted compost hauling service, that takes it to a food waste certified composting facility around the greater Houston area. This solution allows residents to compost more types of food waste (such as meat and bones) than they otherwise would be able to with a backyard composter. In establishing this program, Northfork becomes a more sustainable community with educated residents, and a positive example for nearby neighborhoods to pursue a sustainable solution for their food waste management.

# DEDICATION

## **To my husband, Daniel**

I would not have been able to get through the last couple years of pursuing this degree without you. This is as much of your success as it is mine. Thank you for all of your efforts in encouraging me, keeping me fed and clothed, a roof over my head, and our pets alive! I'm sure I would have let the house return to nature by now.

## **To my mom, Alison**

You showed me that we can actually have it all: a career, family, and higher education. Thank you for being someone I can look up to.

## **To my amazing support network of friends and family**

I'm so thankful to have an incredible group of people in my life, including the new ones I found while at SCAD. Amelia and Cale, meeting and sharing this experience with you both has created a bond not easily broken! You guys enriched my life far beyond what another degree could – and being able to complain with you while we were all in the thick of it was a huge contributor to getting me through it. To the friends that I had long before grad school, Jazzy, Jennifer, and so many more: thank you for reaching out and keeping me involved and included when I was AWOL, glued to my computer studying and working. I couldn't imagine better friends, and I'm so fortunate to have many more than who I'm able to personally thank here.

## **To my daughter**

You are the greatest graduation gift. I can't wait to meet you. Onto my next big (and never ending) project: motherhood!

# TABLE OF CONTENTS

## PROJECT PLANNING

Subject of Study  
Problem Statement  
Opportunity Statement  
Target Audience  
Purpose of Study  
Scope of Project  
Research Methodology  
Umbrella Question  
Sub Questions  
Research Ecosystem Map

## UNDERSTANDING

Northfork Neighborhood  
Association Responsibilities  
Sustainability in Houston  
Greater Houston Area Locations  
Composting Pilot Program

## MARKET ANALYSIS

2x2 Axis  
Collaborator Analysis  
Zag Steps  
Value Proposition  
Onliness Statement

## 6 PRIMARY RESEARCH

7 Research Activities  
8 Survey Overview  
9 Survey Questions  
10 Survey Responses  
11 When asked  
12 Interview Overview  
13 Interview Attendees  
14 Discussion Guide  
15 Interview Quotes  
16 Research Synthesis  
Key Insights

## 17

Design Criteria  
18 User Journey Map  
19 Personas  
20 Empathy Maps

## 22 CONCEPT EXPLORATION

Concept 1  
Concept 2  
24 Concept 3  
26 PMI Analysis  
29 Refined Concept  
32 User Journey Map  
33 Testing Protocol  
User Testing

## 34 FINAL DESIGN TO MARKET

35 Overview  
36 Visual Identity  
37 Program Signage  
38 Site Mockup  
42 Business Model Canvas  
43 Implementation Plan

## CONCLUSION

44  
45  
49 Reflection

## BIBLIOGRAPHY

50  
51  
52 Annotated Bibliography  
53 Additional Sources

## APPENDIX

54  
59  
60  
61 Pre-project Self Reflection  
63 Working Wall  
65 Research Questions Matrix  
67 Annual Budget  
68 Screener  
70 Consent Form  
71  
72

## 74

75  
76  
77  
78  
79  
80

## 81

82

## 84

85  
87

## 88

89  
91  
92  
95  
96  
97

# DEFINITION OF DESIGN MANAGEMENT

Design management is the **practice and process** of **understanding and empathizing** with the user to create **innovative solutions** that drive business strategies and growth to **improve the world around us**.





# **PROJECT PLANNING**

## SUBJECT OF STUDY

To understand the **overall impact** of food waste, where the largest amount of food waste occurs, **what consumers and communities can do** to prevent food waste, and redirect wasted food from landfills.



## PROBLEM STATEMENT

Every year, **108 billion pounds of food is wasted** in the United States and occurs throughout every step along the food production and supply chain (Feeding America, 2021). This amount of food waste accounts for **approximately 30-40% of all food** produced in the country (United States Environmental Protection Agency, 2018). Of the total amount of yearly food wasted, **43% of it occurs at the consumer level** – that's approximately **35.3 million tons of food wasted** from US households (Ishangulyyev, Kim, & Lee, 2019).

Because of the amount of food wasted at the consumer level, an estimated **24.1% of municipal solid waste** (MSW) is wasted food that is landfilled, creating environmental issues such as **loss of nutrients and greenhouse gases** (US Environmental Protection Agency, 2021). The methane produced from landfilled food waste accounts for up to **10% of landfill greenhouse gases** (UN Environment Programme, 2021). Household food losses are responsible for **8X the energy waste** of farm level food losses due to the energy and resources used along the food supply chain and preparation (Food Print, 2021).

Additionally, the average household takes an **annual financial loss of \$1500** in wasted food (Save the Food, 2021). It's not just an **environmental and resource issue, but an economic one too**. In most of the United States, neighborhood communities rely on a single stream waste disposal service that goes straight to landfill. The problem is not just food being wasted, but wasted food going to landfill, and there is a **lack of education, awareness, and programs** that give consumers a better option.



## OPPORTUNITY STATEMENT

There is an opportunity to improve how consumers interact with both their food and subsequent food waste by education and awareness to prevent food waste, and programs and services that give the consumer the alternative of deferring wasted food from to go to landfill.

This project will help me better understand human behavior and how to create positive behavioral change that can help to create a better world and environment. The project overall can help communities become more sustainable, be less wasteful, and help households save money. Additionally, it brings to light current environmental and economic issues that we all face in the world, and helps to educate not only myself, but anyone involved with this study.

In a professional sense, managing a major project like this is valuable experience in project management and large campaigns. This experience can be applied to many skills in management, research and user experience, documentation, and understanding of client needs as well as identifying a problem and conceptualizing solutions.



## TARGET AUDIENCE

The **target audience** are the consumers that reside in a single-family home household of a neighborhood community.

The **secondary target audience** are homeowners' associations and community management companies. These are the organizations responsible for implementing community waste management programs.

The **tertiary target audience** are composting facilities, local farms who could use the recovered nutrients, and waste collection companies that collect household waste for delivery to processing facilities.



## PURPOSE OF STUDY

The focus of this study is to **understand how consumers interact** with their food and subsequent food waste, and to **discover the barriers** to mitigating food waste at a consumer level by **education, awareness, and implementation** of community programs.



# SCOPE OF PROJECT



## CONTEXT

During other stages of the food production and supply chain, there are put-in-place practices which mitigate the loss of food (such as ecological feed on farms). However, the responsibility currently falls on consumers to have the means and knowledge to prevent food waste and landfilling. While composting programs are available to consumers, they are on an individual subscription basis, or require the consumer to make a delivery of food waste themselves. Additionally, at home composting is not doable for everyone.

## SUBJECTS

The subjects of this study are consumers that live in single family households in the Northfork neighborhood community. The study will specifically look at this neighborhood which has a homeowner's association to determine the possibility of program saturation within a community.

## LOCATION

Northfork Neighborhood, Clear Lake, Houston, Texas USA, Spring 2022

## CONTENT

By utilizing design management methods and strategies, this study will discover what barriers there are to the reduction of food waste on a consumer and community level, and what programs and practices can be instituted to mitigate food waste ending up in a landfill. It will also showcase the potential of widespread programs in communities for community food waste mitigation and landfill deferment programs.

## DELIMITATIONS

While food waste is a large-scale problem both globally and across the entire production and supply chain, this study will focus solely on the consumer that resides in the Northfork community. Ideally, the results of this study will offer a scalable solution that can help many communities in various situations.

# RESEARCH METHODOLOGY

Research for this study will be conducted according to **ethnographic design methods and contextual research guidelines** and will consist of both secondary and primary research collection methods. Ethnographic research **seeks to understand the subject** contextually by observation and interactive participation of the relationships of the subjects within their environments. The goal is to **gain an empathetic understanding of their behaviors and attitudes** around food waste, their role in the community, and the influence the community has on the subjects.

By using these methods, the information gained from this study will **guide the design of a user-centric solution** which benefits the subjects and their environments.





**HOW MIGHT WE USE DESIGN THINKING  
TO UNDERSTAND HOUSEHOLD LEVEL  
FOOD WASTE AND THE ROLE THE  
COMMUNITY PLAYS IN THE MITIGATION  
OF FOOD WASTE?**

## SUB QUESTIONS

**HOW MIGHT WE DEFINE  
DESIGN THINKING AND THE  
METHODS NECESSARY FOR  
THIS STUDY?**



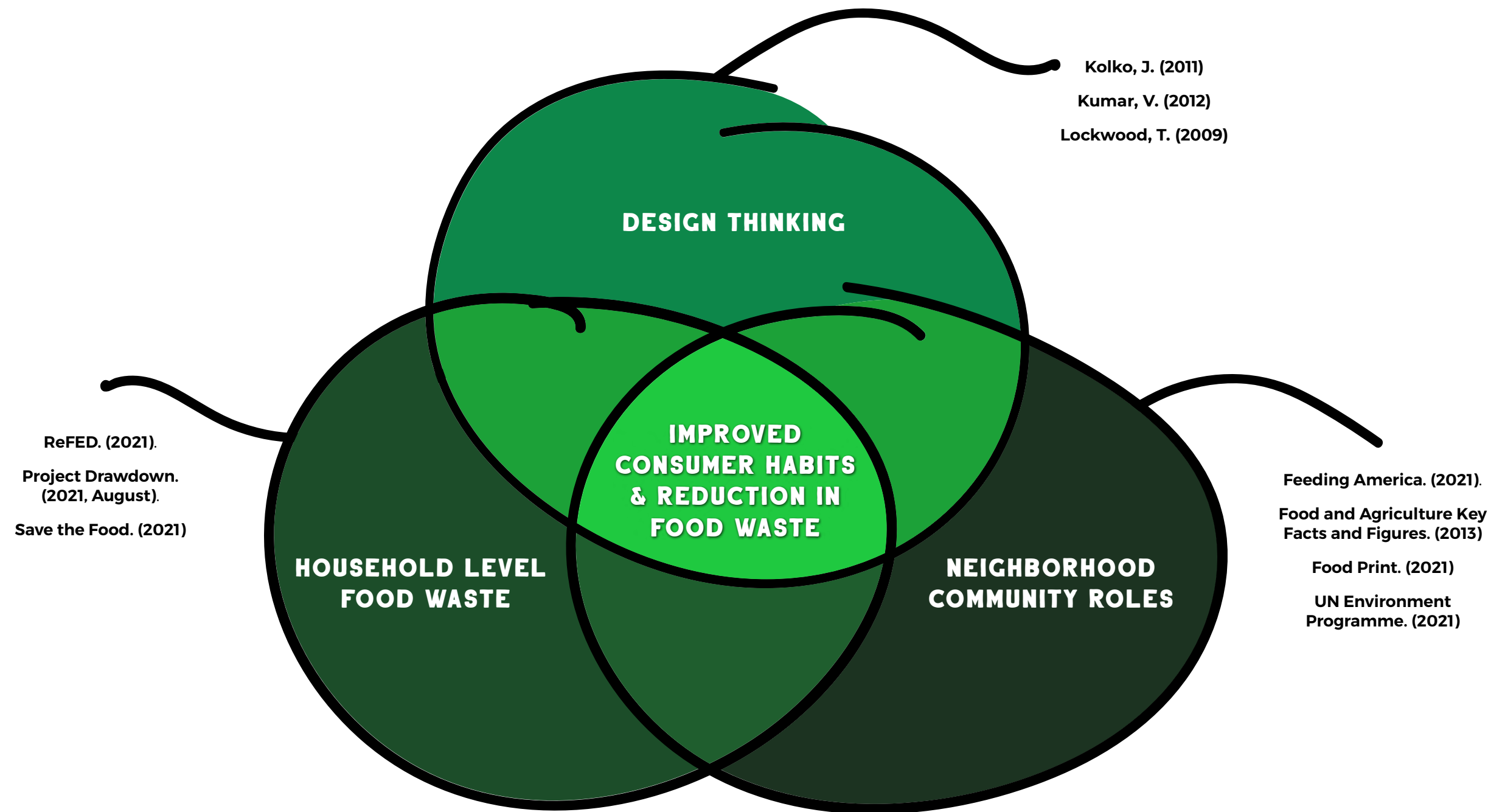
**HOW MIGHT WE DEFINE  
THE HOUSEHOLD AND  
DISCOVER HOUSEHOLD  
FOOD PRACTICES?**



**HOW MIGHT WE DEFINE THE  
COMMUNITY AND DISCOVER  
THE CULTURE WITHIN IT?**



# RESEARCH ECOSYSTEM MAP





**UNDERSTANDING**

## NORTHFORK NEIGHBORHOOD

Northfork is a neighborhood of 1,038 single family homes, established in 1991. It is located in the master-planned community of Clear Lake City, in the southeast region of the city of Houston, Texas.

The neighborhood is in the care of a homeowners association consisting of volunteer homeowners elected to a governing board of directors. The board of directors contracts an association management company to assist in the governing, care, and improvement of the neighborhood.



## ASSOCIATION RESPONSIBILITIES

The Northfork homeowners association is a non profit organization subject to state statutes that govern non-profit corporations and homeowners' associations. This homeowners association, and the contracted association management company, is responsible for managing contracts and services for the neighborhood, such as: waste management, recycling, landscaping, pest control, security, and more.

While the board of directors and association management meets monthly, an annual resident meeting is also held to discuss issues, and elect new board members. Homeowners are regularly notified and invited to board meetings, and encouraged to air grievances and make suggestions.



## SUSTAINABILITY IN HOUSTON

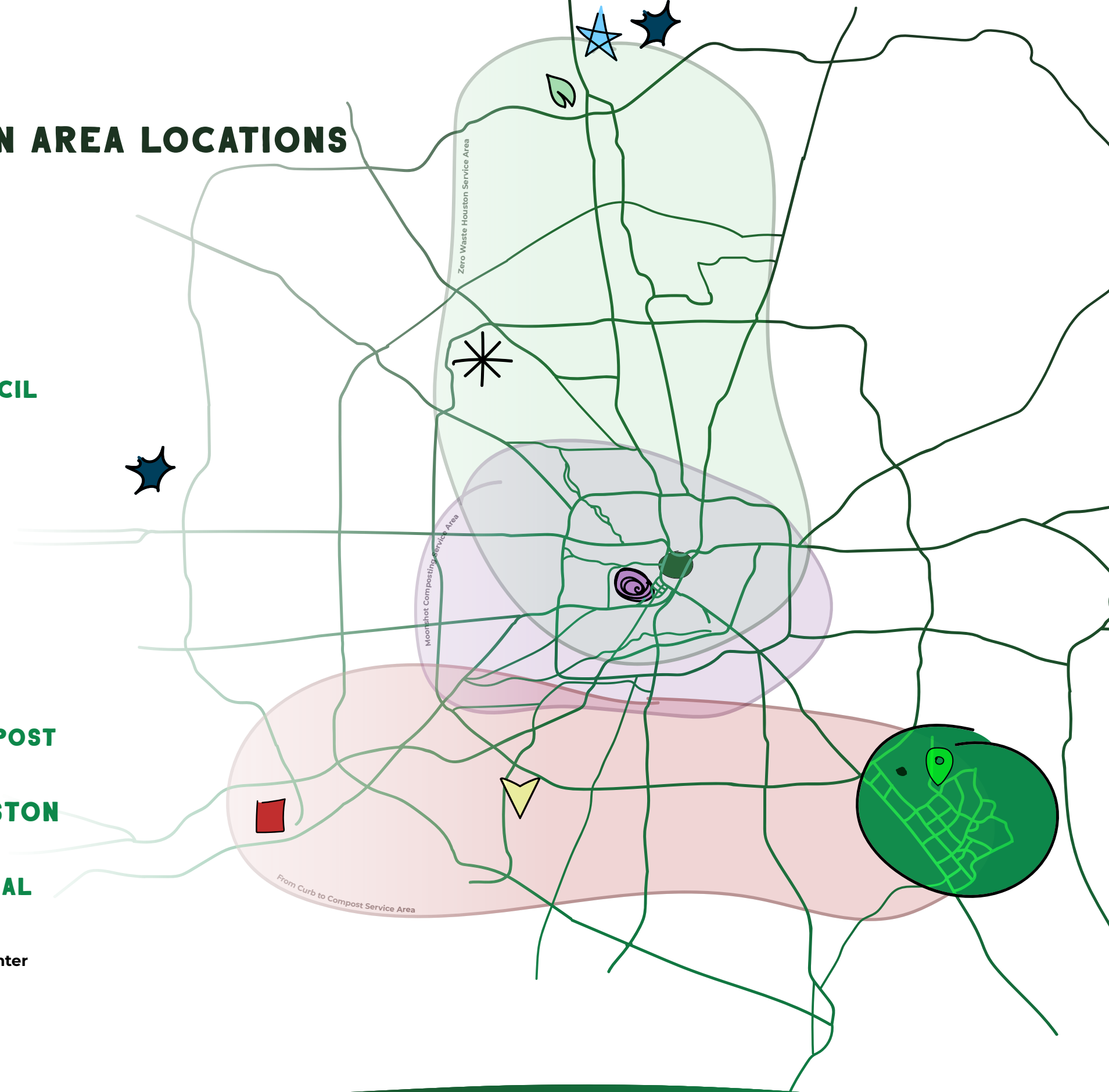
The Greater Houston Area is home to **four private curbside composting programs**: Zero Waste Houston, Moonshot Compost, From Curb to Compost, and Happy Earth Compost. Each of these companies are **subscription based**; an individual pays an amount to have their food waste picked up on their curbside weekly, bi-weekly, or monthly, or have an alternative option of dropping off their food waste at an established drop off location.

When one of the services collects food waste, they then **transport it to a food waste approved composting facility** – Houston has three: Nature's Way, New Earth, and The Ground Up. These facilities are large, multi-acre tracts of land where they **cycle organic matter through heaps or piles as it decomposes**. Decomposition is assisted by regularly churning the piles with large machinery. This process occurs over the span of 12 to 18 months to become certified organic compost. At the end of the process, **the compost is filtered and refined**, and anything that has not fully decomposed gets taken out of the final product and returned to the heaps of decomposing organic matter to continue breaking down.



# GREATER HOUSTON AREA LOCATIONS

-  **NORTHFORK**
-  **CLEAR LAKE**
-  **HOUSTON CITY COUNCIL**
-  **NATURE'S WAY**  
Composting Facility
-  **NEW EARTH**  
Composting Facility
-  **THE GROUND UP**  
Composting Facility
-  **MOONSHOT**  
Composting Service
-  **FROM CURB TO COMPOST**  
Composting Service
-  **ZERO WASTE HOUSTON**  
Composting Service
-  **TEXAS PRIDE DISPOSAL**  
Waste Management Service
-  **Ellington Recycling Drop Off Center**



# COMPOSTING PILOT PROGRAM

In the fall of 2021, the City of Houston conducted a composting pilot program with the goal of education and awareness, and to gauge interest in a city-wide composting service. The program was organized by the office of the At-Large Position 5 Council Member, in conjunction with the City of Houston Solid Waste Management Department and the Mayor's Office of Resilience and Sustainability.

The program ran for 6 weeks, and operated 3 drop off locations, with drop off drives being on either Wednesdays or Saturdays (depending on location). Moonshot Compost and Zero Waste Houston donated their services to the program by running these drop off locations, and hauling the collected food waste to composting facilities. Over the course of the program, each of the locations saw a weekly increase in participation, significant sign ups for curbside services, and the program in total diverted 14,551 pounds of food waste from landfill.

(Houston City Council. (2022).)

(H. Cobb, personal communication, April 18, 2022)

## Survey data from the City of Houston Composting Pilot Program

**77%**

of participants said it was their  
first time ever composting

**82%**

said the pilot impacted how  
they thought about food waste

**95%**

said they plan to continue  
composting after the pilot

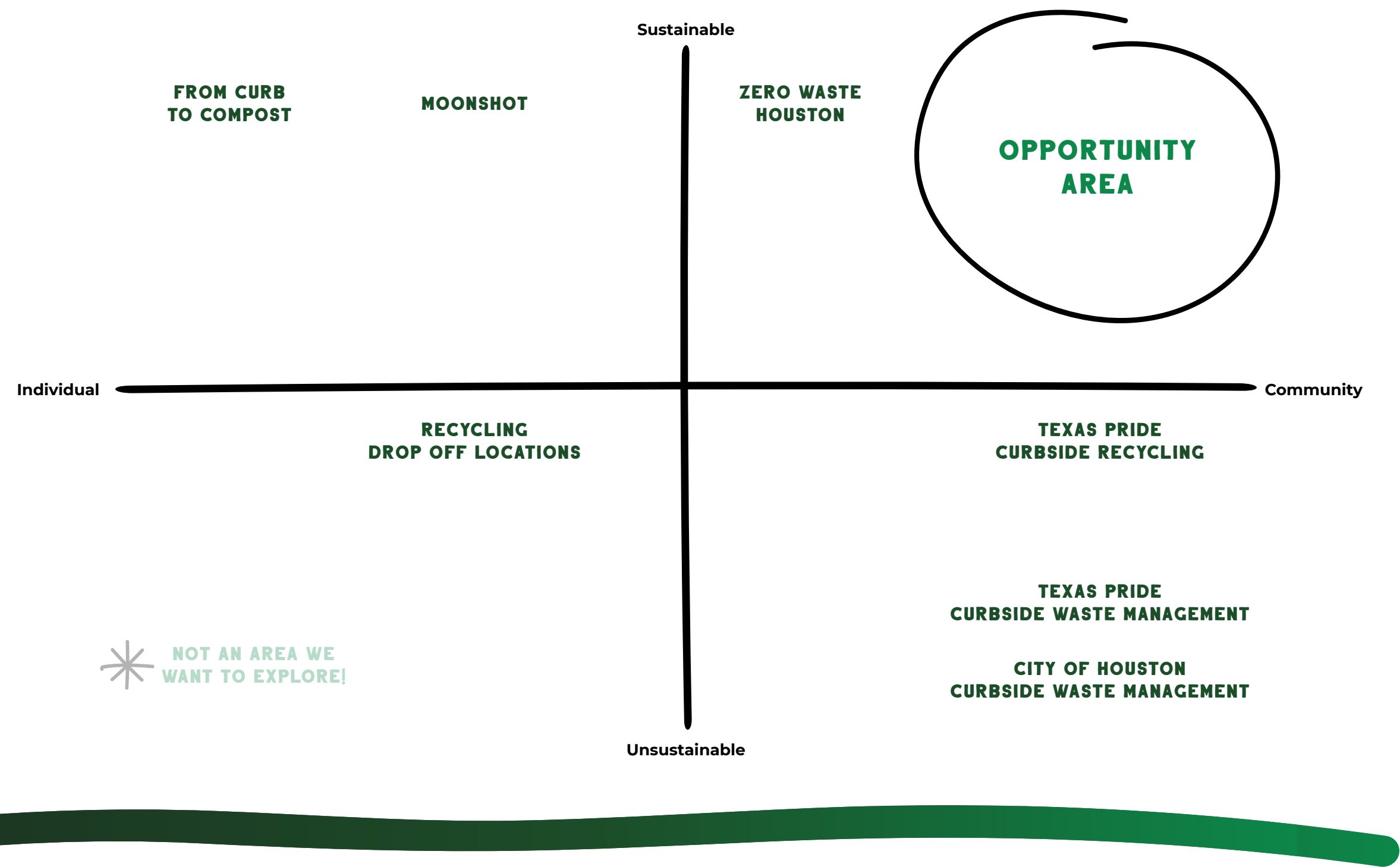


# MARKET ANALYSIS

# 2X2 AXIS

## COMPARATIVE COMPANY ANALYSIS

This graph aims to visualize and understand the opportunity area for solution concepts based on existing competitors or potential collaborators within the current market.



# COLLABORATOR ANALYSIS

## FROM CURB TO COMPOST

From Curb to Compost is a curbside composting service that hauls food waste from residential households, restaurants, and commercial businesses to a local composting facility for processing.

### OBJECTIVES

What is their network's value?

To defer food waste from landfill by providing consumers with a convenient curbside service with various pick up frequency options

### MEMBERS

What categories do they fall into?

Alternative waste stream  
Curbside service  
Composting service  
Waste hauling

### LESSONS

What can they teach us?

Different pricing and pick up frequency options for subscribers  
They're the youngest and smallest – plenty of room in the growing Houston market for them to grow

### APPROACH

How do they create value?

Gives subscriber options of pick up frequency  
Accommodates a different area of Houston as opposed to the other services

### CHANNEL

What is the entry point to their network?

Website  
Farmer's Market

### COLLAB OPPORTUNITIES

Where do we overlap?

Curbside composting hauling service that services residents in mostly the south side of Houston

# COLLABORATOR ANALYSIS

## MOONSHOT COMPOST

Moonshot is a curbside composting service (with drop off location options) that hauls food waste from residential households, restaurants, and commercial businesses to a local composting facility for processing.

### OBJECTIVES

What is their network's value?

To defer food waste from landfill by providing consumers with a convenient curbside or drop off service

### MEMBERS

What categories do they fall into?

Alternative waste stream  
Curbside service  
Composting service  
Waste hauling

### LESSONS

What can they teach us?

Has the infrastructure to support growth and service a larger area  
Drop off locations offer a cost effective service while accommodating large groups of people

### APPROACH

How do they create value?

Gives the subscriber options of curbside or drop off  
Accommodates large businesses and restaurants, and creates individualized services for them

### CHANNEL

What is the entry point to their network?

Website  
Drop off location  
Farmer's Market  
Event pop up

### COLLAB OPPORTUNITIES

Where do we overlap?

Curbside composting hauling service that services residents in Houston

# COLLABORATOR ANALYSIS

## ZERO WASTE HOUSTON

Zero Waste Houston is a curbside composting service that hauls food waste from residential households, restaurants, and commercial businesses to a local composting facility for processing. They are also a composting and zero waste consulting service.

### OBJECTIVES

What is their network's value?

To defer food waste from landfill by providing consumers with a convenient curbside service, drop off location, or community event

### MEMBERS

What categories do they fall into?

Alternative waste stream  
Curbside service  
Composting service  
Waste hauling

### LESSONS

What can they teach us?

They support communities with tailored solutions for food waste management with opt-in programs  
Offer a drop off location for food waste on the north side

### APPROACH

How do they create value?

Accommodates a different area of Houston as opposed to the other services – North side and Woodlands  
Have a drop off location, do drop off events, and serve a community

### CHANNEL

What is the entry point to their network?

Website  
Drop off location and events  
Municipality

### COLLAB OPPORTUNITIES

Where do we overlap?

Has the infrastructure to support a community with food waste pick up, and ability to create a system that works for the municipality and for residents

# COLLABORATOR ANALYSIS

## TEXAS PRIDE DISPOSAL

Texas Pride Disposal is a garbage and recycling collection service for residential communities and commercial customers in and around the greater Houston area.

### OBJECTIVES

What is their network's value?

To provide garbage and recycling collection services that are consistent and environmentally responsible to customers, and a safe working environment for employees

### MEMBERS

What categories do they fall into?

Garbage and recycling collection  
Waste hauling

### LESSONS

What can they teach us?

Impressive infrastructure for a private hauling service, customer outreach, making contacts and securing contracts

### APPROACH

How do they create value?

Private waste service that offers residential and commercial garbage, recycling, heavy trash, yard waste, and storm debris through a variety of means such as curbside, polycart, back door/valet, and dumpster

### CHANNEL

What is the entry point to their network?

Website  
Telephone  
Through municipality or homeowners association

### COLLAB OPPORTUNITIES

Where do we overlap?

Hauling waste by curbside pick up from residential homes  
This company services Northfork with garbage and recycling collection services



The Zag 17 steps is an exercise created by Marty Neumeier to develop a brand and identity that helps a company or process differentiate itself

## ZAG STEPS

### THE 17 STEP PROCESS

#### 1 Who are you?

A method of **reducing food waste** in a community setting

#### 2 What do you do?

Provide a service to residents within a community that **promotes conscientious food waste practices** on a household level, and **landfill deferral of food waste** on a community level

#### 3 What is your vision?

**For a more sustainable community**, both in how residents act with food waste, and the waste management services that the neighborhood provides

#### 4 What wave are you riding?

The awareness and desire for more **sustainable and convenient practices** in our every day lives

#### 5 Who shares the brand space?

Other **waste management companies**, both ones that transport for landfill and recycling, and ones that transport for composting, as well as **waste disposal facilities**

#### 6 What makes you the "only"?

The only **neighborhood wide solution to food waste management**, that not only educates residents, but defers food waste from landfill



# ZAG STEPS

## THE 17 STEP PROCESS

### 7 What should you add or subtract?

Add **infrastructure** and **collaborative partnerships**, subtract single stream

### 8 Who loves you?

Families, gardeners, sustainability advocates and eco conscious individuals

### 9 Who's the enemy?

**Lack of education and awareness**, landfilling, and single stream waste practices

### 10 What do they call you?

The third waste stream

### 11 How do you explain yourself?

A solution to a more **sustainable community**, a **landfill deferral** program, and a **way to reclaim** nutrient rich soil

### 12 How do you spread the word?

Social media, advertising and marketing, events and pop ups



## ZAG STEPS

### THE 17 STEP PROCESS

#### 13 How do people engage with you?

Through the website client portal, the homeowners association, and curbside pickup or a drop off location

#### 14 What do they experience?

A **convenient method of disposing food waste** that offers benefits to the resident, community, and earth

#### 15 How do you earn their loyalty?

By being **transparent about practices**, proving the **validity of the company**, and showing the **benefits of composting** and food waste prevention

#### 16 How do you extend your success?

By **expanding to other neighborhoods and communities**, through education and awareness, and **assistance in instituting sustainable practices** in new locations

#### 17 How do you protect your portfolio?

By showing residents and communities the **value that a third and sustainable waste stream brings** to everyone that participates



## VALUE PROPOSITION

- FOR** residents of neighborhoods, and their community management associations,
- WHO** want to implement sustainable practices in their neighborhoods that prevent food waste from going to landfill by means of a convenient and easy service or practice
- WE** do this by contracting with neighborhoods and home owners associations to provide residents with a food waste service that uses existing methods of waste stream management and curbside services
- UNLIKE** other neighborhood or city waste management services that direct all waste to only landfills, or having to subscribe as an individual to a private curbside composting service
- OUR** service provides a means to defer food waste from landfill in a manner which allows residents to conveniently participate in sustainable practices while relying on the neighborhood to provide the service alongside the other waste streams



## ONLINESS STATEMENT

**WHAT** a neighborhood managed food waste stream service

**HOW** that provides a convenient way to participate in sustainable food waste mitigation and landfill deferral programs by means of an additional waste stream

**WHO** for homeowners

**WHERE** in the Northfork neighborhood community

**WHY** to create an educated homeowner, and a more sustainable neighborhood

**WHEN** while the infrastructure is currently available, this service can only happen when homeowners and neighborhoods are made aware of the issues of food waste and opt to take steps to mitigate it





# **PRIMARY RESEARCH**

# RESEARCH ACTIVITIES

## DATA COLLECTION

Research for this project begins by gaining an understanding of the problem, the subject, and their environment. The methods that will be used in data collection are:

- Secondary Research
- Popular Media Scans
- Culture Probe / Survey
- Interviews

## DATA ANALYSIS

During this stage, the key insights are put into frames to see patterns, pain points, and to identify user needs. Data analysis includes these methods:

- Value Proposition
- Personas
- Design Opportunities and Criteria

## DATA PROCESSING

Data processing involves taking collected research from the previous stage and beginning to distill it into key insights. This requires mapping and diagramming using methods such as:

- Affinity Diagramming
- User Journey Map
- Empathy Maps

## DATA SYNTHESIS

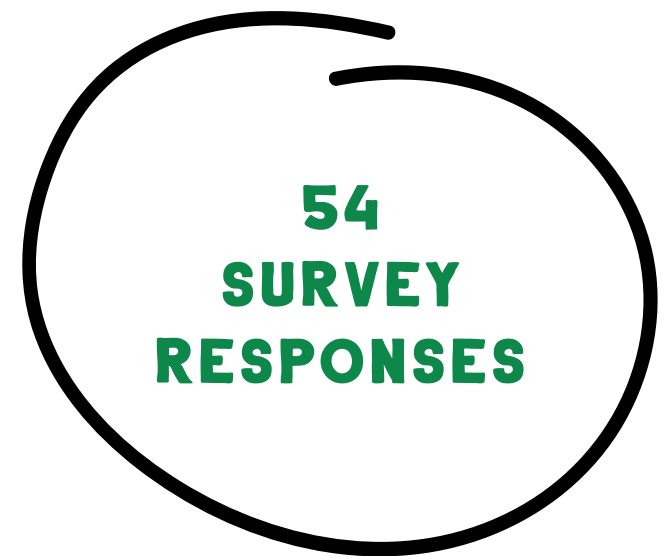
The final stage is where ideation begins. The research, key insights, mapping, and diagramming all come together to design a solution by using these processes:

- Brainstorming and Visualization
- Conceptualization
- Prototyping
- User Testing

## SURVEY OVERVIEW

The survey was the initial exercise in primary research. It was created on Google Forms, and distributed to Northfork residents through a social media platform for communities called Nextdoor, posted signage on mailboxes throughout the neighborhood, and sent virtually via text and email to residents by both the researcher and the community management association.

The purpose of the survey was to understand the residents' behaviors with household waste – both with the current waste management services that are provided (trash and recycling), and any other food waste management (such as backyard composting) that they participate in. Additionally, the survey gathered resident knowledge and interest in food waste management programs and composting, and served as an introduction for some of the resident interviews.





# SURVEY QUESTIONS

This survey is being conducted by a Design Management graduate student at Savannah College of Art and Design. The results of this survey will contribute to a Masters final project looking to understand the overall impact of food waste, what consumers and communities can do to prevent food waste, and redirect wasted food from landfills. Participating in this survey is entirely voluntary, and you may choose to stop at any time. Please contact mmaste22@student.scad.edu with any questions.

## 1. HOW MANY PEOPLE ARE IN YOUR HOUSEHOLD?

- ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5+

## 2. APPROXIMATELY HOW MUCH MONEY DO YOU SPEND ON FOOD AND GROCERIES PER MONTH?

- ☐ Less than \$500 ☐ \$501 - \$800 ☐ \$801 - \$1100 ☐ \$1101 - 1400 ☐ \$1401+

## 3. HOW OFTEN DO YOU COOK AT HOME?

- ☐ Every day ☐ Most days ☐ A few times a week ☐ Rarely ☐ Never

## 4. HOW OFTEN DO YOU THROW AWAY FOOD?

- ☐ All the time ☐ Often ☐ Sometimes ☐ Rarely ☐ Never

## 5. WHERE DOES YOUR LARGEST PORTION OF FOOD WASTE COME FROM?

- ☐ Scraps/Byproducts (peels, seeds, rinds, bones) ☐ Spoiled Food ☐ Leftovers ☐ Plate Waste ☐ Other, please explain...

## 6. WHAT DO YOU KNOW ABOUT FOOD WASTE? [Long answer text...]

## 7. DO YOU SORT YOUR GARBAGE?

- ☐ No, all refuse goes in the trash ☐ Yes, I use the trash for some things and recycle other things

## 8. DO YOU CURRENTLY COMPOST?

- ☐ Yes ☐ No

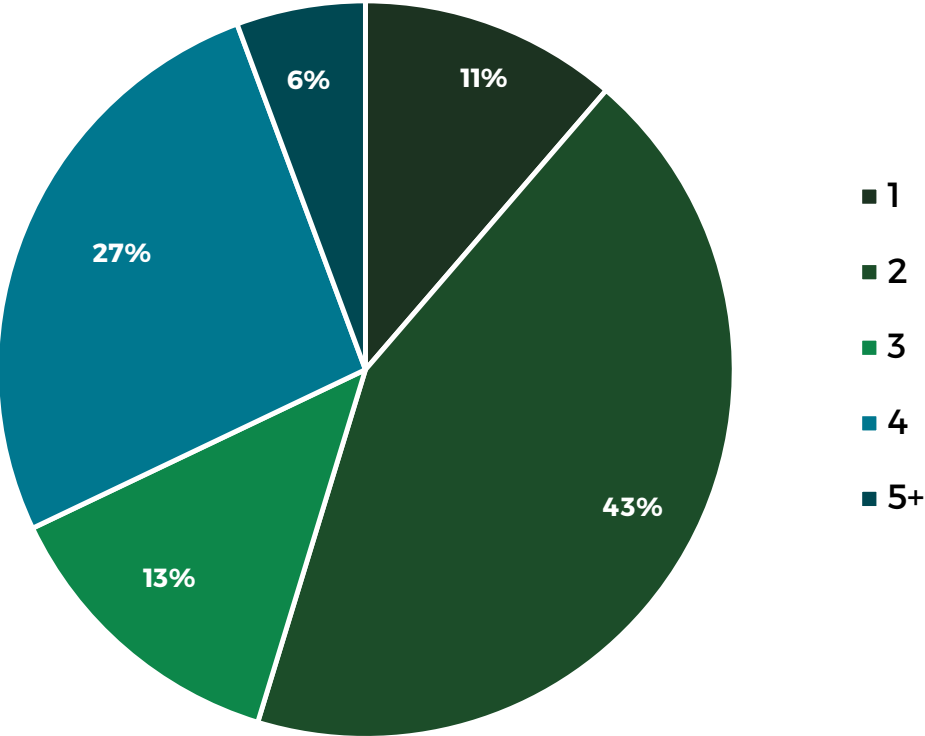
## 9. IF OUR NEIGHBORHOOD PROVIDED A DEDICATED FOOD WASTE MANAGEMENT SERVICE (EX. COMPOSTING) WOULD YOU PARTICIPATE?

- ☐ Yes ☐ No

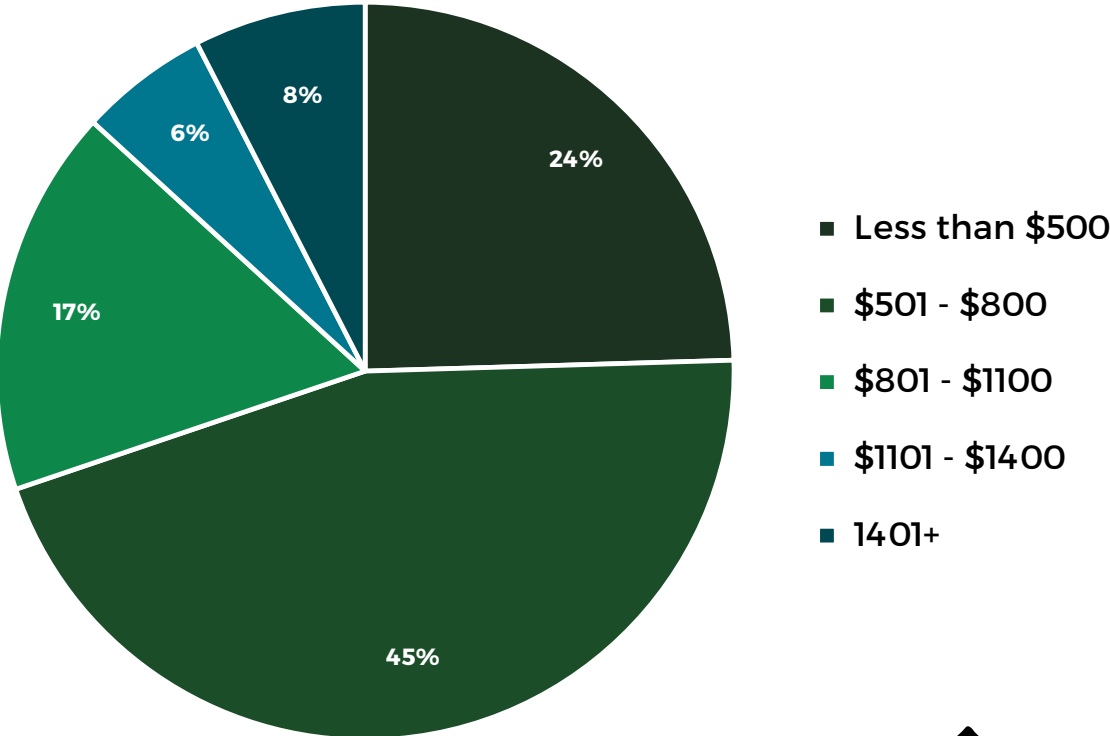


# SURVEY RESPONSES

Size of Household

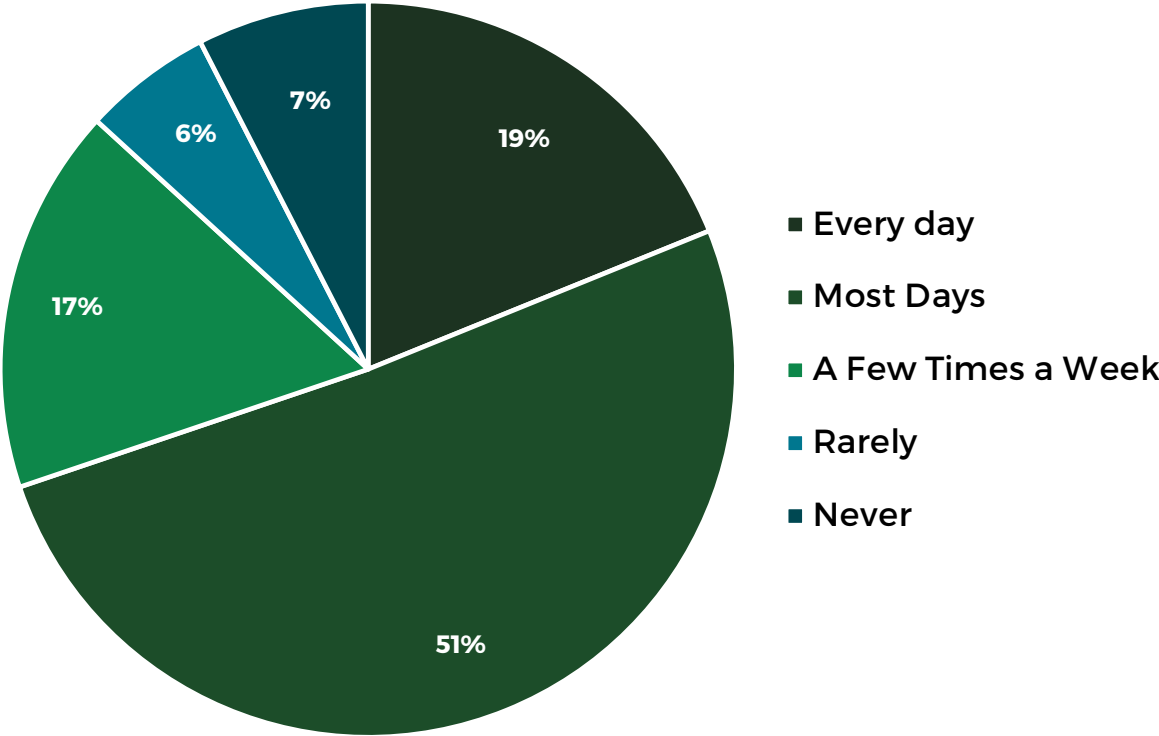


Amount of Money Spent on Groceries per Month

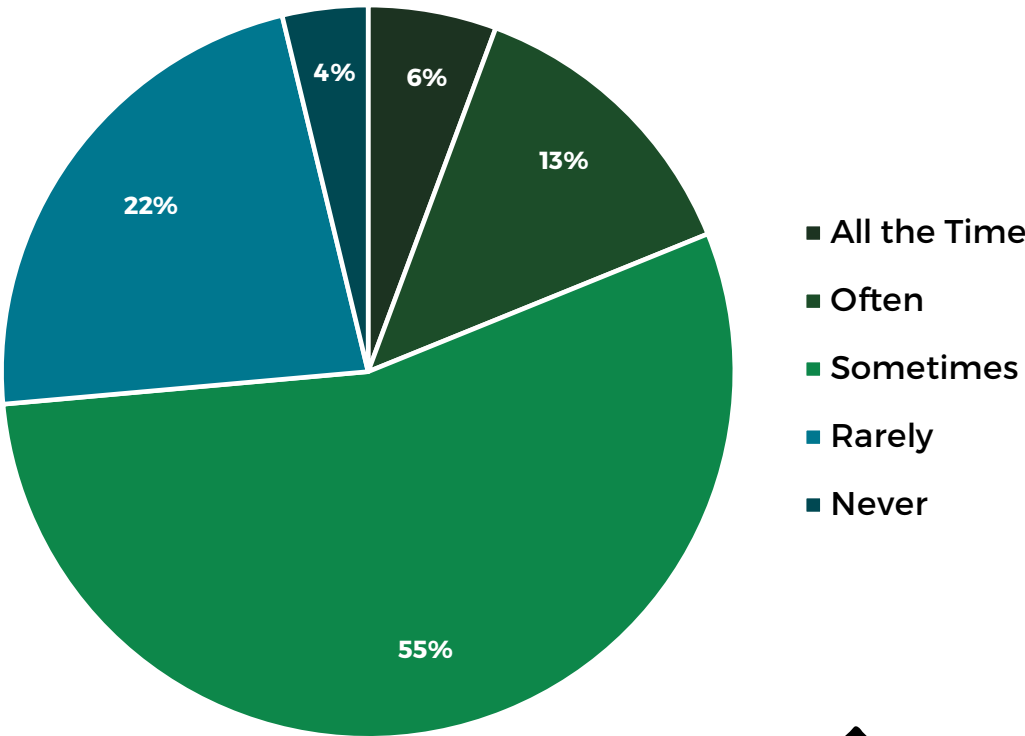


# SURVEY RESPONSES

Frequency of Home Cooking

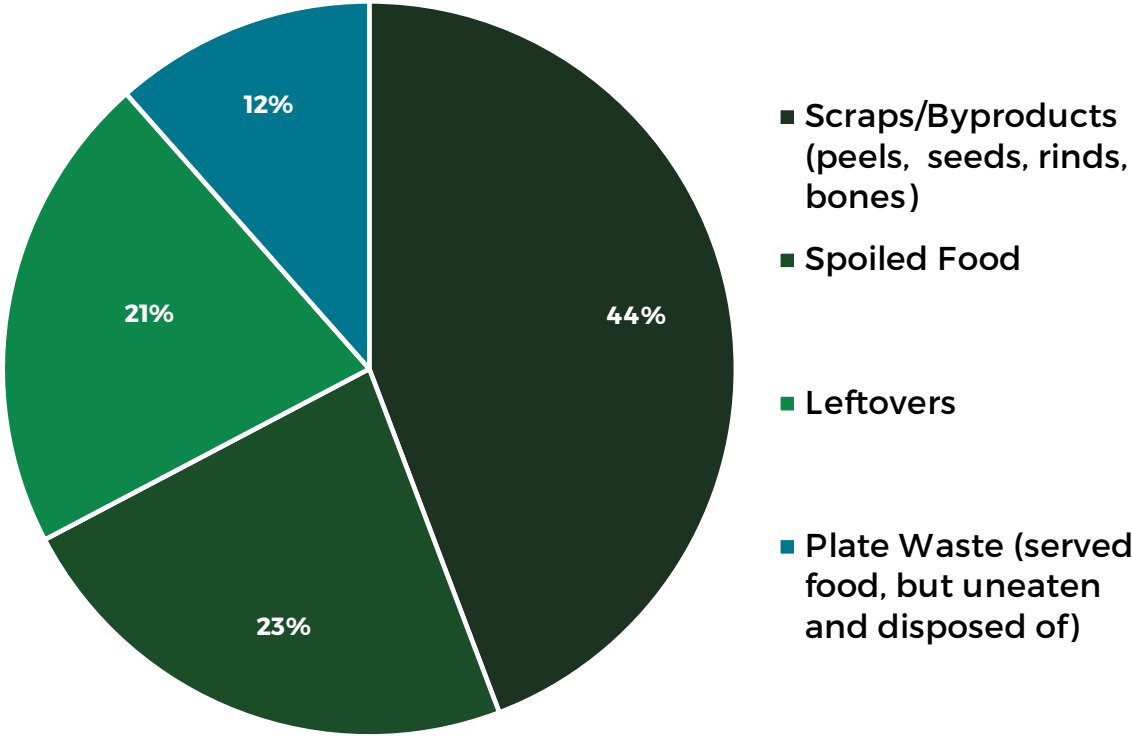


Frequency of Throwing Away Food

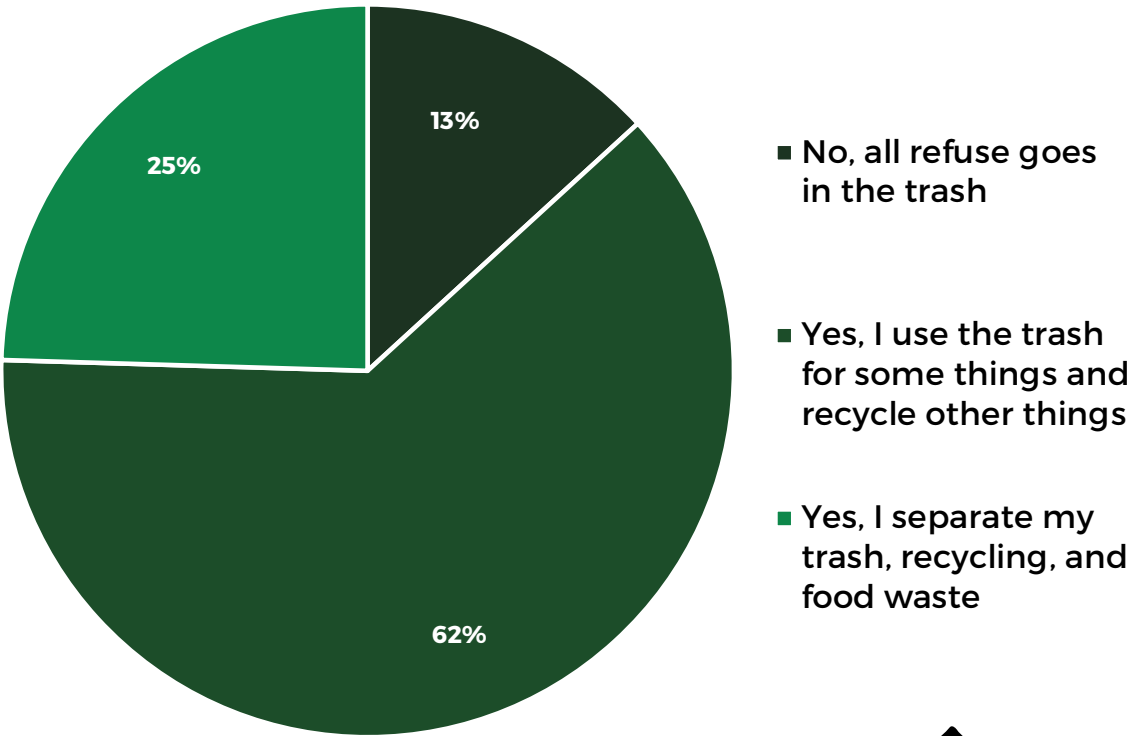


# SURVEY RESPONSES

Largest Source of Food Waste

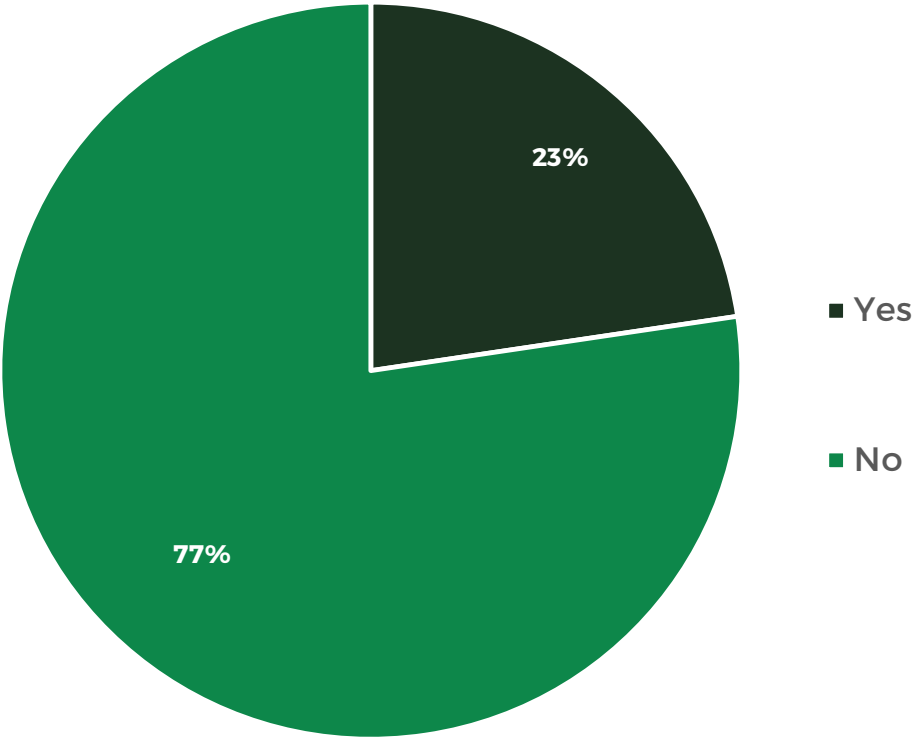


Respondents That Sort Their Garbage

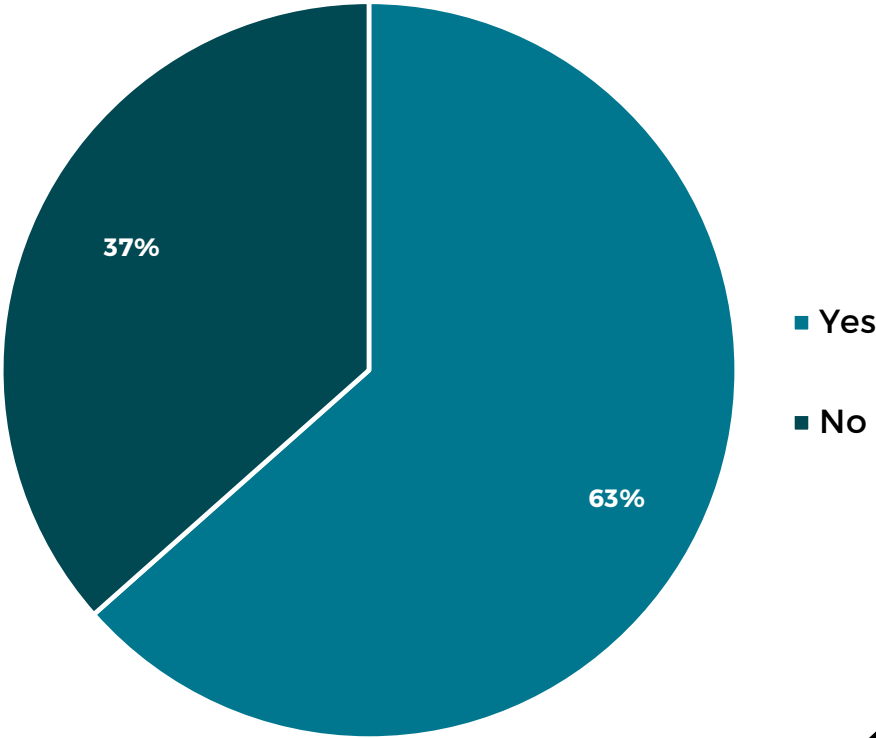


# SURVEY RESPONSES

Respondents that Compost

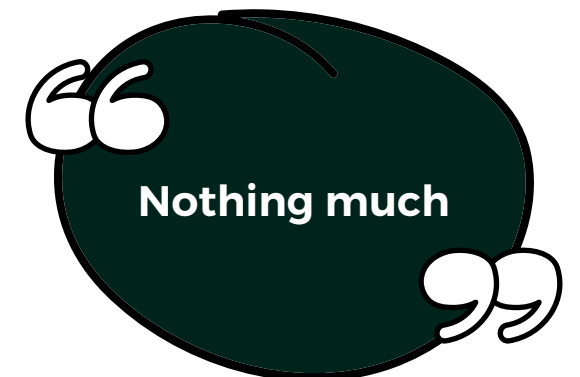


Respondents That Would Participate in a Neighborhood Waste Management Service



## WHEN ASKED "WHAT DO YOU KNOW ABOUT FOOD WASTE?"

Respondents said:



## INTERVIEW OVERVIEW

After the survey was pushed out, research was then focused on organizing interviews. Interviewees consisted of two different user groups – Northfork residents and company representatives. Interviews were conducted using the Zoom video conferencing platform, over the phone, or in person.

While the survey was important as a basis of understanding general concepts and ideas around food waste and waste management practices (as well as serve as an invitation for interviews), interviewing residents allowed for a much closer look into how residents conducted their waste management and food waste practices, what they were open to in terms of change, and important issues to them.

When interviewing company representatives (and the public affairs liaison), questions were focused on what services were currently offered, the benefits and limitations, and potential for expanding service in an entire neighborhood. Additionally, an understanding of waste management hauling and disposal methods in the greater Houston area was acquired.



# INTERVIEW ATTENDEES

## USER GROUP ONE RESIDENTS

---

**4 Individual Interviews  
with Northfork Residents**  
Recorded Zoom Interviews

**2 Meetings with Homeowners  
Association Board Members**  
In-Person Attendance

## USER GROUP TWO COMPANY REPRESENTATIVES

---

**Joe Villa**  
Co-Founder and President  
Moonshot Compost

**David Wilson**  
Co-Founder  
From Curb to Compost

**Kevin Atkinson**  
Owner  
Texas Pride Disposal

**Hannah Cobb**  
Public Affairs Liaison  
At-Large 5 City Council Office





# DISCUSSION GUIDE

## FOR NORTHFORK RESIDENT

Hello, thank you so much for your time and participating in this interview with me today. I'm Meglyn Masters, a Design Management graduate student at Savannah College of Art and Design. I am interviewing and surveying several Northfork residents and company representatives for my final project to understand people's attitudes around food waste, the overall impact of food waste, and what consumers and communities can do to prevent it. This interview should take about 30 minutes, participating is entirely voluntary, and you may choose to stop at any time. May I record for the purposes of transcription and later study? All of your information will remain confidential and anonymous.

**1. CAN YOU WALK ME THROUGH A DAY IN YOUR LIFE WITH YOUR INTERACTIONS WITH FOOD?**

**2. HOW MANY PEOPLE ARE IN YOUR HOUSEHOLD?**

**3. APPROXIMATELY HOW MUCH MONEY DO YOU SPEND ON FOOD AND GROCERIES PER MONTH?**

**4. HOW OFTEN DO YOU COOK AT HOME? HOW OFTEN DO YOU GO OUT TO EAT?**

**5. HOW OFTEN DO YOU THROW AWAY FOOD?**

**6. THE AVERAGE HOUSEHOLD LOSES APPROXIMATELY \$1600 PER YEAR ON FOOD WASTE. DOES WASTED FOOD POSE A FINANCIAL PROBLEM FOR YOU?**

**7. IS THERE ANYTHING THAT YOU DO TO MITIGATE FOOD WASTE? IS THERE ANYTHING THAT YOU DO TO DEFER FOOD WASTE FROM LANDFILLS?  
(FEED TO ANIMALS, TAKE LEFTOVERS/EXTRA TO FOOD DRIVES)**

**8. WHERE DOES YOUR LARGEST PORTION OF FOOD WASTE COME FROM?**

**9. WHAT ARE YOUR THOUGHTS ON FOOD WASTE?**

**10. DO YOU CURRENTLY PARTICIPATE IN OUR NEIGHBORHOOD'S RECYCLING PROGRAM?**

**11. DO YOU SORT YOUR GARBAGE?**

**12. HAVE YOU EVER COMPOSTED? (BACKYARD, COMMUNITY, CURBSIDE THIRD PARTY, ETC)**

**13. IF OUR NEIGHBORHOOD PROVIDED A DEDICATED FOOD WASTE MANAGEMENT SERVICE (EX. COMPOSTING) WOULD YOU PARTICIPATE?**

**14. WHAT QUALITIES WOULD A NEW NEIGHBORHOOD PROGRAM NEED FOR YOU TO PARTICIPATE?  
WHAT DO YOU THINK IS ESSENTIAL FOR PARTICIPATION SATURATION?**

**15. IS THERE ANY OTHER INFORMATION THAT YOU WOULD LIKE TO SHARE THAT YOU FEEL WOULD BE BENEFICIAL TO MY RESEARCH?**





# DISCUSSION GUIDE

FOR COMPANY REPRESENTATIVE

Hello, thank you so much for your time and participating in this interview with me today. I'm Meglyn Masters, a Design Management graduate student at Savannah College of Art and Design. I am interviewing and surveying several Northfork residents and company representatives for my final project to understand people's attitudes around food waste, the overall impact of food waste, and what consumers and communities can do to prevent it. This interview should take about 30 minutes, participating is entirely voluntary, and you may choose to stop at any time. May I record for the purposes of transcription and later study? All of your information will remain confidential and anonymous.

**1. CAN YOU WALK ME THROUGH WHAT EXACTLY HAPPENS AT YOUR FACILITY?**

**2. WHAT AREAS DO YOU SERVICE?**

**3. DOES GARBAGE GET SORTED IN YOUR FACILITY?**

**4. WHAT DOES TRANSPORTATION LOOK LIKE? WHAT DOES THE GARBAGE GO THROUGH TO GET FROM A CONSUMER HOUSEHOLD TO YOUR FACILITY, AND HOW DOES IT GET TRANSPORTED AWAY FROM YOUR FACILITY?**

**5. WHERE DOES THE GARBAGE GO? (LOCAL LANDFILL, TRANSPORTED ELSEWHERE?)**

**6. HOW DOES YOUR FACILITY DISPOSE OF GARBAGE? (INCINERATION, LANDFILL, OUTSOURCED DISPOSAL)**

**7. ARE THERE DIFFERENT DISPOSAL METHODS FOR DIFFERENT TYPES OF WASTE?**

**8. APPROXIMATELY HOW MUCH WASTE IS ORGANIC FOOD MATTER?**

**9. WHAT HAPPENS TO THE ORGANIC MATTER?**

**10. DOES THE DECAYING ORGANIC MATTER CAUSE PROBLEMS? SANITATION ISSUES?**

**11. WHAT CAN YOU TELL ME ABOUT THE SPEED IN WHICH GARBAGE DECAYS? HOW DO THE DIFFERENT CATEGORIES DIFFER?**

**12. HOW DOES DECAYING ORGANIC MATTER AFFECT THE WAY OTHER GARBAGE DECOMPOSES?**

**13. WHAT HAPPENS TO UNWANTED BYPRODUCTS OF DECOMPOSING TRASH? (FUMES, ETC.) DO YOU COLLECT IT?**

**14. WHAT KIND OF DATA DO YOU KEEP ON WASTE THAT COMES INTO YOUR FACILITY, IT'S DISPOSAL METHODS, AND DECOMPOSITION?**

**15. WHAT ELSE CAN YOU TELL ME THAT MIGHT BE BENEFICIAL TO THIS RESEARCH?**





# DISCUSSION GUIDE

FOR COMPANY REPRESENTATIVE

Hello, thank you so much for your time and participating in this interview with me today. I'm Meglyn Masters, a Design Management graduate student at Savannah College of Art and Design. I am interviewing and surveying several Northfork residents and company representatives for my final project to understand people's attitudes around food waste, the overall impact of food waste, and what consumers and communities can do to prevent it. This interview should take about 30 minutes, participating is entirely voluntary, and you may choose to stop at any time. May I record for the purposes of transcription and later study? All of your information will remain confidential and anonymous.

## FOR COMPOSTING PROGRAMS:

1. WHAT BENEFITS DOES COMPOSTING PROVIDE?
2. WHY SHOULD SOMEONE WHO ALREADY COMPOSTS STILL USE YOUR PROGRAM?
3. HOW DOES YOUR SERVICE FIT INTO OTHER WASTE DISPOSAL METHODS?
4. WHAT EXAMPLES OF LARGE SCALE COMPOSTING SERVICES ARE CURRENTLY AVAILABLE?
5. WHAT WOULD HAVE TO HAPPEN FOR YOUR BUSINESS TO BE ABLE TO SERVICES LARGER AREAS?

## FOR RECYCLING FACILITIES:

1. HOW DOES FOOD WASTE IMPACT YOUR FACILITY
2. WHAT HAPPENS WHEN YOU ENCOUNTER FOOD AND ORGANIC MATTER IN RECYCLED PRODUCTS?
3. HOW COULD A CONSUMER HELP REDUCE THE ISSUES YOU EXPERIENCE IN YOUR FACILITY?
4. WHERE TO CONTAMINATED RECYCLABLES GO IF YOU CAN'T PROCESS THEM?
5. HOW WOULD ADDING AN ADDITIONAL WASTE STREAM, LIKE COMPOSTING, IMPACT YOUR BUSINESS?





# DISCUSSION GUIDE

FOR CITY OF HOUSTON PUBLIC AFFAIRS LIAISON

Hello, thank you so much for your time and participating in this interview with me today. I'm Meglyn Masters, a Design Management graduate student at Savannah College of Art and Design. I am interviewing and surveying several Northfork residents and company representatives for my final project to understand people's attitudes around food waste, the overall impact of food waste, and what consumers and communities can do to prevent it. This interview should take about 30 minutes, participating is entirely voluntary, and you may choose to stop at any time. May I record for the purposes of transcription and later study? All of your information will remain confidential and anonymous.

1. I'VE READ A BIT ABOUT YOUR POSITION AND ABOUT COUNCIL MEMBER SALLIE ALCORN.  
CAN YOU TELL ME ABOUT THE ROLE OF THE AT-LARGE 5 POSITION? WHAT ARE YOUR RESPONSIBILITIES AS HER PUBLIC AFFAIRS LIAISON?
2. HOW DID THE CONCEPTION OF THE COMPOSTING PILOT PROGRAM COME ABOUT?
3. WHAT EFFORTS WERE MADE TO DETERMINE INTEREST? (SURVEYS/SCREENINGS)
4. HOW DID YOU GO ABOUT ORGANIZING THIS EVENT? WHAT KIND OF REQUIREMENTS DID YOU HAVE TO MEET TO HOLD THE EVENT?  
(SAFETY REGULATIONS, PERMITS, AUTHORIZATIONS)
5. WHAT WAS THE RESPONSE LIKE WITH THE INITIAL SURVEY? HOW DID YOU PUSH SURVEYS?
6. HOW DID YOU ADVERTISE THE EVENT? HOW LONG DID YOUR MARKETING CAMPAIGN RUN BEFORE THE EVENT BEGAN?
7. DID YOU HAVE TO EDUCATE PARTICIPANTS ABOUT COMPOSTING PRIOR TO THE EVENT? WHAT DID THAT LOOK LIKE?
8. SO THE EVENT WAS 6 WEEKS LONG, AND HAD 3 DROP OFF LOCATIONS THAT WERE OPERATED BY 2 COMPOSTING SERVICES.  
HOW WERE THOSE DROP OFF LOCATIONS RUN? WHEN WERE THE DROP OFFS AVAILABLE? WHAT WERE THE LOGISTICS LIKE?
9. HOW DID THOSE SPECIFIC DROP OFF LOCATIONS COME TO BE A PART OF THE PROGRAM?
10. WHAT WERE THE GOALS FOR THE PROGRAM AND HOW DID YOU MEASURE SUCCESS?
11. WHAT WAS PARTICIPATION LIKE? HOW DID YOU MEASURE PARTICIPATION? (HOUSEHOLD VS INDIVIDUAL? COMMUNITY/NEIGHBORHOOD?)
12. WHAT WAS SOME OF THE FEEDBACK YOU RECEIVED FROM THE PARTICIPANTS AFTER THE EVENT?  
DID THE PROGRAM SEEM TO HAVE AN IMPACT ON PEOPLE'S ATTITUDES AROUND FOOD WASTE?
13. WHAT WAS THE MOST DIFFICULT PART OF ORGANIZING AND PUTTING ON THIS EVENT? WHAT WAS THE MOST REWARDING PART?
14. WHAT ARE THE CITY OF HOUSTON'S FUTURE PLANS IN REGARDS TO COMPOSTING?
15. WHAT ELSE CAN YOU TELL ME THAT MIGHT BE BENEFICIAL TO THIS RESEARCH?



## INTERVIEW QUOTES

“ I just think composting is a really good thing for a lot of people because, I mean, it's not hard to do really. ”

“ I think when you have kids you do more easier stuff that generates more waste. ”

“ When the kids were younger and living with us, we probably had more waste than now, just my husband and I. ”

“ Over the last couple years looking across the country and seeing lots of these [composting] businesses pop up, I definitely feel like this is a growing trend that hopefully will continue in the right direction. ”

“ In terms of a food pick up or compost program, I think it would have to be really clear and easy on what you can and can't compost, and not be too complicated. ”

“ I guess the other question would be what do we do with it afterwards; is it something that gets used back into the neighborhood? There's a lot of places in the neighborhood, landscaping areas, that could use something like that. ”

“ I have very guilty thoughts on food waste, I hate to see food wasted. ”

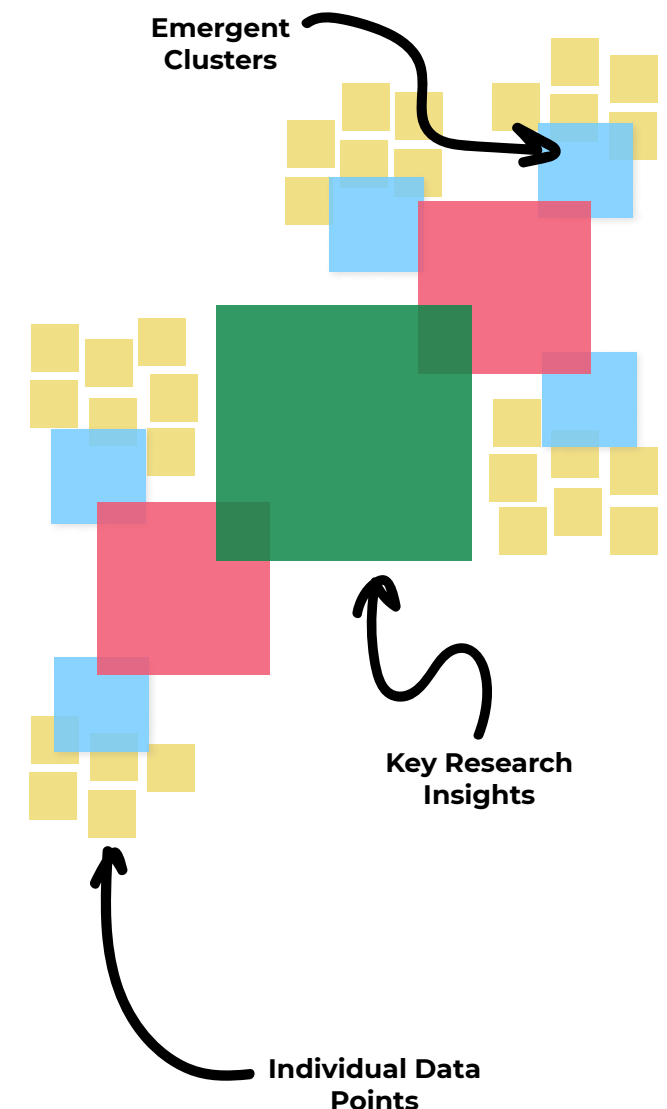
“ If they're already composting in their backyard I'd say keep going, the only difference, the benefit, we can do is, we can do all your meats and bones and dairy. ”



# RESEARCH SYNTHESIS

Upon collection of all primary research, information was gathered into individual data points. These are short phrases in the voice of the user that capture important information – sort of like building blocks, or pieces of a puzzle. The process of distilling these data points into key research insights is called "Affinity Diagramming."

Individual data points that are categorically similar are then sorted into groups of 6 to 8, called emergent clusters. These clusters are labeled still in the voice of the user and address detailed issues that matter to them. Clusters of issues are once again grouped, in twos and threes this time, by similarities to suggest key issues. These issues are finally organized in small groups once more to identify key research insights. Key insights are not in the voice of the user, but tell a core story of research.



## KEY INSIGHTS

There is a lack of awareness and education around food waste and alternative waste streams

Wasting food feels bad for people but it happens in several ways regardless

Some people actively divert waste from landfills

People know that food waste is an issue, but not much beyond that

People prevent food waste in a variety of ways

People would participate in a neighborhood composting program but have expectations of its functionality



# DESIGN CRITERIA

## MUST HAVE

THE SERVICE MUST  
HAVE CONSISTENT  
AND RELIABLE PICK  
UPS, THAT OCCURRED  
AT LEAST WEEKLY

THE CONTAINERS USED  
FOR THE SERVICE MUST  
BE ATTRACTIVE, FULLY  
SEALABLE, AND RESISTANT  
BUGS AND ANIMALS

## SHOULD HAVE

A SOLUTION MUST BE  
EASY, CONVENIENT, AND  
FAIRLY EFFORTLESS  
FOR RESIDENTS

A SOLUTION WOULD  
NEED TO ACCEPT MORE  
TYPES OF FOOD WASTE  
THAN WHAT A BACKYARD  
COMPOSTER COULD

## NICE TO HAVE

A SOLUTION WOULD HAVE  
TO BE COST EFFECTIVE

RESIDENTS WANT  
TRANSPARENCY AND  
VALIDITY – TO KNOW  
THEIR EFFORTS ARE NOT  
BEING WASTED

# USER JOURNEY MAP

## CURRENT WASTE MANAGEMENT PRACTICES

	DAILY LIFE	COLLECTION OF WASTE	INTERACTING WITH WASTE PICKUP	POST USE
Actions	Wants a clean house, needs to cook a meal, has a product that has reached the end of its life	Finished cooking, cleaning house, using a product, etc.	Its trash or recycling day	Brings in trash and recycling bins
Scenario	Needs to dispose of waste or recycling	Has trash or recycling to dispose of	Expects trash pickup to come at a specific time and day Must put out waste receptacles on the curb to be picked up	Has registered for location, and is finished disposing of food waste in receptacles
Goals	Wants a clean space Easy and convenient to dispose of waste	To have a clean and waste free home	To have waste picked up by waste management services	Be able to return personal trash and recycling receptacles to where they belong in household
Touch Points	Collects waste throughout the home to be disposed of	Disposes of waste in either the landfill bound trash, or recycling container	Brings recycling and trash receptacles to the curb for pickup	Either can or cannot bring in receptacles in a timely manner
Emotions				
Pain Points	Negative emotional response to having an unclean house	Negative emotional response to having less sustainable waste streams	Concerned about timeliness, cleanliness of surroundings, and undamaged receptacles Wonders if recycling actually gets recycled	Sees that trash or recycling has not picked up waste in a timely manner Sees waste strewn across street

PERSONAS

THE DILETTANTE



Photo credit Pexels.com

JULIE NORTON | 56  
NORTHFORK RESIDENT OF  
23 YEARS

“

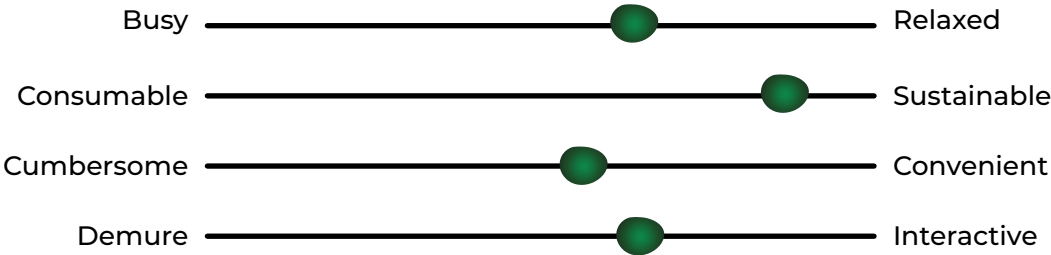
We have two children that are grown and out of the house. Years ago, my daughter did a school project about composting, and we've been backyard composting ever since. Growing up, we were taught to never waste food, and to use everything we have. It was more difficult when the kids were with us, we definitely generated more waste, but we try to be conscious of that, to only throw away what we can't compost, and use our neighborhood recycling program as much as we can.

”

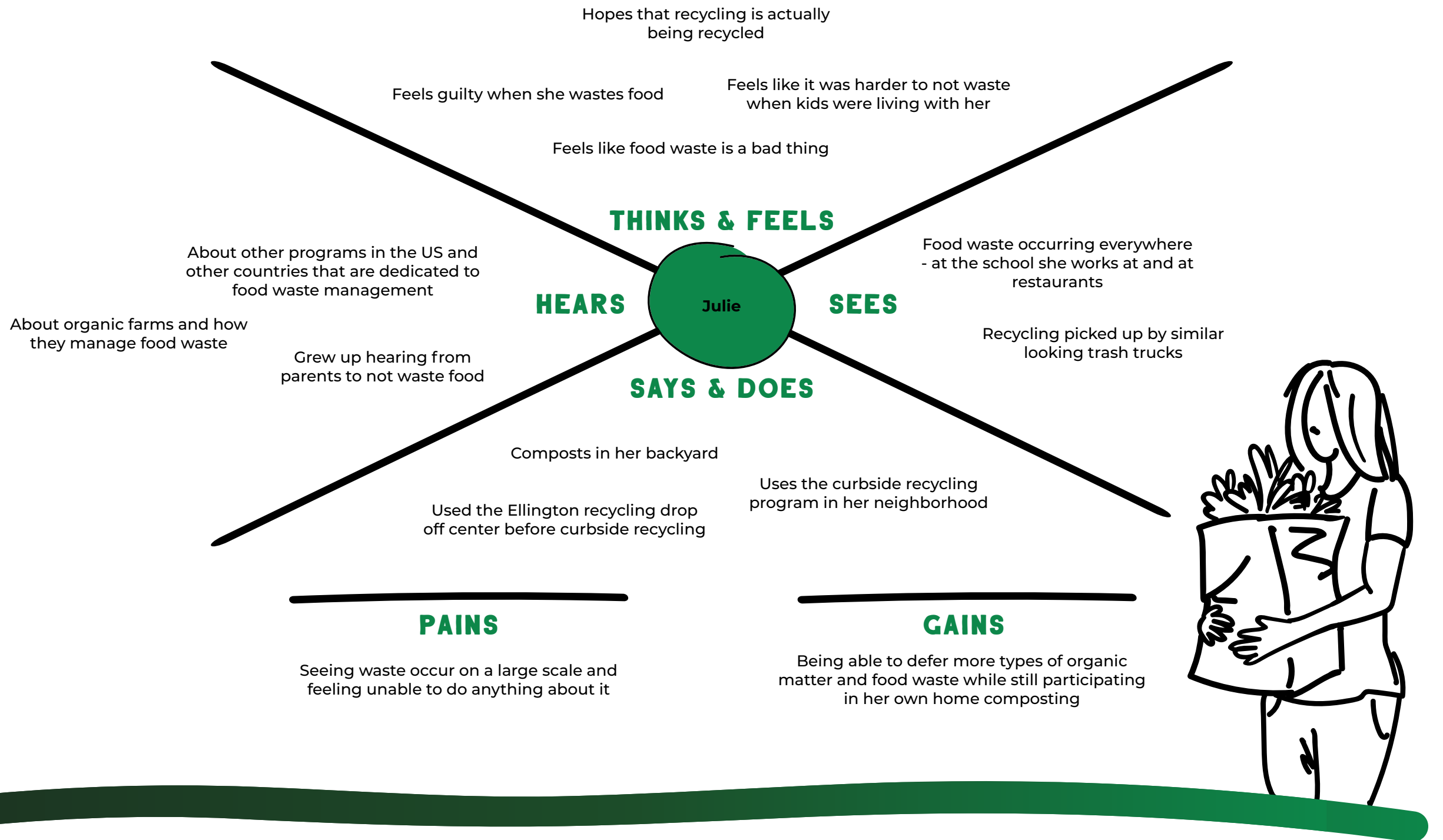
NEEDS

- A solution that accepts more types of food waste than what can be composted in her backyard
- A receptacle that keeps out animals and insects
- Knowing that her food waste is being deferred from landfill

LIFESTYLE



# EMPATHY MAPS



PERSONAS

THE FAMILY MAN



Photo credit Pexels.com

MARCUS SALAZAR | 38  
NORTHFORK RESIDENT OF  
11 YEARS

“

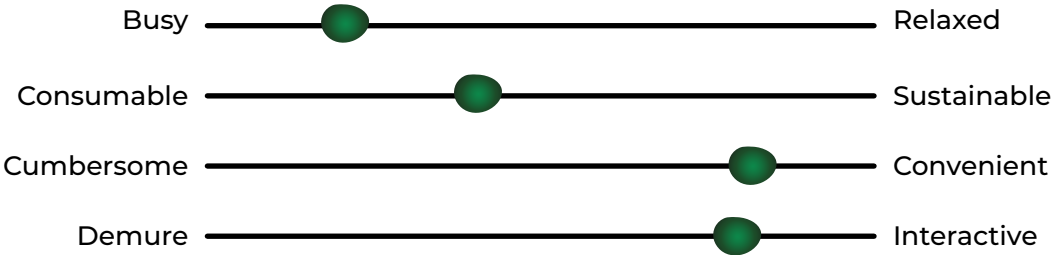
We're a family of four, with two pre-teens. I've tried to compost before, because I wanted the nutrient rich soil for a garden, but my wife felt like it was too messy and smelly. I don't think we waste all that much, but I find that sometimes we end up forgetting about some food, or end up throwing stuff away when we get busy. The recycling program we have is so easy, there's gotta be a way for composting to be easy too.

”

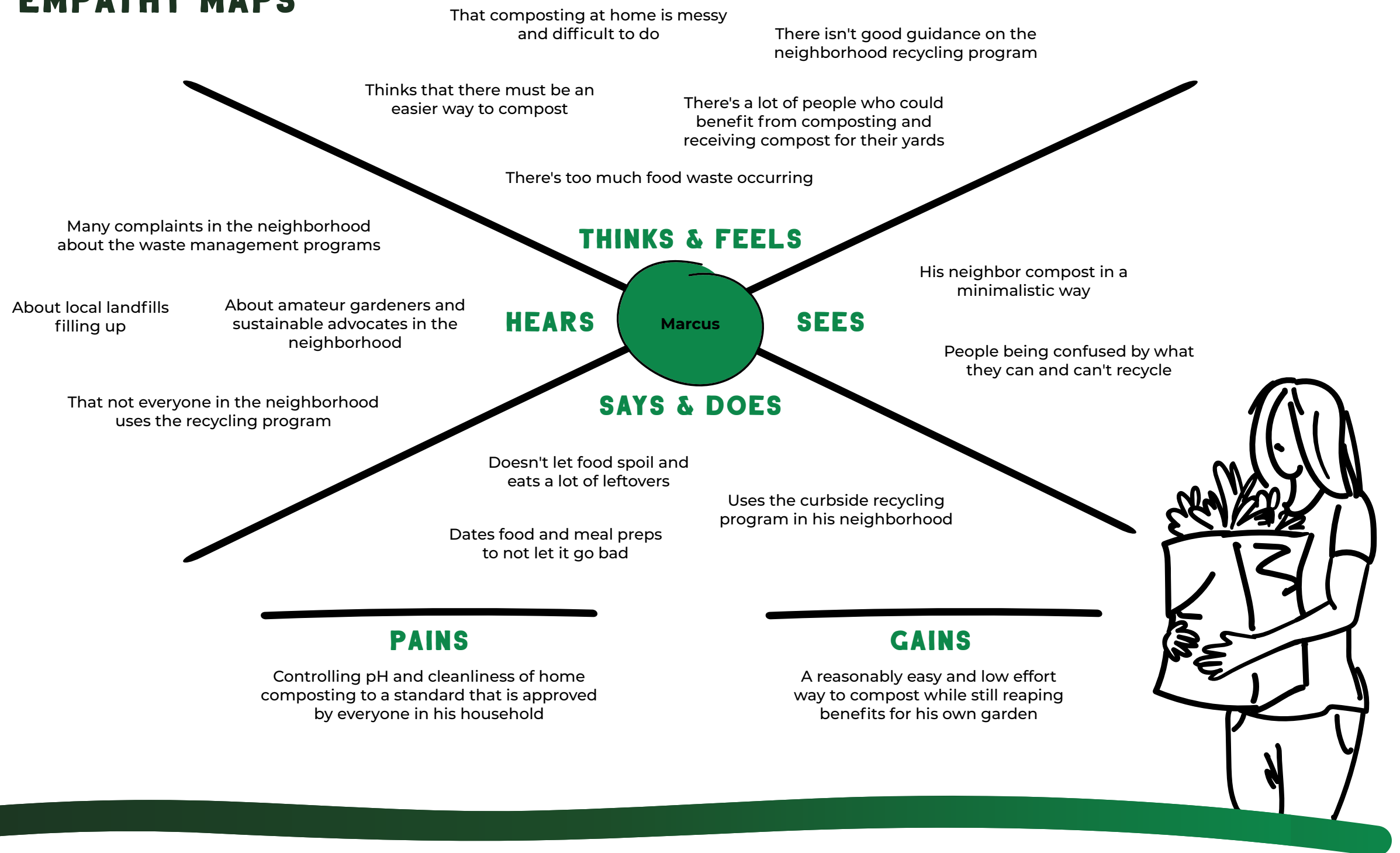
NEEDS

- A mess and smell free solution
- Convenient pick up so he doesn't have to take time away from his family
- Is interested in returned compost for his garden, or finding areas in the neighborhood that can be improved by returned compost

LIFESTYLE



# EMPATHY MAPS



PERSONAS

THE PROFESSIONAL



Photo credit Pexels.com

NINA DAHL | 41  
NORTHFORK RESIDENT OF  
7 YEARS

“

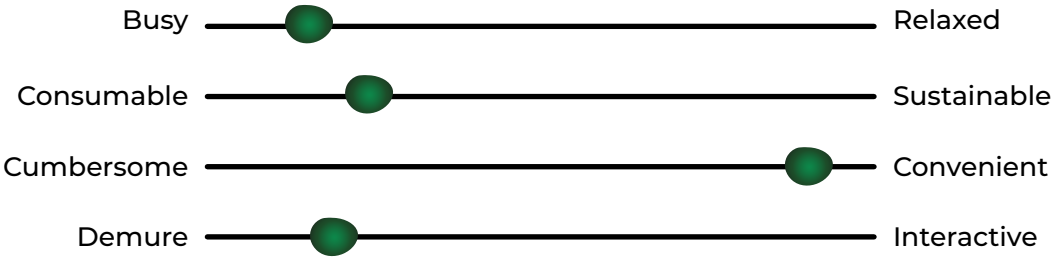
It's just me and my husband and we don't separate our garbage. I don't think we produce much waste in general. I hate that the open containers of our recycling service make such a mess on the street. I might recycle if we had better receptacles, but who knows if its actually going somewhere other than a landfill anyway.

”

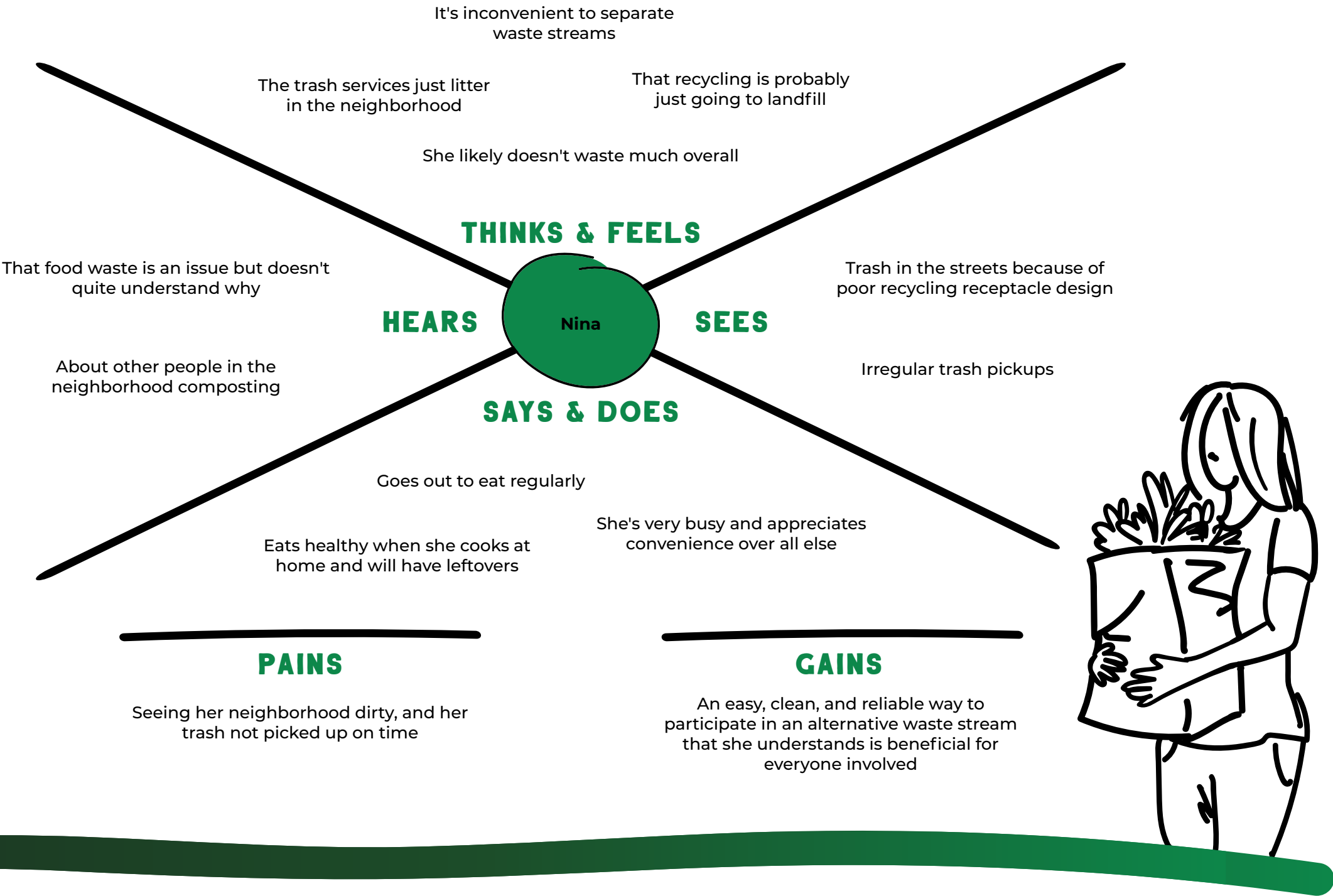
NEEDS

- A closed receptacle that would prevent waste in the street
- Extremely convenient and easy to not detract from her busy lifestyle
- Understanding of the benefits and reasons why she should participate in alternative waste streams

LIFESTYLE



# EMPATHY MAPS



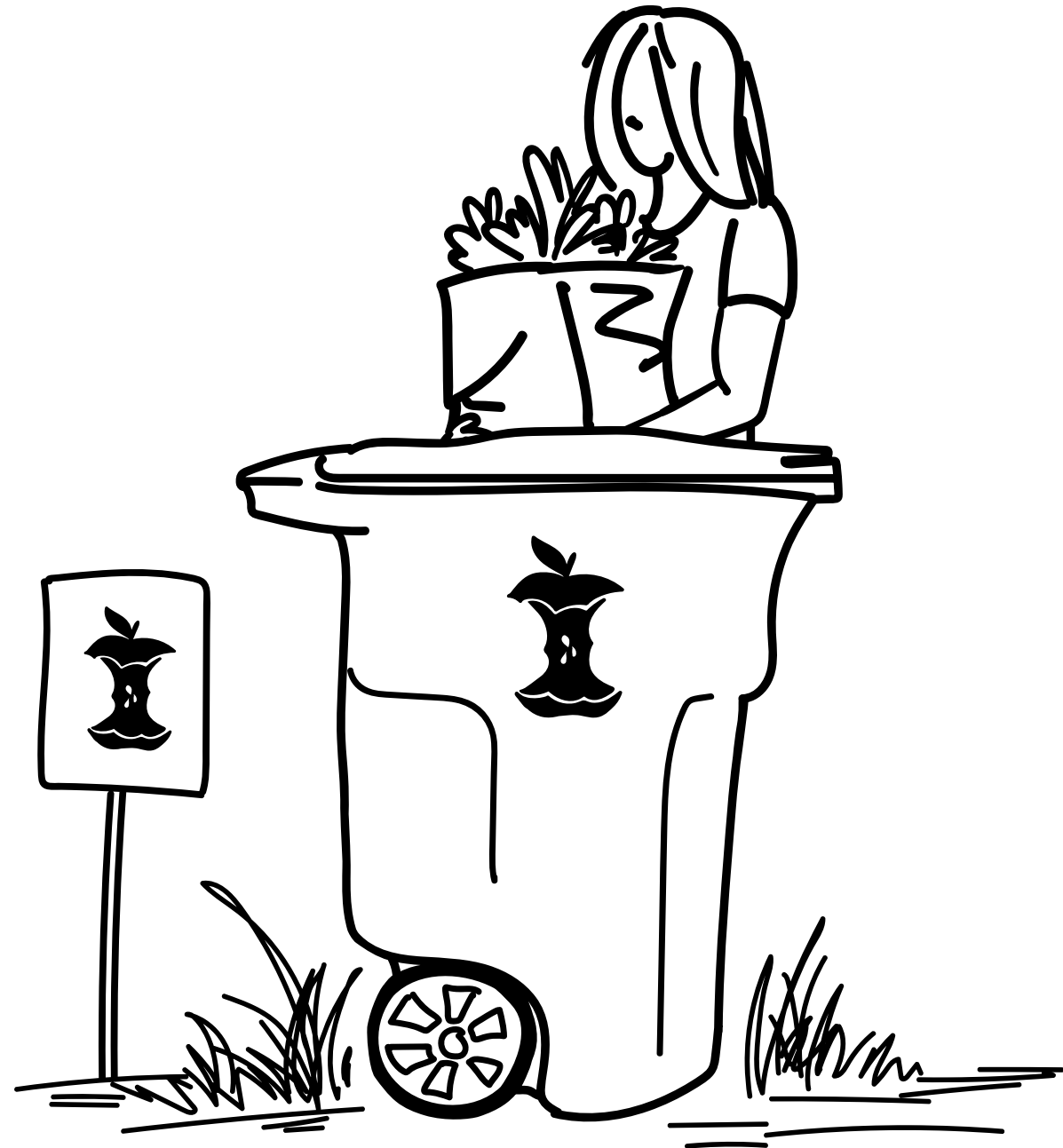


# **CONCEPT EXPLORATION**

## CONCEPT 1

### NEIGHBORHOOD DROP OFF

With a neighborhood drop off location, residents would have the benefit of having a food waste service that they could participate in while reducing overall costs to the neighborhood. This kind of service would allow residents to drop off their food waste any time, and the service would then haul off from that one location. Compared to a curbside service, this is less convenient to the resident, however, it could service the entire neighborhood while being managed by the homeowners association and association management company.



# NEIGHBORHOOD DROP OFF

## PROS

- Conveniently services the entire neighborhood without going to each home
- Reduces cost to community and resident by having some transportation dependent on the resident

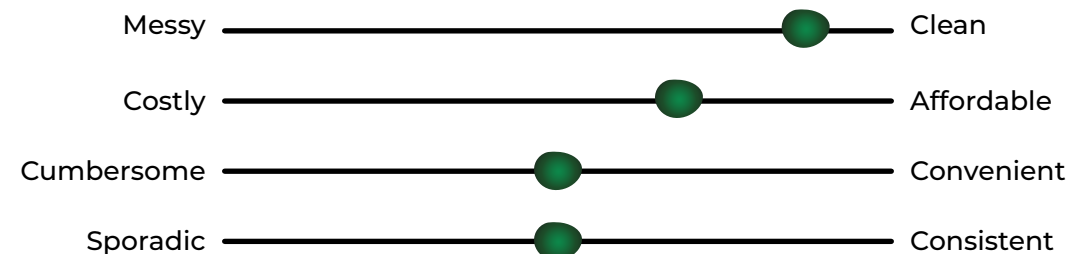
## CONS

- Residents would have to transport food waste to a local drop off location
- Potential contamination issues if people think it's just for trash

## OBSTACLES

- Needs a convenient neighborhood location that's accessible to all residents
- Might be a struggle to get awareness and education to residents for a high participation rate

## MEETS NEEDS



## CONCEPT 2

### RESIDENT OPT-IN SERVICE

An opt-in service is a type of curbside service where the neighborhood would be responsible for setting up the main contract, but residents would then have to sign up and pay a fee for the service. Similarly to the other waste management services, there would be a food waste pick up day, but only for households that have opted into the service. This would be a voluntary service, and not everyone in the neighborhood would be required to participate.

Homes that have chosen to  
opt into curbside services



# RESIDENT OPT-IN SERVICE

## PROS

- Could service the majority of the neighborhood, while slowly increasing participation rate
- Provides all of the benefits of a curbside service that services the entire neighborhood, but only to those who want to participate and at a reduced cost

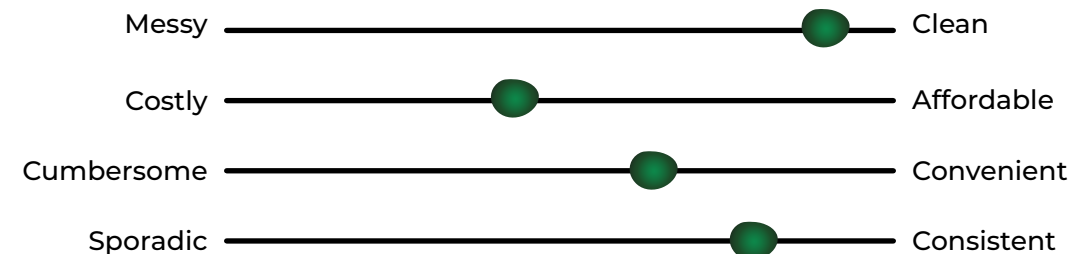
## CONS

- Cost of service would be the responsibility of the resident
- Would likely need a minimum of participants to be a cost effective solution for both the neighborhood and the resident

## OBSTACLES

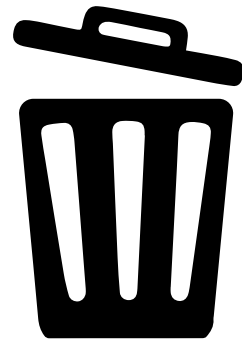
- Could be difficult to get enough participants for it to be an economical solution for the resident and neighborhood
- Might be hard to convince residents to sign up, maintain their subscription, and personally pay a fee

## MEETS NEEDS

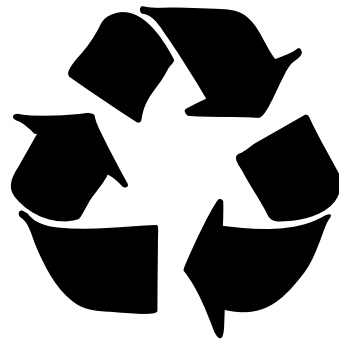


## CONCEPT 3

### NEIGHBORHOOD CURBSIDE PICK UP



Trash Curbside Pickup



Recycling Curbside Pickup



Food Waste Curbside Pickup

A neighborhood wide curbside pick up would fulfill the most design requirements established by primary research data. With a curbside service, the neighborhood homeowners association and association management company would be responsible for securing the contract – taking that responsibility away from the resident. It would operate like the other existing curbside waste services that the neighborhood uses and have a designated day of the week for residents to put the receptacle on the curb to be hauled away by a service.

# NEIGHBORHOOD CURBSIDE PICK UP

## PROS

- Would be able to service every household in the neighborhood
- Curbside service would be the most convenient for the resident, and provide appropriate receptacles for the collection of food waste

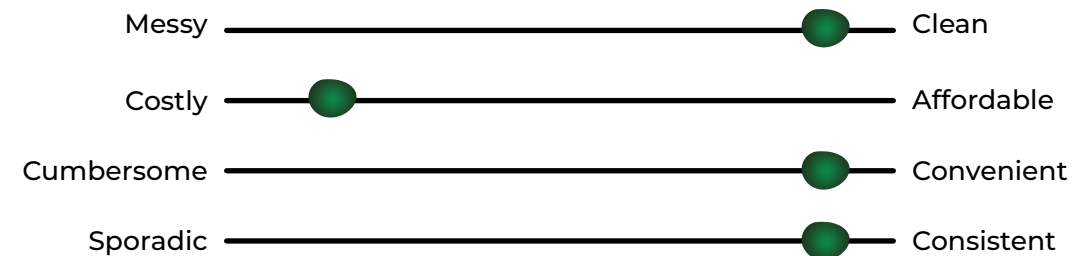
## CONS

- Likely the most expensive option, and could potentially raise annual homeowners association dues
- Requires a targeted education and awareness campaign to reach as many people for participation in the neighborhood as possible

## OBSTACLES

- Would be the most difficult to organize with a provider that could handle the size of the neighborhood
- Must get a majority of homeowners and board members on board to be an option for the neighborhood to pursue

## MEETS NEEDS



# PMI ANALYSIS

Collaborating with company representatives, homeowners association board members, and the association management company to develop a manageable, feasible, and effective solution.

	NEIGHBORHOOD DROP OFF	RESIDENT OPT-IN SERVICE	CURBSIDE PICKUP
PLUS	<div><div>+ 4</div><div>Drop off locations would be sponsored by the neighborhood</div></div> <div><div>+ 3</div><div>Efficient pick up for the service provider while still being convenient for the resident</div></div>	<div><div>+ 3</div><div>Targets individuals who are interested in participating</div></div> <div><div>+ 4</div><div>Reduced cost to both resident and homeowners association</div></div>	<div><div>+ 4</div><div>Can service every house in the neighborhood</div></div> <div><div>+ 4</div><div>Contract would be managed by the neighborhood</div></div>
MINUS	<div><div>- 2</div><div>Residents would have to travel (within the neighborhood) to the drop off location</div></div> <div><div>- 1</div><div>Bins would be in public locations, and require adequate space</div></div>	<div><div>- 4</div><div>Resident managed accounts</div></div> <div><div>- 2</div><div>Requires a minimum number of participants to be cost effective for the resident and neighborhood</div></div>	<div><div>- 3</div><div>Most expensive option for the neighborhood</div></div> <div><div>- 2</div><div>Most difficult and intensive option for service provider</div></div>
INTERESTING	<div><div>+ 2</div><div>Lets residents decide how much they want to participate while still being available</div></div> <div><div>+ 3</div><div>Residents can drop off at their own convenience rather than accumulating food waste at home</div></div>	<div><div>+ 2</div><div>Keeps track of participation rates within the neighborhood</div></div> <div><div>+ 2</div><div>Can accommodate new members in the neighborhood gradually</div></div>	<div><div>+ 4</div><div>Most convenient option for residents – acts like any other "trash day"</div></div>
	TOTAL – 8	TOTAL – 5	TOTAL – 7

## REFINED CONCEPT

### OPT-IN DROP OFF

The opt-in drop off concept is a combination of the curbside opt-in and neighborhood drop off location concepts. In this concept, two drop off receptacle locations would be established in the neighborhood, that are accessible to residents at any time. These locations would be sponsored and managed by the homeowners association.

By making the drop off locations "opt-in", the resident must sign up (but not personally pay for) the ability to use the service. This allows for tracking the use of the service, while reducing contamination by ensuring residents are educated on what is compostable material, and the operation of the service.



# OPT-IN DROP OFF SERVICE

## PROS

- Would be able to service the majority of the neighborhood
- Allows residents to participate even if they want to continue backyard composting
- Cost effective for residents and neighborhood

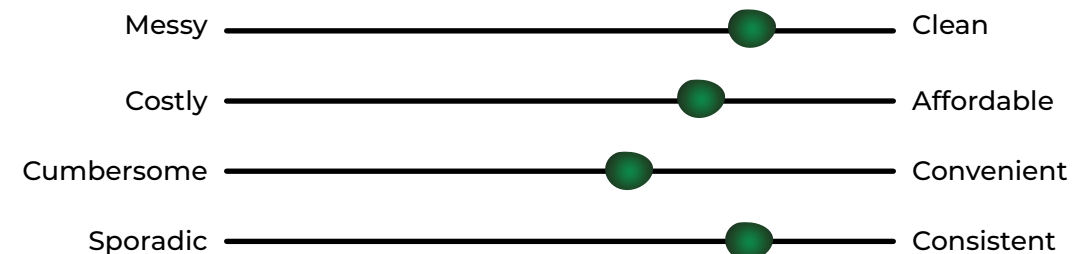
## CONS

- More inconvenient than a curbside service, since residents would have to make a delivery
- Would require permanent public locations for receptacles

## OBSTACLES

- Educating residents on the service
- Increasing participation rates

## MEETS NEEDS



# USER JOURNEY MAP

## OPT-IN DROP OFF

	DAILY LIFE	COLLECTION OF FOOD WASTE	INTERACTING WITH DROP OFF LOCATION	POST USE
Actions	<p>Wants a clean kitchen</p> <p>Meal time, needs to prepare food</p>	<p>Finished cooking and has many byproducts</p>	<p>Wants to remove food waste from home</p>	<p>Finishes using the drop off and leaves the location</p>
Scenario	<p>Finds spoiled food in fridge, freezer, or pantry</p> <p>Cooks dinner and produces food byproducts like peels</p>	<p>Needs a container and location to store food waste before disposing at the drop off location</p>	<p>Doesn't want to hold onto spoiled food</p> <p>Has a significant amount of food waste set aside</p>	<p>Has registered for location, and is finished disposing of food waste in receptacles</p>
Goals	<p>Wants a clean space</p> <p>Easy and convenient to dispose of waste</p>	<p>To segregate food waste from trash and recycling waste streams</p>	<p>To dispose of food waste sustainably, conveniently, and without mess, bugs, or smell</p>	<p>Finish using receptacles and return home</p>
Touch Points	<p>Actively doesn't put food waste in trash</p>	<p>Has/designates a container to store food waste in interim</p>	<p>Arrives at and interacts with drop off location</p> <p>Registers with location and unlocks receptacles</p>	<p>Disposes of food waste in receptacles</p> <p>Locks up receptacles</p>
Emotions				
Pain Points	<p>Don't want to go out of the way to separate waste</p> <p>Needs enough space in kitchen</p>	<p>Don't want issues with smells or bugs in house</p> <p>Wants convenient storage until drop off</p>	<p>Concerns about smells, mess, bugs, or animals</p>	<p>Needs to return home and start the process over</p>

# TESTING PROTOCOL

The refined concept was tested with 4 Northfork residents, who were not initially interviewed for primary research. First, the process of reaching key insights was explained to them, then they were shown the design requirements for solutions, and asked if they agreed. They were then shown the refined concept, and told how the process works for residents, for the homeowners association, and for the service provider. Finally, they were asked a series of questions found to the right.

1. DO YOU AGREE WITH THE DESIGN REQUIREMENTS?
2. WHICH REQUIREMENT(S) IS MOST IMPORTANT TO YOU?
3. DO YOU FEEL LIKE THIS SOLUTION MEETS THAT REQUIREMENT?
4. WOULD YOU USE THIS PROGRAM?
5. DO YOU THINK THIS PROGRAM WOULD BE EASY AND CONVENIENT ENOUGH FOR MOST RESIDENTS TO PARTICIPATE IN?
6. WOULD THIS PROGRAM AFFECT HOW YOU THINK ABOUT FOOD WASTE, AND SEGREGATE YOUR WASTE STREAMS?
7. WHAT CONCERNS DO YOU HAVE WITH A PROGRAM LIKE THIS?
8. HOW WOULD YOU LIKE TO SEE THE NEIGHBORHOOD ADAPT AND IMPROVE THIS PROGRAM IN THE FUTURE?



# USER TESTING

## USER 1

Northfork Resident of 3 months

**PERSONALLY IMPORTANT REQUIREMENTS:**

- Cost effective solution
- Ability to accept more food waste than backyard composting

**DOES THIS SOLUTION MEET YOUR REQUIREMENTS? YES**

**WOULD YOU USE THIS PROGRAM? YES**

**DO YOU THINK THIS PROGRAM WOULD BE EASY AND CONVENIENT ENOUGH FOR MOST RESIDENTS TO PARTICIPATE IN? YES**

**WOULD THIS PROGRAM AFFECT HOW YOU THINK ABOUT FOOD WASTE, AND SEGREGATE YOUR WASTE STREAMS?**  
Not necessarily, we already compost some

**CONCERNS**

- Container must be animal proof and locking
- Concerned about smells and potential mess around containers

**IMPROVEMENTS/ADAPTATIONS**

- I would wonder if we could expand to more locations, or have more containers
- I'd like to see the schools participate in it, and for it to be an educational experience for the kids

## USER 2

Northfork Resident of 30 years

**PERSONALLY IMPORTANT REQUIREMENTS:**

- Transparency and Validity
- Containers must be fully sealable, and resistant to bugs and animals

**DOES THIS SOLUTION MEET YOUR REQUIREMENTS? YES**

**WOULD YOU USE THIS PROGRAM? YES**

**DO YOU THINK THIS PROGRAM WOULD BE EASY AND CONVENIENT ENOUGH FOR MOST RESIDENTS TO PARTICIPATE IN? YES**

**WOULD THIS PROGRAM AFFECT HOW YOU THINK ABOUT FOOD WASTE, AND SEGREGATE YOUR WASTE STREAMS?**  
I already compost, so I already think about food waste

**CONCERNS**

- I think some people are lazy in the neighborhood and wouldn't participate
- I'd be concerned about the impact on the houses and the school in the areas where the drop offs were

**IMPROVEMENTS/ADAPTATIONS**

- Curbside sounds like a much easier solution, but I don't mind dropping off
- I think we could do drop offs for each street, and have one person manage the street subscription

# USER TESTING

## USER 3

Northfork Resident of 8 years

**PERSONALLY IMPORTANT REQUIREMENTS:**

- Easy, convenient, and fairly effortless for residents
- Ability to accept more food waste than backyard composting

**DOES THIS SOLUTION MEET YOUR REQUIREMENTS? YES**

**WOULD YOU USE THIS PROGRAM? YES**

**DO YOU THINK THIS PROGRAM WOULD BE EASY AND CONVENIENT ENOUGH FOR MOST RESIDENTS TO PARTICIPATE IN? YES**

**WOULD THIS PROGRAM AFFECT HOW YOU THINK ABOUT FOOD WASTE, AND SEGREGATE YOUR WASTE STREAMS?**  
If I'm participating, of course I'd have to think about it.

**CONCERNS**

- I'd be concerned about the cost and about the frequency and reliability of service
- I'd worry that, depending on what gets composted, the bins could get really gross and smelly really quick

**IMPROVEMENTS/ADAPTATIONS**

- If other cities are doing a curbside model then maybe we should emulate
- I think it's ideal to recover as much as possible for the neighborhood, either in compost or economically

## USER 4

Northfork Resident of 25 years

**PERSONALLY IMPORTANT REQUIREMENTS:**

- Easy, convenient, and fairly effortless for residents
- Containers must be fully sealable, and resistant to bugs and animals

**DOES THIS SOLUTION MEET YOUR REQUIREMENTS? YES**

**WOULD YOU USE THIS PROGRAM? YES**

**DO YOU THINK THIS PROGRAM WOULD BE EASY AND CONVENIENT ENOUGH FOR MOST RESIDENTS TO PARTICIPATE IN? I HOPE**

**WOULD THIS PROGRAM AFFECT HOW YOU THINK ABOUT FOOD WASTE, AND SEGREGATE YOUR WASTE STREAMS?**  
Absolutely. I already have hardly any trash or food waste, but you just have to start somewhere. Maybe food waste is the next big thing.

**CONCERNS**

- I would think it would need to be a locked container and fully sealable to make sure animals don't get in
- The containers are important to make it safe for everyone

**IMPROVEMENTS/ADAPTATIONS**

- I want this program to start right now
- I think curbside would be great, but for people who are interested, drop off isn't a big deal



# **FINAL DESIGN TO MARKET**

# OVERVIEW

## MISSION STATEMENT

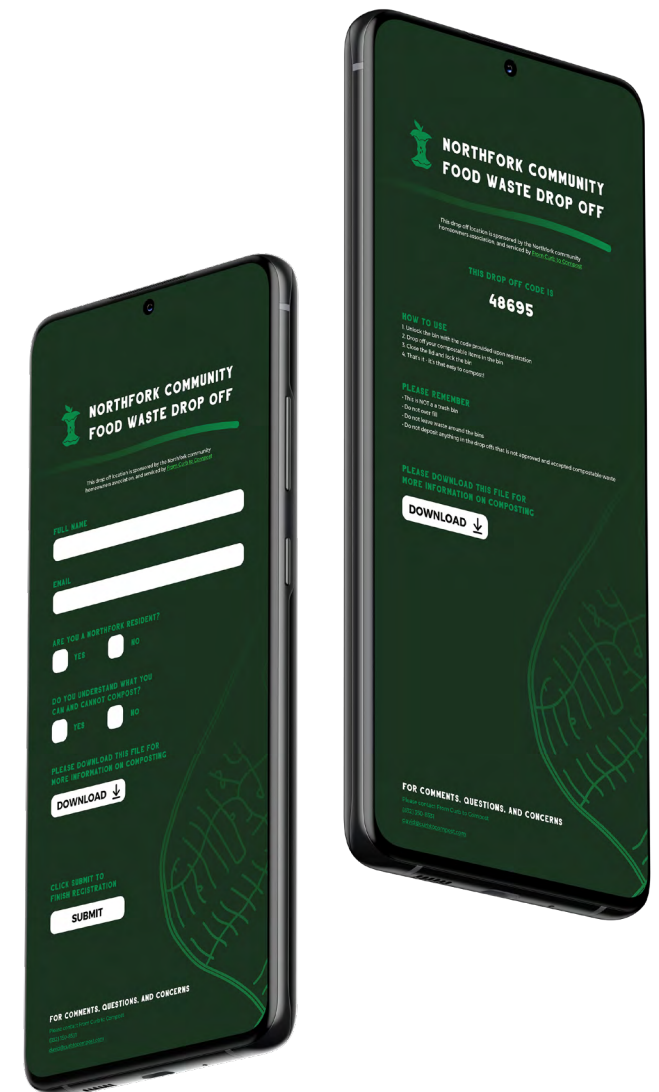
The mission of the Northfork Community food waste drop off program is to create a more sustainable neighborhood through a community of educated and aware residents.

## VISION STATEMENT

The program vision is to offer residents a convenient, easy, and rewarding way to participate in food waste management and composting within their community.

## AUDIENCE

The immediate audience for the Northfork Community food waste drop off program will be the Northfork residents. In the future, this program can be scaled or duplicated to address the needs of nearby communities in Clear Lake, the greater Houston area, and beyond.



# VISUAL IDENTITY

## COLORS

**SEA GREEN**  
HEX #0D874A

**FOREST GREEN**  
HEX #1C4D29

**PHTHALO GREEN**  
HEX #1C3321

## TYPOGRAPHY

**ANTHOLOGY**

**HEADING REGULAR 24 PT**

**SUB HEAD REGULAR 18 PT**

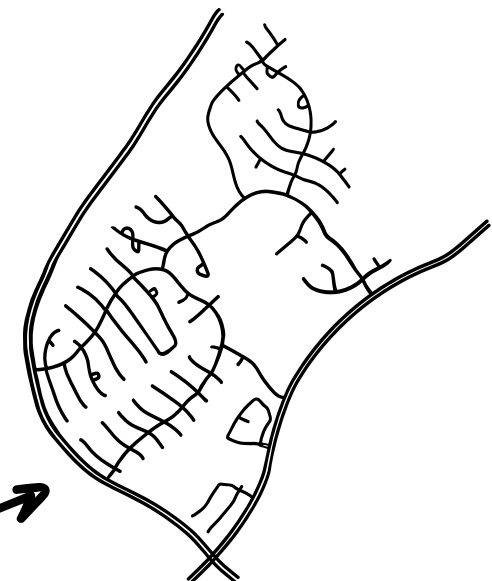
Montserrat

Body Copy Regular 16 pt

Body Small Regular 10 pt

**Caption Bold 10 pt**


## ICONOGRAPHY



Map of Northfork

PROGRAM SIGNAGE

ONLINE REGISTRATION



**NORTHFORK COMMUNITY  
FOOD WASTE DROP OFF**

This drop off location is sponsored by the Northfork community homeowners association, and serviced by [From Curb to Compost](#).

FULL NAME

EMAIL

ARE YOU A NORTHFORK RESIDENT?

☐ YES ☐ NO

DO YOU UNDERSTAND WHAT YOU CAN AND CANNOT COMPOST?

☐ YES ☐ NO

PLEASE DOWNLOAD THIS FILE FOR MORE INFORMATION ON COMPOSTING


[DOWNLOAD](#)

CLICK SUBMIT TO FINISH REGISTRATION

[SUBMIT](#)

FOR COMMENTS, QUESTIONS, AND CONCERNS

Please contact From Curb to Compost  
(832) 350-8531  
david@curbtocompost.com



**NORTHFORK COMMUNITY  
FOOD WASTE DROP OFF**

This drop off location is sponsored by the Northfork community homeowners association, and serviced by [From Curb to Compost](#).

THIS DROP OFF CODE IS  
**48695**

HOW TO USE

1. Scan the QR code to register  
2. Unlock the bin with the code provided upon registration  
3. Drop off your compostable items in the bin  
4. Close the lid and lock the bin  
5. That's it - it's that easy to compost!

PLEASE REMEMBER

- This is NOT a trash bin  
- Do not over fill  
- Do not leave waste around the bins  
- Do not deposit anything in the bins that is not accepted compostable waste

PLEASE DOWNLOAD THIS FILE FOR MORE INFORMATION ON COMPOSTING

[DOWNLOAD](#)

FOR COMMENTS, QUESTIONS, AND CONCERNS

Please contact From Curb to Compost  
(832) 350-8531  
david@curbtocompost.com

BIN LABELS



**NORTHFORK COMMUNITY  
FOOD WASTE DROP OFF**



HOW TO USE

1. Scan the QR code to register  
2. Unlock the bin with the code provided upon registration  
3. Drop off your compostable items in the bin  
4. Close the lid and lock the bin  
5. That's it - it's that easy to compost!

COMPOSTABLE  
FOOD WASTE ONLY

THIS IS NOT  
A TRASH CAN

FOR COMMENTS, QUESTIONS, AND CONCERNS

Please contact From Curb to Compost  
(832) 350-8531  
david@curbtocompost.com



HOW TO USE

1. Scan the QR code to register  
2. Unlock the bin with the code provided upon registration  
3. Drop off your compostable items in the bin  
4. Close the lid and lock the bin  
5. That's it - it's that easy to compost!

PLEASE REMEMBER

- This is NOT a trash bin  
- Do not over fill  
- Do not leave waste around the bins  
- Do not deposit anything in the bins that is not accepted compostable waste



FOR COMMENTS, QUESTIONS, AND CONCERNS

Please contact From Curb to Compost  
(832) 350-8531  
david@curbtocompost.com

PROGRAM HANDOUT



**NORTHFORK COMMUNITY  
FOOD WASTE DROP OFF**

This drop off location is sponsored by the Northfork community homeowners association, and serviced by [From Curb to Compost](#).



HOW TO USE

1. Use the QR code to the right, or click [here](#) to register  
2. Unlock the bin with the code provided upon registration  
3. Drop off your compostable items in the bin  
4. Close the lid and lock the bin  
5. That's it - it's that easy to compost!

ACCEPTED ITEMS

Vegetables	Bones
Fruit	Shells
Citrus	Coffee Grounds
Breads	Teabags (no staple)
Grains	Baking Supplies
Seeds	Herbs
Meat	Spices
Dairy	
Grass Clippings & Leaves	
Small & Thin Brush	
Household Plants and Soil	
Other Inert Organic Debris Not Treated With Pesticides	
Food-soiled Paper Products (Napkins, Muffin Liners, Coffee Filters)	
Pet Hair & Pet Food	
Certified Compostable Items	

PROHIBITED ITEMS

Any Inorganic Materials	Twist Ties
Plastics	Rubber Bands
Plastic Wraps	Stickers
Styrofoam	Large Brush
Wax Paper	Sticks
Metals	Cardboard
Glass	Chemicals
Pet Waste	Packaging
Diapers	

FOR COMMENTS, QUESTIONS, AND CONCERNS

Please contact From Curb to Compost  
(832) 350-8531  
david@curbtocompost.com

DOWNLOADABLE



**NORTHFORK COMMUNITY  
FOOD WASTE DROP OFF**

This drop off location is sponsored by the Northfork community homeowners association, and serviced by [From Curb to Compost](#).



PLEASE REMEMBER

- This is NOT a trash bin  
- Do not over fill  
- Do not leave waste around the bins  
- Do not deposit anything in the bins that is not accepted compostable waste  
- Close the lid and lock the bin when you are finished with your drop off

ACCEPTED ITEMS

Vegetables	Bones
Fruit	Shells
Citrus	Coffee Grounds
Breads	Teabags (no staple)
Grains	Baking Supplies
Seeds	Herbs
Meat	Spices
Dairy	
Grass Clippings & Leaves	
Small & Thin Brush	
Household Plants and Soil	
Other Inert Organic Debris Not Treated With Pesticides	
Food-soiled Paper Products (Napkins, Muffin Liners, Coffee Filters)	
Pet Hair & Pet Food	
Certified Compostable Items	

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Any Inorganic Materials	Twist Ties
Plastics	Rubber Bands
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Styrofoam	Large Brush
Wax Paper	Sticks
Metals	Cardboard
Glass	Chemicals
Pet Waste	Packaging
Diapers	

FOR COMMENTS, QUESTIONS, AND CONCERNS

Please contact From Curb to Compost  
(832) 350-8531  
david@curbtocompost.com

LOCATION SIGNAGE



**NORTHFORK COMMUNITY FOOD WASTE DROP OFF**

ACCEPTED ITEMS

Vegetables	Bones
Fruit	Shells
Citrus	Coffee Grounds
Breads	Teabags (no staple)
Grains	Baking Supplies
Seeds	Herbs
Meat	Spices
Dairy	
Grass Clippings & Leaves	
Small & Thin Brush	
Household Plants and Soil	
Other Inert Organic Debris Not Treated With Pesticides	
Food-soiled Paper Products (Napkins, Muffin Liners, Coffee Filters)	
Pet Hair & Pet Food	
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PROHIBITED ITEMS

Any Inorganic Materials	Twist Ties
Plastics	Rubber Bands
Plastic Wraps	Stickers
Styrofoam	Large Brush
Wax Paper	Sticks
Metals	Cardboard
Glass	Chemicals
Pet Waste	Packaging
Diapers	

HOW TO USE

1. Use the QR code on the bin to register  
2. Unlock the bin with the code provided upon registration  
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4. Close the lid and lock the bin  
5. That's it - it's that easy to compost!

PLEASE REMEMBER

- This is NOT a trash bin  
- Do not over fill  
- Do not leave waste around the bins  
- Do not deposit anything in the bins that is not approved and accepted compostable waste

FOR COMMENTS, QUESTIONS, AND CONCERNS

Please contact From Curb to Compost  
(832) 350-8531 | david@curbtocompost.com

This drop off location is sponsored by the Northfork community homeowners association, and serviced by From Curb to Compost.



Part 6: Final Design to Market

Meglyn Masters | DMGT 748 Final Project | Spring 2022 | Professor Christine Miller | 77

SITE MOCKUP



# BUSINESS MODEL CANVAS



# IMPLEMENTATION PLAN

## JUNE 2022

Attend next HOA board meeting.  
Present this process book and potential solutions to the board.  
Make introductions between HOA board and From Curb to Compost.

## 2 MONTHS

Develop marketing and education campaign for Northfork composting pilot program. Push out to residents prior to program start to get as much participation as possible.

## 4+ MONTHS

Implement Northfork Community Food Waste Drop Off program. Install locations and signage. Inform residents when program becomes available. Continue to gather feedback and participation, and make improvements when possible.

## 1 MONTH

Gain approvals for next steps in terms of Northfork composting pilot program, and subsequent neighborhood sponsored drop off program.

## 3 MONTHS

Execute Northfork composting pilot program. Collect data on resident participation and feedback on experience and opportunities for improvement.





**CONCLUSION**

# REFLECTION

Pursuing a Masters of Arts in Design Management at SCAD has challenged me to re-think my views and understanding of the world. I came into this program with preconceptions about design, how the world works, and even myself. What I have learned at SCAD, through the process of design management, has caused me to make changes and improvements in my life that I had not realized were even important or previously known to me prior to this experience.

My husband and I have been home composting for approximately 3 years, maybe a little more. We used to have a small two barrel composter that rotates, and a little over a year ago now, we upgraded to a much larger 3-stage continuous composter. I don't remember exactly why we initially started our composting journey; I do remember that we had some influencers – my mother-in-law has been composting for a long time. I had never heard of it before I met her.

One of my first projects at SCAD was essentially focused on gathering secondary research and creating a report of the findings. I chose to do this research project on recycling because I thought it was a good and positive thing; I quickly learned that, while a noble pursuit, there were many issues with modern recycling, including contamination, resource use, environmental and economic problems, and more. More than anything, this caused me to look at who I was as a consumer, and adjust how I interacted with things and what the end of life looked like for it; many things are just not recyclable, and I didn't want to contribute tons of material to landfills. Thus began a low waste journey for myself and my household.

The next logical step after reducing overall consumed goods (and sending less stuff to landfill) was to understand our relationship with food and food waste. In my second year at SCAD, I was in a group that conducted a food waste project. That project focused on the issue as a whole, instead of developing a solution for a specific audience. However, it fueled my interest in the subject and was part of the initial conception of topic planning for my final project.

Honestly, I want composting to be implemented in my neighborhood because I truly want to use it, and I believe its a good thing for us as a community to participate in. I have seen examples of large scale food waste management and composting in almost every country I've been to, and several other US cities. I absolutely used this quarter and my masters final project as a way to study an observable problem and create research-backed solutions to improvements that I want to see made in my community. But isn't that essentially Design Management?

*Meglyn Masters*





Photo credits: Meglyn Masters and Alison Smith



# **BIBLIOGRAPHY**

# ANNOTATED BIBLIOGRAPHY

## **Feeding America. (2021).**

How We Fight Food Waste in the US. Retrieved from Feeding America.

This article address the who, what, where, why and how of food waste in America. It gives the current facts around food waste issues, both environmentally and economically, and offers up solutions by organizational partnerships.

## **Food and Agriculture Key Facts and Figures. (2013).**

Food Wastage Footprint Impacts on Natural Resources. Rome: Food and Agriculture Key Facts and Figures.

This study is a global accounting of food waste globally and along the entire supply chain line. Performed by the Food and Agriculture Organization, it discusses food waste when it happens and how it is managed as waste. Notably, it talks about the loss of land and resources during supply and production, on top of the environmental impact from the wastage.

## **Food and Agriculture Organization of the United Nations. (2011).**

Global Food Losses and Food Waste. Rome: Food and Agriculture Organization of the United Nations.

Here, the study address the impact food waste has on low income countries and regions, and the nature of why food waste happens in these areas. This states that there is a large culture difference in food waste practices between high and low income regions because of consumer behavior vs financial and technical limitations.

## **Food Print. (2021).**

The Problem of Food Waste. Retrieved from Food Print.

This resource addresses where it happens and the impact of food waste along the production and supply chain. It discusses in depth the types of waste that is happening at each supply chain step, the reasons behind it and the associated environmental issues.

## **Ishangulyyev, R., Kim, S., & Lee, S. (2019, July 19).**

Understanding Food Loss and Waste—Why Are We Losing and Wasting Food? Retrieved from National Center for Biotechnology Information.

An intensive study that documents food loss and waste in relation to global food security across the entire supply chain. It discusses the impacts food waste has on environmental and agricultural issues, but also business and logistics. It finishes the study for potential solutions.

## **Kolko, J. (2011).**

Exposing the Magic of Design. New York: Oxford University Press.

This book discusses the methodology behind design thinking and dissemination of research. It provides theory and business value while giving guidelines for conducting contextual design research.

## **Kumar, V. (2012).**

101 Design Methods. New York: John Wiley & Sons.

Planning for innovation is the focus of this publication. In this book, Kumar approaches design methods by giving tools for fostering collaboration and a game play for the innovation process in both business and design.

## **Lockwood, T. (2009).**

Design Thinking: Integrating Innovation, Customer Experience and Brand Value. New York: Allworth Press.

This book draws on the experience of design professionals as case studies to talk about user experience and design as a process and way of thinking.

## **Project Drawdown. (2021, August).**

Technical Summary Reduced Food Waste. Retrieved from Project Drawdown:

A technical summary addressing research methodology of food waste studies and emissions results of studies done on the impact of food loss and waste. It discusses the environmental, economic and social cost of waste globally.

## **ReFED. (2021).**

Food Waste Overview. Retrieved from ReFED.

Literature from a non profit organization dedicated to solving food waste. It address what food waste is, the impact, food insecurity and the global hunger crisis. Additionally, it discusses barriers to solution implementation, as well as government policy.

## **Save the Food. (2021).**

Save the Food. Retrieved from Save the Food.

This website provides information surrounding household food waste and prevention methods, including meal planning and recipes to help consumers understand their own practices around food.

# ANNOTATED BIBLIOGRAPHY

**UN Environment Programme. (2021, March 4).**

Food Waste Index Report 2021. Nairobi: UN Environment Programme.

In this study, they present comprehensive analysis on food waste globally, and discusses a measurement methodology at the household level. It references the Food Waste Index, and tracks changes over time with reporting and progress. Additionally, it discusses methods of measurements and policymaking.

**UN Environment Programme. (2021).**

Promoting Sustainable Lifestyles. Retrieved from UN Environment Programme.

This article discusses industries responsible for waste and large environmental impacts. It also talks about sustainable living practices and how the next generation can improve by creating positive behavioral change and bringing additional awareness about the issues surrounding current waste practices.

**United States Environmental Protection Agency. (2018).**

2018 Wasted Food. EPA. Retrieved from United States Environmental Protection Agency.

Here the government organization lists how food waste can be managed by various practices from something as commonplace as landfilling, to more ideal practices such as biochemical processes and composting. It also identifies the various sectors that produce food waste, where their food waste ends up, and the managed pathways.

**United States Environmental Protection Agency. (2021).**

Basic Information about Landfill Gas. Retrieved from United States Environmental Protection Agency.

This page addresses the issues with landfills and the gas byproducts that occur due to decomposition of organic matter being buried. It discusses the collection and treatment of landfill gases, and the current associated projects.

**United States Environmental Protection Agency. (2021, September 21).**

Facts and Figures about Materials, Waste and Recycling. Retrieved from United States Environmental Protection Agency.

This breaks down different waste stream practices that are managed from various food generation areas. It gives the numbers and percentages for management pathways and gives suggestions on best practices for low environmental impact.

**United States Environmental Protection Agency. (2021).**

Reducing the Impact of Wasted Food by Feeding the Soil and Composting. Retrieved from United States Environmental Protection Agency.

Here the EPA addresses the food recovery hierarchy and discusses the benefits of composting. It also gives a beginner's guide on home and business composting, and shares success stories on businesses that have successfully implemented the practice.

**US Department of Agriculture. (2021).**

Food Waste FAQs. Retrieved from US Department of Agriculture.

Here the government website addresses the goals for food waste reduction in the USA over the next two decades. It also defines what food waste is, and how to mitigate it across the entire supply chain.

**World Wildlife Foundation. (2021).**

Fight climate change by preventing food waste. Retrieved from World Wildlife Foundation.

This non-profit organization discusses the methods around consumers reducing their food waste, and gives the highlights about why food waste is bad environmentally, in a humanitarian sense, and economically.



# ADDITIONAL SOURCES

**City of Houston Office of Sustainability. (2022).**

Climate Action Plan. Green Houston TX.

**Clear Lake Area Chamber of Commerce. (2022).**

Clear Lake Area Chamber of Commerce – Serving Bay Area Houston Since 1962. Clear Lake Area.

**Content, S. (2022, March 9).**

The Enormous Scale of America's Food Waste. Visual Capitalist.

**Desjardins, J. (2018, August 14).**

Visualizing What the World Thinks About Waste. Visual Capitalist.

**From Curb to Compost. (2022).**

From Curb to Compost – Curbside Composting.

**Greene, C. (2017, June 1).**

Clear Lake City, TX. Texas State Historical Association.

**Houston City Council. (2022).**

At-Large Position 5: Composting Pilot Program. City of Houston.

**McGuinness, D. (2022, April 19).**

Houston's trash trucks are constantly behind schedule. Why? Houston Chronicle.

**MOONSHOT COMPOSTING. (2022, April 26).**

MOONSHOT Composting | Houston Compost Service & Pick Up.

**Neufeld, D. (2020, February 10).**

The Carbon Footprint of the Food Supply Chain. Visual Capitalist.

**Poon, L. (2021, October 14).**

The Quest to Make Composting as Simple as Trash Collection. Bloomberg.

**Solid Waste Management. (2022a).**

Composting Solid Waste Management Department. City of Houston.

**Solid Waste Management. (2022b).**

Solid Waste Management Department Rules and Regulations. City of Houston.

**Thomas, S. (2021, March 28).**

Residential Composting. Energy-Shrink.Com.

**Zero Waste Houston. (2022).**

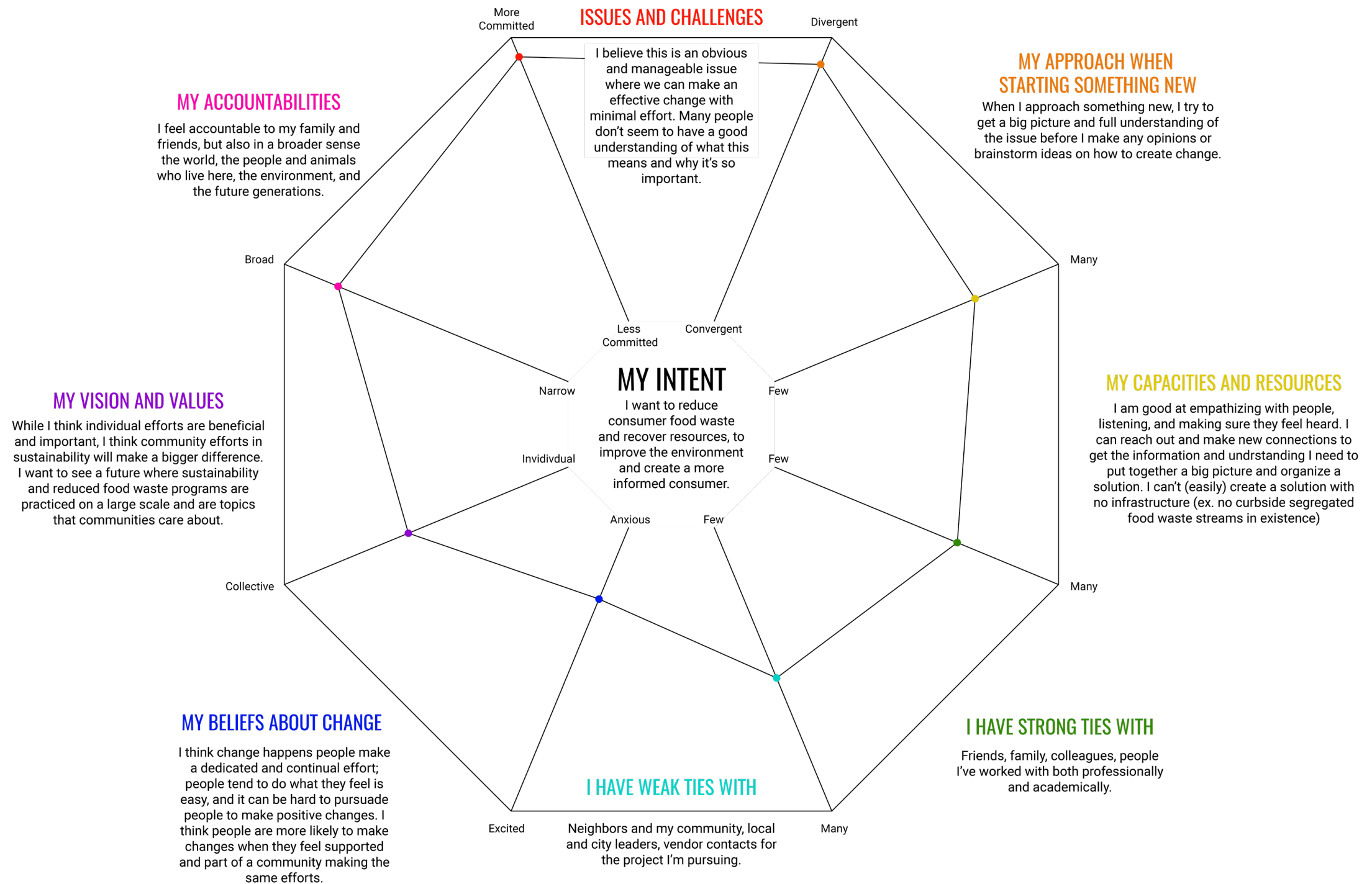
Food Waste Pick Up | Zero Waste | Houston TX.



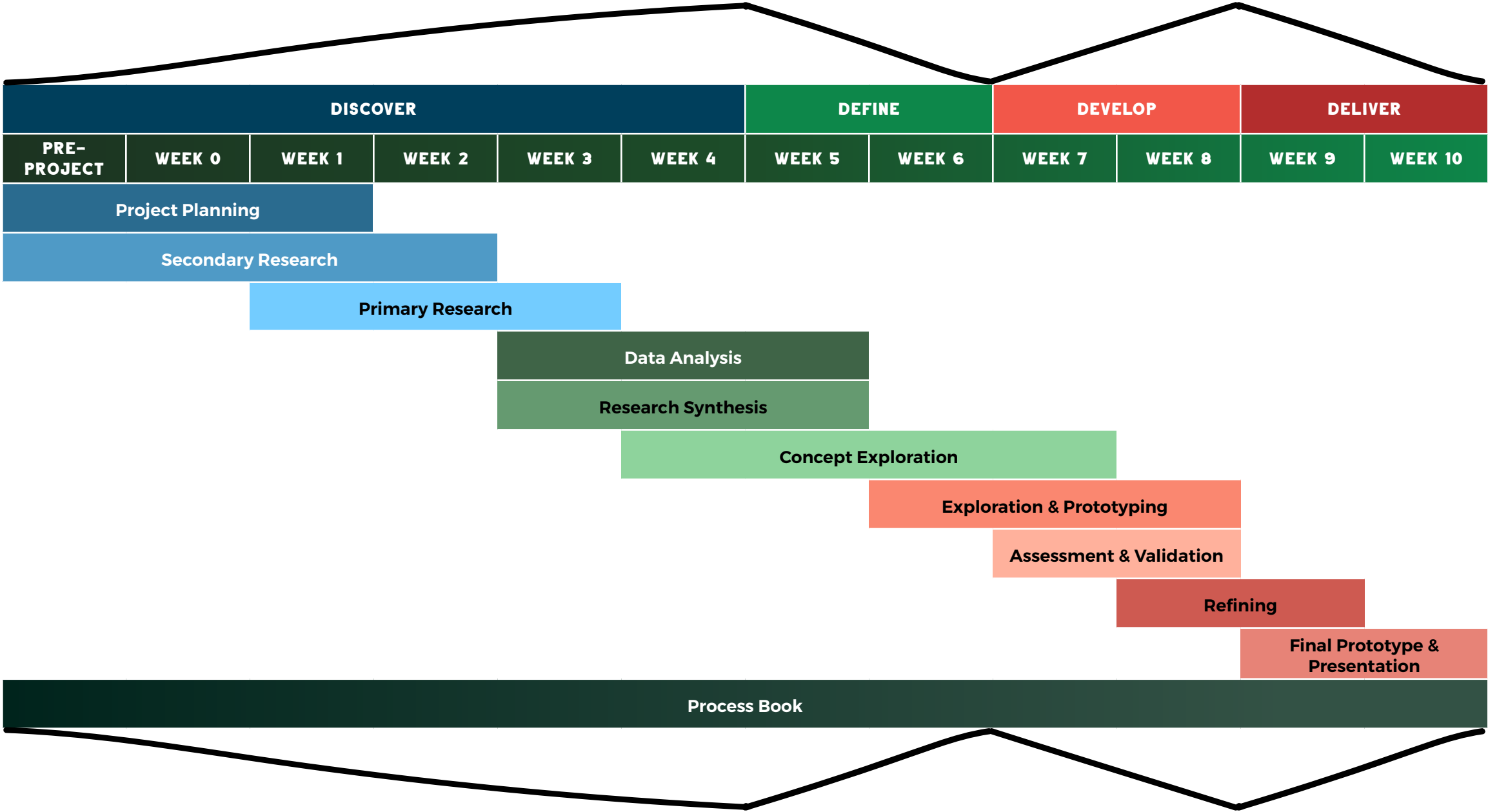


# APPENDIX

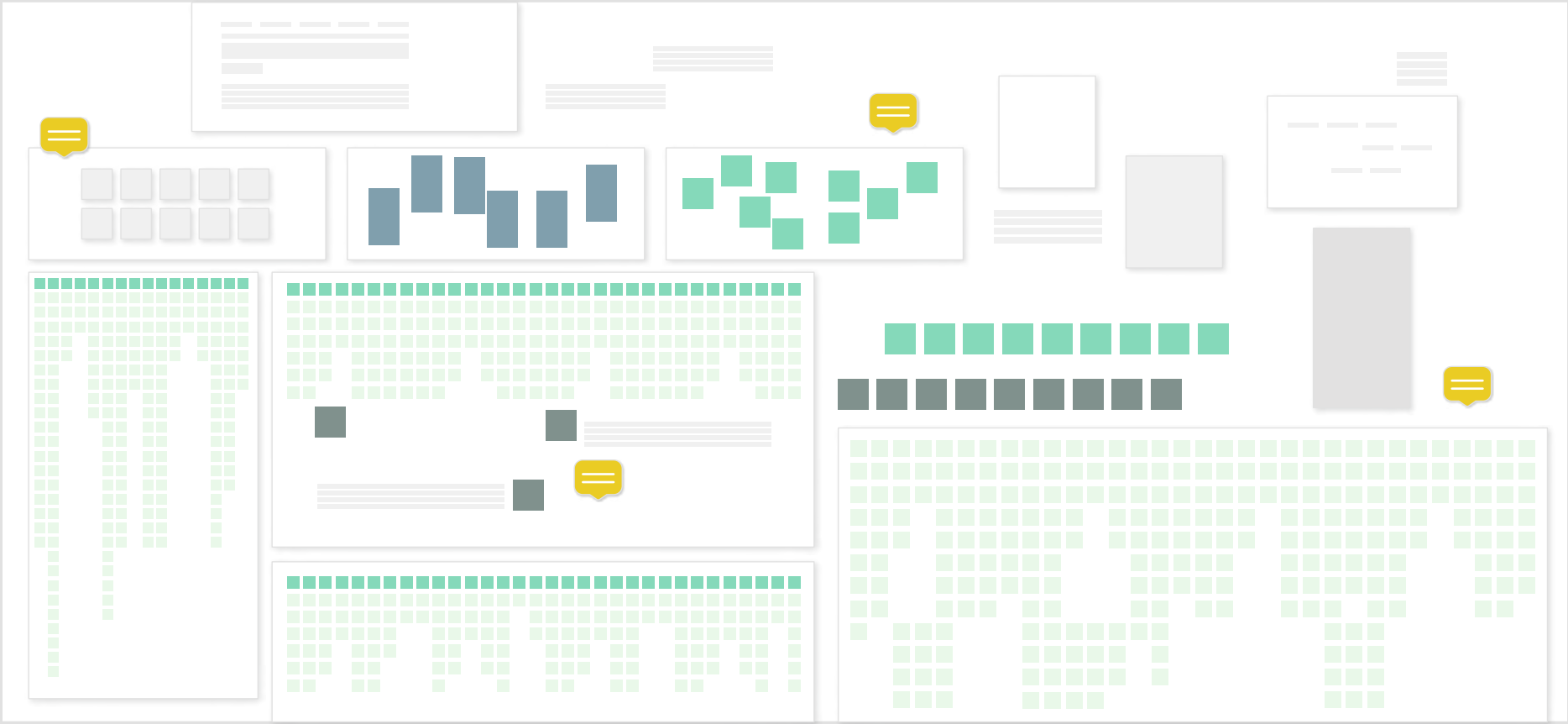
## PRE-PROJECT SELF REFLECTION



# GANTT CHART



# WORKING WALL



# RESEARCH QUESTIONS MATRIX

## HOW MIGHT WE DEFINE DESIGN THINKING AND THE METHODS NECESSARY FOR THIS STUDY?

Sub Questions	What is necessary to know?	Why is this information needed?	What type of data will answer this question?	Where can this data be found?	What type of research and data collection methods are needed?	Who can be contacted for collecting this data?	When does this data need to be collected?	What will be learned from this data? What are the takeaways?	What might we be missing? How might it be wrong?
<b>How might we describe Design Management and Design Thinking?</b>	An understanding of the field of study and professional practice	To academically analyze and disseminate gathered information and research	Textbooks, literature, accounts from subject matter experts	Libraries, published work, research practices, professors, and subject matter experts	Secondary research, published work and academic literature	Subject matter experts, professors, and professionals in the field	Pre-project work, during the collection of secondary research	How to articulate design management and thinking in the context of this study	People have different perspectives, and information changes over time
<b>How might we use Design Management methods for this study?</b>	What methods would be beneficial to understanding the user	To fully understand the needs to the user and overall problem	Textbooks, literature, previous design research, accounts from experts	Libraries, published work, research practices, professors, and subject matter experts	Secondary research, published work and academic literature	Subject matter experts, professors, and professionals in the field	In the collection of secondary research phase	The best way to collect and then analyze data for the purpose of this study	Design thinking is only one type of research method, there are many other ways to research
<b>How might we use design thinking to create positive change?</b>	How to turn the findings of the study into developing a solution	So that the results of the study can be used in real world application	Previous research, case studies, subject matter experts, professionals, and professors	Published research, subject matter experts, professors, and professionals	Secondary research, published work and previous research examples	Subject matter experts, professors, and professionals in the field	In the collection of secondary research phase	How to take disseminated information and conceptualize a real-life solution	Not everything is doable, some info is for the sake of knowledge, solutions are not a one size fits all scenario

# RESEARCH QUESTIONS MATRIX

## HOW MIGHT WE DEFINE THE HOUSEHOLD AND DISCOVER HOUSEHOLD FOOD PRACTICES?

Sub Questions	What is necessary to know?	Why is this information needed?	What type of data will answer this question?	Where can this data be found?	What type of research and data collection methods are needed?	Who can be contacted for collecting this data?	When does this data need to be collected?	What will be learned from this data? What are the takeaways?	What might we be missing? How might it be wrong?
<b>How might we describe the Household?</b>	What the household means, who is involved in it, and in what context does it reside	In order to understand the household and how things work within it	Existing definitions, previous research, and qualitative accounts	Dictionaries, published work, popular media scans and qualitative data	Secondary research, proven definitions of the household, and primary research, how people interpret the household	Individuals in households, subject matter experts	In the collection of secondary research phase, and beginning of primary research	Contextual definitions around household and associated food waste from them	What occurs in each household is different, people live differently in economic status and in culture
<b>How might we define food waste practices in the household?</b>	How much and what kind of food goes to waste in households, and what is done with it	To understand the current state of household waste management and where improvements need to be made	Information from waste management companies, auditing of household waste	Waste management audits and accounts, individual household auditing of waste	Secondary research accounting of MSW, primary research documentation of household waste, interviews, and auditing	Individuals in households, subject matter experts	In the collection of secondary research phase, and beginning of primary research	What all is involved in food waste and how most households manage food and their disposal of it	What occurs in each household is different, people live differently in economic status and in culture
<b>How might we discover opportunities to improve those practices and habits?</b>	What is current practice and where there are opportunities to reduce food waste and defer food waste from landfills	To develop a solution based on gathered and analyzed research	Information from areas that have improved waste practices, interviews from individuals in varied waste management program areas	Households that have alternative waste management practices and reduced food waste overall, other cultures with different food waste practices	Secondary research, info in areas that have improved waste practices, primary research, interviews from individuals in varied waste management program areas	Individuals in households, subject matter experts	During data analysis of primary research	Where the gaps in food waste prevention are, how to defer food waste from landfills, and reclaim resources	Not every opportunity for improvement will fit with every community or be available /implementable

# RESEARCH QUESTIONS MATRIX

## HOW MIGHT WE DEFINE THE COMMUNITY AND DISCOVER THE CULTURE WITHIN IT?

Sub Questions	What is necessary to know?	Why is this information needed?	What type of data will answer this question?	Where can this data be found?	What type of research and data collection methods are needed?	Who can be contacted for collecting this data?	When does this data need to be collected?	What will be learned from this data? What are the takeaways?	What might we be missing? How might it be wrong?
<b>How might we define a community?</b>	What is a community, who is involved in it, and in what context does it reside	In order to understand the community and how things work within and around it	Existing definitions, previous research, and qualitative accounts	Dictionaries, published work, popular media scans and qualitative data	Secondary research, proven definitions of the household, and primary research, how people interpret the household	Individuals in communities, subject matter experts	In the collection of secondary research phase, and beginning of primary research	Contextual definitions around community and associated waste management from them	There are several different types of communities along the socioeconomic spectrum, they are not all alike
<b>How might we understand how a community manages waste?</b>	What the current market and protocols are for waste management and disposal	To see what the current status of waste management in a community is so we can see where the strengths and improvements areas are	Information from waste and community management companies, accounts and audits from local landfills	Annual reports, board meeting minutes, waste management and community management professionals	Secondary research, community reports and business minutes, Primary research, interviews with management services	Waste management companies, homeowners' associations, community management companies	In the collection of secondary research phase, and beginning of primary research	The logistics involved in community waste management, the collection process, and associated financials	Economic means and availability of programs and services in an area determine how a community is managed
<b>What programs could a community institute to benefit its households and overall waste management?</b>	Where the gaps in waste management are, what potential improvements could be made	So that community needs can be met, and current practices can be improved for a more sustainable community	Information from areas that have improved waste practices, interviews from individuals in varied waste management program areas	Annual reports, waste and community management professionals, communities that have sustainable waste management practices	Secondary research, information in areas that have improved waste practices, primary research, interviews from individuals in varied waste management program areas	Waste management companies, homeowners' associations, community management companies	During data analysis of primary research	How current programs work, what other programs are out there, and how we could improve programs for communities	Economic means, availability of programs and services, and market demands in an area affect the potential for new programs

# ANNUAL BUDGET

## FOR NORTHFORK HOMEOWNERS ASSOCIATION

Rate \$535	2021 Budget	As of 8/31/21	2021 Forecast	2022 Budget
Assessments	\$ 554,795.00	\$ 369,863.36	\$ 554,795.00	\$ 554,795.00
Late Fees	\$ 7,500.00	\$ 11,209.05	\$ 12,000.00	\$ 7,500.00
Interest Income	\$ 600.00	\$ 159.41	\$ 200.00	\$ 500.00
Trash Subsidy Reimb	\$ 74,664.00	\$ 49,776.00	\$ 74,664.00	\$ 74,664.00
Other Income	\$ 300.00	\$ 485.00	\$ 500.00	\$ 300.00
<b>TOTAL INCOME</b>	<b>\$ 637,859.00</b>	<b>\$ 431,492.82</b>	<b>\$ 642,159.00</b>	<b>\$ 637,759.00</b>
Landscape Contract	\$ 124,000.00	\$ 75,749.12	\$ 122,886.32	\$ 124,000.00
Mosq Contract	\$ 6,700.00	\$ 2,000.52	\$ 6,700.00	\$ 6,700.00
Mgmt Contract	\$ 29,376.00	\$ 19,584.00	\$ 29,376.00	\$ 29,376.00
Storage Contract	\$ 3,000.00	\$ 2,336.00	\$ 3,500.00	\$ 3,500.00
Pool Contract	\$ 38,000.00	\$ 35,571.44	\$ 38,000.00	\$ 38,000.00
Security Contract	\$ 14,000.00	\$ 9,520.00	\$ 14,280.00	\$ 14,000.00
Trash Contract	\$ 200,000.00	\$ 140,729.29	\$ 211,000.00	\$ 211,000.00
sales tax				
<b>TOTAL SERVICE</b>	<b>\$ 415,076.00</b>	<b>\$ 285,490.37</b>	<b>\$ 425,742.32</b>	<b>\$ 426,576.00</b>
Landscape Impr/Rpr	\$ 10,000.00	\$ 12,843.87	\$ 14,000.00	\$ 10,000.00
Pest Control		\$ 4,088.07		\$ 4,100.00
Irrig Impr/rpr	\$ 10,000.00	\$ 958.02	\$ 1,100.00	\$ 10,000.00
Park/Pool Rpr & Supp	\$ 20,000.00	\$ 18,017.21	\$ 20,000.00	\$ 15,000.00
Vandalism		\$ 184.03	\$ 2,300.00	
<b>Contingency</b>	<b>\$ 9,000.00</b>			
Ammenties	\$ -	\$ 2,915.07	\$ 2,915.07	
<b>TOTAL REPAIRS/MNT</b>	<b>\$ 49,000.00</b>	<b>\$ 39,006.27</b>	<b>\$ 40,315.07</b>	<b>\$ 39,100.00</b>
Community Events	\$ 5,000.00	\$ 1,345.32	\$ 1,345.00	\$ 5,000.00

Electric	\$ 12,000.00	\$ 5,963.33	\$ 9,000.00	\$ 10,000.00
<b>Water</b>	<b>\$ 13,000.00</b>	<b>\$ 3,283.39</b>	<b>\$ 5,000.00</b>	<b>\$ 9,600.00</b>
<b>TOTAL UTILITIES</b>	<b>\$ 25,000.00</b>	<b>\$ 9,246.72</b>	<b>\$ 14,000.00</b>	<b>\$ 19,600.00</b>
Administration	\$ 4,000.00	\$ 6,097.59	\$ 8,000.00	\$ 8,000.00
Audit/Tax Rtn	\$ 3,000.00	\$ 500.00	\$ 3,000.00	\$ 3,000.00
Insurance	\$ 25,000.00	\$ 19,492.94	\$ 25,000.00	\$ 25,000.00
Legal	\$ 3,000.00	\$ 2,022.89	\$ 3,000.00	\$ 3,000.00
Taxes/Permits	\$ 2,500.00	\$ 1,350.38	\$ 2,500.00	\$ 2,500.00
Bad Debt		\$ 3,800.66	\$ 3,800.66	
<b>TOTAL ADMIN</b>	<b>\$ 37,500.00</b>	<b>\$ 33,264.46</b>	<b>\$ 45,300.66</b>	<b>\$ 41,500.00</b>
Reserves - General				
Reserves Park/Pool	\$ 106,000.00	\$ 70,666.64	\$ 106,000.00	\$ 106,000.00
<b>TOTAL RESERVES</b>	<b>\$ 106,000.00</b>			<b>\$ 106,000.00</b>
<b>TTL EXPENSES</b>	<b>\$ 637,576.00</b>	<b>\$ 439,019.78</b>	<b>\$ 632,703.05</b>	<b>\$ 637,776.00</b>
				.
<b>Net Income/Loss</b>	<b>\$ 283.00</b>	<b>\$ (7,526.96)</b>	<b>\$ 9,455.95</b>	<b>\$ (17.00)</b>





# SCREENER

## PROJECT

Community Food Waste Behaviors and Solutions

The purpose of this project is to understand the overall impact of food waste, what consumers and communities can do to prevent food waste, and redirect wasted food from landfills.

## IDEAL PARTICIPANTS

Ideal participants are persons who:

- Live in Northfork neighborhood
- Are a part of a management association or board of directors that contracts programs or services for the neighborhood
- Are a representative of a waste management company, local landfill, recycling center, or composting center

## PARTICIPANT INFORMATION

Participant Name: \_\_\_\_\_

Neighborhood of Residence: \_\_\_\_\_

Participant Type:



Northfork  
Resident



HOA Board Members  
and Management



Company  
Representative

E-mail: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Date: \_\_\_\_\_





# CONSENT FORM

**RESEARCHER:** Meglyn Masters

**INSTITUTE:** Savannah College of Art and Design

**TITLE:** Community Food Waste Behaviors and Solutions

Please read this consent form carefully before you sign. Participating in this interview is entirely voluntary, and you may choose to stop at any time. If you choose to participate, the information you provide will be used only for the purposes of this study, and your personal information will be confidential. Please contact mmaste22@student.scad.edu with any questions.

## INTRODUCTION:

This interview is being conducted by a Design Management graduate student at Savannah College of Art and Design. The results of this interview will contribute to a Masters final project looking to understand the overall impact of food waste, what consumers and communities can do to prevent food waste, and redirect wasted food from landfills.

## STUDY REQUIREMENTS:

The length of this interview will be approximately 30 minutes. The interview will be conducted by asking you a series of questions that are related to the title of the study, and focus on your thoughts and experiences related to food waste. With your permission, the researcher may record the interview for purposes of transcription and later study.

## WITHDRAWAL STATEMENT:

The participant can decline answering any questions they feel uncomfortable with, and can withdraw from the study, or ask to stop recording at anytime without consequence or prejudice.

## BENEFITS STATEMENT:

This interview and the results of the gathered research is vital to understanding food waste practices in the home, how consumers interact with their food and subsequent food waste, and will be used to build a solution for food waste management in neighborhoods and communities.

## CONFIDENTIALITY STATEMENT:

All of your information including your name, contact, or any other personally identifiable information is considered confidential and will not be accessible by anyone other than the researcher. The information provided in this study will only be used for research purposes only. Where applicable, a pseudonym will be used to reference any information that you provide. Final research findings of the project are available upon request.

## CONSENT STATEMENT:

I have read the previous information and voluntarily agree to be a participant in this study. I acknowledge that this interview is part of the research conducted for DMGT 748 Final Project at SCAD, The Savannah College of Art and Design, in order to help the student researcher gather data that would be beneficial for their research. I affirm that I am 18 years of age or older. I have had the opportunity to ask questions about this study and my questions have been answered to my satisfaction.

I am aware that the research might include direct citations of my statements and audio/video recordings of the interview. I grant permission for my contribution to this study to be recorded, transcribed, and used in an educational setting. I understand that my personal information will remain anonymous to those outside of this researcher.

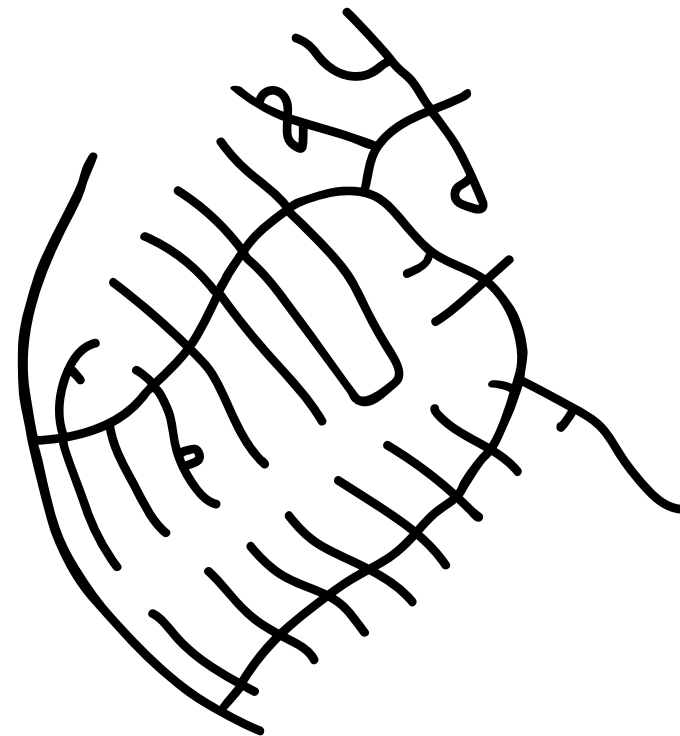
I understand the procedures described above. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form. I consent to all of the above mentioned information by signing below:

\_\_\_\_\_  
**PARTICIPANT NAME**

\_\_\_\_\_  
**PARTICIPANT SIGNATURE**

\_\_\_\_\_  
**DATE**





All illustrations and icons in this process book were designed, developed, and drawn by Meglyn Masters

