Managing Restaurant Food Waste in Brooklyn Park

Prepared by

Ben Ihde, Brianna Denk, Ashton Miller, Sarah Cronk, Russ Evenmo,
Kathryn Gallagher, and Hanna Terwilliger

Students in PA 5712: Science to Action: All Paths
University of Minnesota
Instructor: Steve Kelley

Prepared on Behalf of

City of Brooklyn Park Community Development Department

Spring 2017

Brooklyn Park

Resilient Communities Project

University of Minnesota
Driven to Discover℠

The project on which this report is based was completed in collaboration with the City of Brooklyn Park as part of the 2016–2017 Resilient Communities Project (RCP) partnership. RCP is a program at the University of Minnesota's Center for Urban and Regional Affairs (CURA) that connects University faculty and students with Minnesota communities to address strategic projects that advance local resilience and sustainability.

The contents of this report represent the views of the authors, and do not reflect those of RCP, CURA, the Regents of the University of Minnesota, or the City of Brooklyn Park.

This publication may be available in alternate formats upon request.

Resilient Communities Project
University of Minnesota
330 HHHSPA
301—19th Avenue South
Minneapolis, Minnesota 55455
Phone: (612) 625-7501
E-mail: rcp@umn.edu
Web site: http://www.rcp.umn.edu

Table of Contents

Introduction

This project was completed as part of a year-long partnership between the City of Brooklyn Park and the University of Minnesota through the Resilient Communities Project (http://www.rcp.umn.edu).

Food-related waste, which includes both organic solids (such as food scraps) and grease, is one of the largest waste streams in the restaurant industry. Brooklyn Park currently has more than 80 restaurants generating food-related waste, which adds to the burden on local landfills. The goal of this project was to explore alternatives for food waste disposal and solutions to grease accumulation from restaurants in city sewer lines.

Two teams of students in PA 5712: Science to Action: All Paths—one focused on organic solid waste and the other on fats, oils, and grease (FOG)—collaborated with Brooklyn Park project lead and environmental health specialist Gail Trenholm to investigate policy, business, and other solutions to the City's food waste problems. This document contains summary memos and other materials from each team.

Memorandum

To: Brooklyn Park City Officials
From: Sarah Cronk, Russ Evenmo, Kathryn Gallagher, and Hanna Terwilliger
PA5712 Students
FOG Group
Date: 4/15/17
RE: *Grease laden wastewater from food service facilities causing infrastructure blockages*

Fats oils and greases (FOG) are present at high concentrations in the wastewater produced by food service facilities (FSF) such as restaurants, grocery stores, meat markets and hospitals. This is due in large part to cooking with vegetable oil and animal fats such as dairy products, meats and lard. These FOG enter the municipal waste stream when they are rinsed or poured down drains during cleaning activities. When FOG cools downstream of the FSF they solidify to create severe blockages in community sewer pipes. Grease blockages can require costly repairs to infrastructure, can cause sewage backups into commercial and residential properties and add disruption to how our community members work, live and play in Brooklyn Park. The most effective strategy to prevent this problem is to stop it at the source, by requiring FSF to install properly sized grease interceptors and employ best management practices through local ordinance. A second option is to incentivize proper interceptor installation, maintenance and FOG best management practices.

Analysis:

- **The deferred cost of fats oils and greases is an expensive problem for the city of Brooklyn Park.** FSF do not want to spend capital on costly equipment to control FOG leaving their facilities, as the blockage is not directly attributed to the facility and it does not impact their ability to conduct business. The city and Metropolitan Council are left footing the bill for clean-up and infrastructure maintenance.
    - The recent 1600' by 6" grease plug along Brooklyn Blvd was estimated to cost $800K for the Metropolitan Council Environmental Services to clean and repair.
    - The cost would have been significantly higher and impacted homes if part of the plug had broken free and clogged the L-32 lift station at Brookdale Drive and Mississippi Lane.
- **Best Management Practices include FSF staff training, grease interceptor sizing and maintenance and fryer oil recycling.** FSF staff often decides what goes down the drain. Proper training on dry utensil cleaning methods and how to properly and regularly maintain grease capture equipment is essential to keep unwanted FOG out of the sewer. Many FSF indeed have grease traps that catch grease laden waste from the washing sink. But often they are not big enough for complete capture during high flow usage or placed to catch waste from other areas like the floor drains. Additionally, unmaintained traps fill and allow for overflow FOG into the sewer. Yellow grease, or fryer waste oil, is an important bio-diesel component. It should be recycled as a cost effective win-win for the business and city.

Policy Recommendations:

- ***Regulate the introduction of FOG into the sewer system by FSF by requiring properly sized grease interceptors.*** By requiring the installation of grease interceptors at all FSF, the cost of this burden will appropriately be on the FOG generators.
- ***Incentivize adoption through low interest loans to businesses for equipment upgrades and recognition for business that effectively employ best management practices***.

STRATEGY: Pass Fats, Oils & Greases (FOG) ordinance & Incentivize compliance

GOALS/OUTCOMES	PUBLIC POLICY	ORGANIZATIONAL
Long-term: Near zero FOG in waste water. ⬇ Infra-structure service & maintenance cost associated with FOG blockage cleanout.	Maintain ongoing Brooklyn Park (BP) verification audits of FSF. Test waste strength and review maintenance records in the event of a blockage. Recoup costs from FSF and building owner if causal.	BP Code Enforcement and Public Health will have to maintain staffing levels to conduct audits of waste discharge and maintenance records. Efficiency will be maximized by using current FSF inspection staff.
Intermediate: ⬆ Food Service Facilities (FSF) adoption of FOG controls and Best Management Practices (BMP)	Provide BP backed low interest loan for installation of grease interceptor using cost savings and grant dollars. Recognize FSF with proven BMP with sponsored ad.	Secure initial funding through Hennepin Co Business Recycling grants. Sustain funding with offset costs to Met Council for cleanout. Engage pumping industry to sponsor FSF recognition advertisements.
Short-term: create a regulatory environment to ensure adequate FOG capture at FSF source	Engage regulated community with opportunity to inform code. Pass BP code that requires FSF participation in program to reduce FOG discharge to public sewer system. Code will have exemptions & service charge for existing FSF under certain circumstances.	Model code off of existing regional codes including: Rochester, Duluth/Elk River and Des Moines. Engage regulated community and agency partners to inform code creation.

DECISION-MAKERS		OPPONENT(S)
Who are the Decision-Makers(s)? BP City Admin. including: Dept. Heads, City Mgr. & City Council		**Who are your Opponent(s)?** Regulated industry
Message(s) to Decision-Makers? This code will save the city money in the long run. BP citizens should not have to subsidize business in increased utility costs.		**Message(s) of Opponents** ordinance will hurt the business community
Messengers: **-Who** Local Business Owners that use Food Safety/Code Compliance as a competitive advantage, Code Compliance & Public Health Department Head **-Internal Messages to engage them** It is the right thing to do for the environment. The business sector that causes the problem should be responsible for the cost.		**Messenger(s)** Minnesota Restaurant Association, Minnesota Grocers Association and impacted FSF
Tactics/Activities: **Direct Lobbying** **Admin. Advocacy** **Coalitions/Alliances** **Media** **Grassroots Lobbying** **Grassroots Organizing** **Voter Education** **Other**		**Tactics/Activities** FSF & Assoc. will lobby BP City Council, Met Council and potentially State legislature arguing that ordinance will drive out small business owners. Provide incentives and exemptions for extreme financial hardship or space constraints to address their concern

EVALUATION	PUBLIC POLICY	ORGANIZATIONAL
Indicators: statistically significant ↓ in blockages and FOG in waste (mg/L)	Document baseline and post intervention quarterly.	Keep records and run data analysis after representative sample is met
Tools: enumeration of equipment, site checks measuring <25% using "sludge-Judge" & effluent testing using Standard Methods of Water & Wastewater, Oil & Grease, method 5520	Train staff to complete sampling & transport methodology. Contract with state lab to conduct analysis.	Maintain training and analysis MOU as needed.

Grease Waste in Brooklyn Park

Brooklyn Park
Unique. United. Undiscovered.

HUMPHREY SCHOOL
OF PUBLIC AFFAIRS
UNIVERSITY OF MINNESOTA

Final Presentation

May 1, 2017

PROJECT TEAM

Humphrey School Team

Steve Kelley, Course Lecturer

Hanna Terwilliger

KT Gallagher

Russell Evenmo

Sarah Cronk

12

AGENDA

- **Overview of Project**
- **Research Findings**
- **Analysis of Solutions**
- **Final Recommendation**
- *Appendix*

13

The Science to Action policy class was tasked to assess possible solutions for Brooklyn Park's grease situation.

PROJECT OVERVIEW

Problem Statement

- Grease waste from Brooklyn Park food service establishments is creating multiple issues for the city.
  - Cleaning issue
  - Pest harborage issue
  - Clogs the City's wastewater lines
  - Smell is intense
- Massive grease plug along Brooklyn Blvd was estimated to cost $800K to repair

Key Questions

- What is the current state of grease waste collection in Brooklyn Park?
- What solutions are available to reduce future grease issues in Brooklyn Park?

Current BP Regulation

- New construction is required to install grease traps as applicable
- Old construction is not required to upgrade
- BP does not have a FOG ordinance

14

The team conducted 6 site visits and 9 interviews with subject matter experts.

RESEARCH OVERVIEW

Site Visits

- Pizza Hut (Take-Out)
- Lemongrass Thai (Restaurant)
- Cajun Deli (Restaurant)
- MT Noodles (Restaurant)
- Thanh-Vi (Restaurant)
- Tropical Food (Grocery Store)
- Popeye's* (Restaurant)
- Dragon Star* (Grocery Store)
- Cub Foods* (Grocery Store)

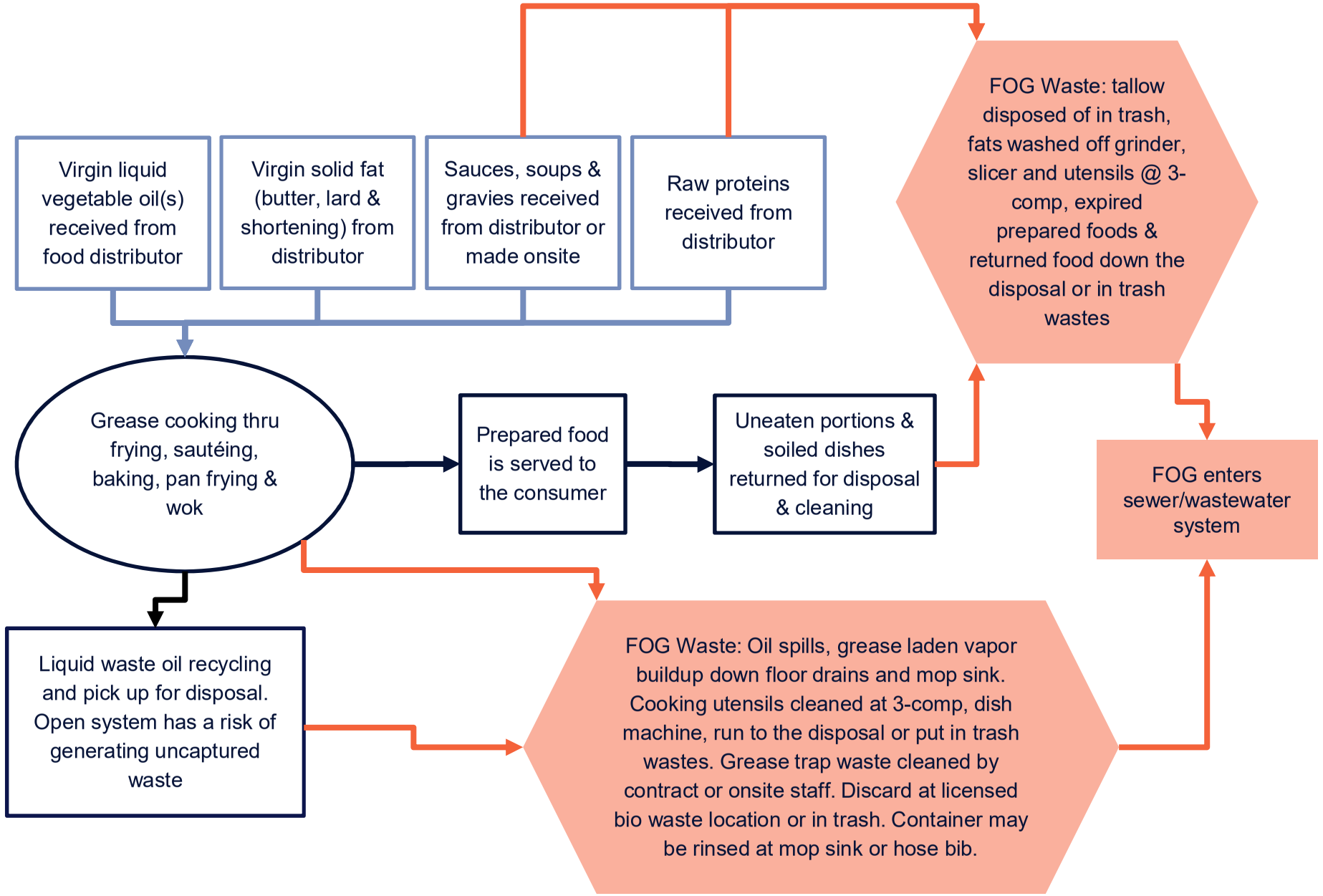
Subject Matter Experts

- Metropolitan Council Environmental Services
- County Building Inspector, Virginia
- Minnesota Pollution Control Agency
- Minnesota Restaurant Association
- Waste Oil Recycler
- Waste Grease Haulers (2)
- Hennepin County Business Recycling
- Des Moines Waste Water Authority

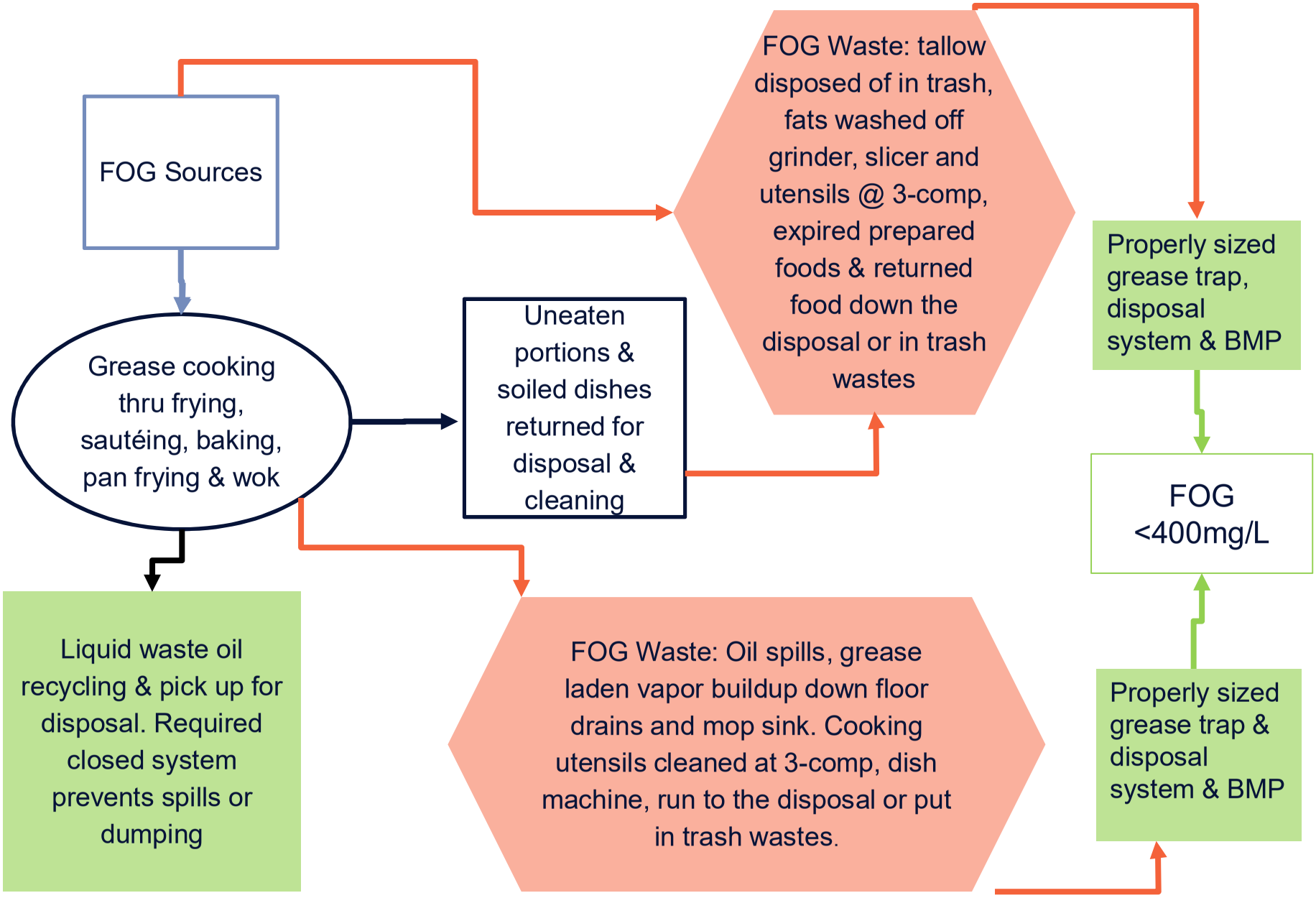
Secondary Research

- Chapter 4626, Food Code; Food Manager. MN Administrative Rules
- MN Dept. of Labor and Industry: 2015 MN Plumbing Code:
- MPCA: Septage and Restaurant Grease Trap Waste Management Guidelines
- FOG ordinances from 4 separate municipalities
- Waste Discharge Rules for the Metropolitan Disposal System, MET Council
- Chapter 6: Utilities. 2030 Comprehensive Plan. Brooklyn Park, 2011
- Chapter 99: Sewers. Brooklyn Park MN, Code of Ordinances
- Chapter 114: Food Establishments. Brooklyn Park MN, Code of Ordinances

FOG FLOWCHART



FOG FLOWCHART WITH INTERCEPTOR & BMP



AGENDA

- **Overview of Project**
- **Research Findings**
- **Analysis of Solutions**
- **Final Recommendation**
- *Appendix*

18

The main differences found between facilities appeared to depend on the age of the building, with older buildings not as effective in reducing sewage grease.

SITE VISITS TO FACILITIES

Grease Traps and other tools

- Grease traps installed at most locations
- Those without are primarily located in older structures
- Ventilation hoods universally observed

Maintenance/ Disposal methods

- Regular maintenance
- Communal disposal areas usually the best maintained
- Rare spillage from dumpster leaks and establishment or hauler employee performance
- Some have no contracted hauler; disposing grease with trash

Cleaning of other surfaces

- Regular contracted maintenance of ventilation hoods
- Mop and bucket water may not always be emptied through trap equipped drain

Overall concerns of grease waste

- That procedures are properly maintained
- Servicing of equipment by those without a hauler
- That costly clogs be avoided
- Pick-up service is valued by operators

Training/ Procedures

- Cleaning staff regularly emptying traps—usually once the smell is noticeable
- Management scheduling regular or requested cleaning of equipment by hauler of other firm
- Enforcement of maintenance expectations by property owners to avoid costly clogs and unattractive communal dumpsters

Interest in solutions

- Willingness to take on reasonable extra cost for environmental and locally-minded alternatives
- Curiosity in end products from recycling

Both grease haulers and trade organizations attribute the current situation to multiple reasons.

HAULERS & TRADE ORGS

Grease Haulers

Key Issues pointed out:

- Industry is responsive to regulatory environment and client need
- Has additional capacity for increased client base
- Sees value in requirement for logs (for adequate service and compliance)
- Conducts education prior to and during trap service
- Clear monetary value to recycling yellow grease
- Closed circuit oil reclaim system increases worker safety and environmental stewardship
- Stressed importance of proper sizing for peak usage to eliminate FOG overflow discharge

Trade Organization

Key Issues pointed out:

- Believes that high restaurant FOG discharge can be fixed with staff education
- Acknowledges that there are language barriers for the training that the association does.
- FOG ordinance disproportionally negative impacts older facilities, with restricted space or financial reserves
- Significant cost to operators to build infrastructure that they cannot recoup
- Not uniformly against FOG ordinances

Minnesota Restaurant Association

Municipalities here in Minnesota and across the country are starting to pass FOG ordinances including Duluth, Rochester, Elk River, and Des Moines.

MUNICIPALITIES

Current State

- In MN new facilities are required to install grease traps per the MN Plumbing Code
- Municipalities are able to adopt their own FOG ordinance
- Met Council charges municipalities for wastewater treatment based on volume not strength
- Wastewater treatment contracts between Met Council and municipalities are set forth in state law

Building Inspector Insights

Suggested sources of grease:

- Misuse of drains without grease traps; 3rd sink, produce sink
- Next biggest source of grease from cleaning floors/ walls and dumping mop water into floor drain or water from cleaning ventilation hoods – can be just as much grease as from plates/ pots

Other Issues:

- Poor installation of grease catchment equipment: traps too far away, not sized correctly

Municipalities here in Minnesota and across the country are starting to pass FOG ordinances including Duluth, Rochester, Elk River, and Des Moines.

MUNICIPALITIES CONTINUED

Characteristics of FOG ordinances

- Municipalities in MN with FOG ordinances are consistent in that they require installation and maintenance of grease traps/interceptors, adoption of best management practices (BMP), and service requirements (by time or volume), exemptions/variances for certain kinds of food service facilities (FSF) and penalties for non-conformance.
- Some municipalities define an exceedance of FOG in wastewater at 100-400mg/L

Allowed Exceptions

- Most exemptions/variances are provided after the owner/operator demonstrates a financial hardship, limited menu or lack of physical space. They are typically allowed to be put in place only in conjunction with an approved BMP Plan.
- Some municipalities charge for exemptions, both for the petition and as an ongoing fee.
- Exemptions can be revoked based on a measured exceedance, causal blockage or lack of record keeping.

Other Options

- Install traps or interceptors upon remodel
- Assign responsibility to both the building owner & the restaurant proprietor
- Conduct inspections of waste strength at discharge or maintenance records.
- Assess penalties

Ordinance Example: Rochester

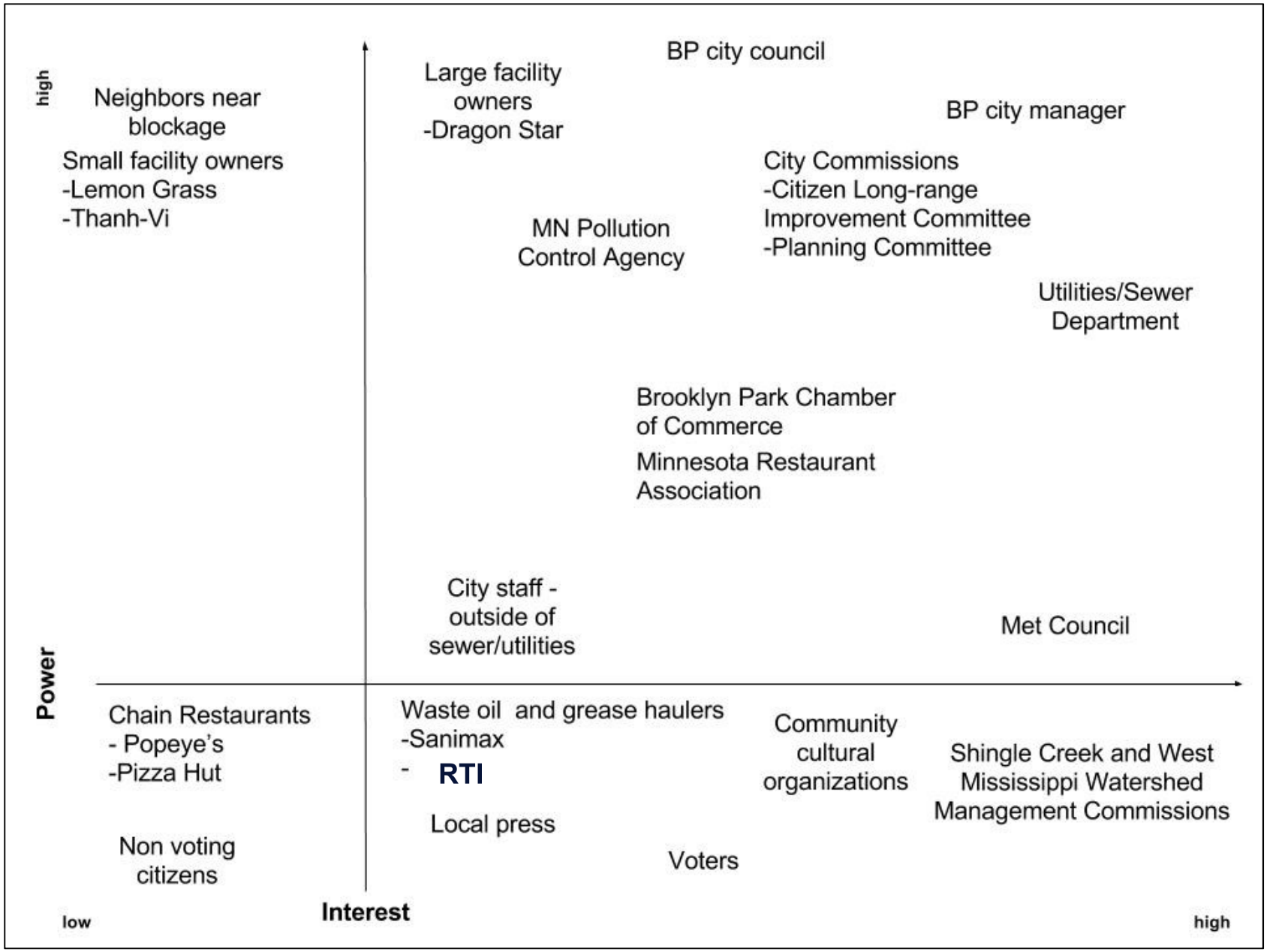
New FOG Ordinance:

- Requires all new or modified FSEs to install a grease interceptor.
- Old FSEs will be required to install unless they met an exception. There are monthly fees for non-compliance
- FSEs must comply with routine inspections and maintenance and keep cleaning records.
- FSEs are required to follow BMP's

Best Practices Include:

- Training employees in correct cleaning techniques
- Correct maintenance techniques

STAKEHOLDER MAP



AGENDA

- **Overview of Project**
- **Research Findings**
- **Analysis of Solutions**
- **Final Recommendation**
- *Appendix*

1. A for-profit **grease hauler** model was created as a possible solution to deal with grease waste.

BUSINESS MODEL

Value Proposition

Grease hauler owns "big dipper" grease traps

- Hauler pays for the installation
- Faculty Owner leases/ leases-to-own grease trap
- 10 year contract with hauler
- Hauler can remove grease trap and install it in a different location at end of contract

Revenue Streams

- Facility rents-to-own the trap from the grease hauler by paying a set amount each month
- The grease hauler then makes money by selling the grease that is captured to recyclers or others that want grease.

Key Activities

- Install closed system liquid grease/waste oil fill and capture waste in self-contained container
- Service closed system by collecting filled container and replacing it with an empty one.
- Transport containers for recycling and disposal
- Recycle the used grease and waste oil to make a profit
- Dispose of waste unable to be recycled

Customer Needs

Needs that are addressed

- Allows facility owners to obtain the right tools at a reasonable price
- Closed system has little to no smell, captured by removable container, lessening dependence on quality of cleaning

Needs that are not addressed

- Grease accumulation from sources other than sink and fryer

2. A non-profit **combined funder and grease hauler** model was created as a possible solution to deal with grease waste.

SOCIAL MODEL

Value Proposition

Identify need for grease catchment and disposal

- Initial assessment of facility
- Write for grants/ funding for infrastructure
- Ongoing training and education/ support

Act as the grease hauler

- Pick up grease
- Take to a recycler

Key Activities

- Onsite facility assessments
- Work with contractors during install
- Workshops, Onsite training
- Signage/literature
- Hauling grease
- Grant writing/ Lobbying for funds
- Promotion of sustainable activities

Mission Achievement/ Impact Factors

- Want to achieve greatly reduced amounts of grease in the city sewage system
- What a successful outcome looks like: better grease traps, less smell, less plumbing blockages, if every restaurant can maintain a grease trap with well trained staff for a significant period of time.

Customer Needs

Needs that are addressed

- Facility owners obtain infrastructure for free
- Encompasses the complete life cycle, increases efficiency and decreases middlemen
- Has continued support beyond the initial set-up for ongoing training in cleaning

Needs that are not addressed

- No incentive for facility owners to participate as there are not penalties

26

3. A **public policy** model was created as a possible solution to deal with grease waste.

POLICY CAMPAIGN MODEL

Value Proposition

Mandatory Installation of grease traps

- By requiring the installation of grease interceptors at all FSF, the cost of this burden will appropriately be on the FOG generators

Financial Incentives

- Offer low interest loans to businesses for equipment upgrades and recognition for business that effectively employ best management practices

Educational Component

- Provide training on best management practices

Key Activities

- Model code off of existing regional codes including: Rochester, Duluth/Elk River and Des Moines.
- Engage regulated community and agency partners to inform code creation.
- Secure initial funding through Hennepin Co Business Recycling grants. Sustain funding with offset costs to Met Council for cleanout. Engage pumping industry to sponsor FSF recognition advertisements.
- BP Code Enforcement and Public Health will have to maintain staffing levels to conduct audits of waste discharge and maintenance records. Efficiency will be maximized by using current FSF inspection staff.

Policy Actions

Short-term action:

- Pass BP code that requires FSF participation in program to reduce FOG discharge to public sewer system. Code will have exemptions & service charge for existing FSF under certain circumstances.

Intermediate action:

- Provide BP backed low interest loan for installation of grease interceptor using cost savings and grant dollars. Recognize FSF with proven BMP with sponsored ad.

Long-term action:

- Maintain ongoing Brooklyn Park (BP) verification audits of FSF. Test waste strength and review maintenance records in the event of a blockage. Recoup costs from FSF and building owner if causal.

Each model was assessed across 3 critical criteria; cost, equity, and effectiveness.

ASSESSMENT OF SOLUTIONS

	Upfront Cost	Ongoing Cost	Equity for FSF	Effectiveness
Business Model	▪ **Low:** FSF owners, city ▪ **High:** business, needs $ to pay for capital investments	▪ **Medium**: FSF have to pay ongoing cost, may not have had before	▪ **High**: lowers upfront cost, no regulatory burden	▪ **Medium**: without enforcement mechanism requires buy-in from facilities
Social Model	▪ **High:** Needs large startup fund to run grant program. ▪ **Low** for FSF owners	▪ **Low:** FSF ▪ **High**: grant org, needs money to maintain programs	▪ **High**: no monetary output, training and support	▪ **Medium** to **Low**: without legal code requires voluntary participation from facilities
Public Policy	▪ **High:** FSF owners w/out FOG capture ▪ **Medium:** for city (add. reg. costs)	▪ **Low**: FSF – once infrastructure upgrades, low cost ▪ **Medium**: City (same)	▪ **Medium**: regulatory burden, but $ assistance eases inequity	▪ **High**: Mechanism for legal enforcement through city code, financial assistance
Ideal Solution	▪ Facilities: **Low** ▪ City: **Low** ▪ Haulers: **Low**	▪ Facilities: **Low** ▪ City: **Low** ▪ Haulers: **Low**	▪ **High**: Does not pose undue burden on smaller FSF with lower resources	▪ **High**: buy-in from FSF, reduction of FOG in wastewater system

28

AGENDA

- **Overview of Project**
- **Research Findings**
- **Analysis of Solutions**
- **Final Recommendation**
- *Appendix*

29

We recommend to use the public policy model and pass a customized FOG ordinance for Brooklyn Park.

FINAL RECOMMENDATION

Value Proposition

Mandatory Installation of grease traps

- By requiring the installation of grease interceptors at all FSF, the cost of this burden will appropriately be on the FOG generators

Financial Incentives

- Offer low interest loans to businesses for equipment upgrades and recognition for business that effectively employ best management practices

Educational Component

- Provide training on best management practices

Key Activities

- Model code off of existing regional codes including: Rochester, Duluth/Elk River and Des Moines.
- Engage regulated community and agency partners to inform code creation.
- Secure initial funding through Hennepin Co Business Recycling grants. Sustain funding with offset costs to Met Council for cleanout. Engage pumping industry to sponsor FSF recognition advertisements.
- BP Code Enforcement and Public Health will have to maintain staffing levels to conduct audits of waste discharge and maintenance records. Efficiency will be maximized by using current FSF inspection staff.

Policy Actions

Short-term action:

- Pass BP code that requires FSF participation in program to reduce FOG discharge to public sewer system. Code will have exemptions & service charge for existing FSF under certain circumstances.

Intermediate action:

- Provide BP backed low interest loan for installation of grease interceptor using cost savings and grant dollars. Recognize FSF with proven BMP with sponsored ad.

Long-term action:

- Maintain ongoing Brooklyn Park (BP) verification audits of FSF. Test waste strength and review maintenance records in the event of a blockage. Recoup costs from FSF and building owner if causal.

AGENDA

- **Overview of Project**
- **Research Findings**
- **Analysis of Solutions**
- **Final Recommendation**
- ***Appendix***

BUSINESS MODEL CANVAS

The Business Model Canvas

Designed for:	Designed by:	On: dd/mm/yyyy	Iteration #
Private business servicing Fats Oil & Grease (FOG) waste		4/9/2017	2

Key Partners

•The building owners where grease producing facilities exist.

•The restaurant/retail food facility owners (tenants) as the producer of waste FOG

•Supplier of rentable grease trap apparatus

•The business that is able to service, collect and transport waste FOG

•Firm able to recycle liquid waste/grease into fuel

•Environmental Groups/ Non-profits

•Restaurant Association's/ lobbyist groups promoting mutually beneficial relationship between business sectors

•BP BBB/Economic Development Authority

Key Activities

•Install closed system liquid grease/waste oil fill and capture
Note: The product captures the grease from the 3 compartment sink and/or dishmachine into an enclosed container
•Service closed system by collecting filled container and replacing it with an empty one.
•Transport containers for recycling and disposal
•Recycle the used grease and waste oil to make a profit
•Dispose of waste unable to be recycled

Key Resources

•Need supportive policy by local regulatory authority in-order to pass regulation making grease traps retrofit on warewashing sinks mandatory
•Need to get the local regulatory authority to validate that we can loan grease traps out to restaurant facilities
•Need additional specialized pumping and transport trucks to accommodate increased volume
•Need staff support for system service, transport and admin

Value Propositions

•Long term loan where the grease hauler pays upfront for the installation of a 'big dipper' grease trap and the facility is required to give all grease to hauler for a 10 year contract, with the contract rolling over to any new owner. This can also be a lease to own model where if the business goes under, the grease hauler can remove the grease trap and install it in a different location.
•This will allow workers to quickly and ergonomically do their work engineering out spills.
•Less chance of grease spills in outside waste disposal area
•Allows facility owners to obtain the right tools (grease trap) at a reasonable price
•Increases property value and good publicity
•Closed system has little to no smell, captured by removable container, lessening dependence on quality of cleaning
•Contracting services for picking up container and dropping off empty container saves time for employees, reduces amount of cleaning and could help with staff retention as workers will not have to spend as much time dealing with grease
•Ensures grease does not enter sewage lines
•Less risk of grease spillage outside in waste disposal areas, leading to less complaints from neighbors

Customer Relationships

•We get customers through providing a one-stop service and good customer service.
•We get customers based off of having a good relationship with city officials, the Brooklyn Park economic development authority, the Brooklyn Park better business bureau, food distributors, and the Minnesota restaurant association.
•We maintain customer relationships through lessee and service contracts

Channels

•Reach customer through direct business sales, onsite outreach, historic customer roll over and word of mouth
•Loan directly to the facility owner

Customer Segments

•Should be based on size of facility (waste volume) as that will change the size of the grease trap required.
  •Large FOG generator segment
  •Small FOG generator segment

•Should also be based on if the facility is going to take out a loan or do a rent-to-own program

Cost Structure

•Labor (CDL drivers, scheduling and other admin staff)
•Transportation
•Equipment
•Equipment support/maintenance
•Equipment storage building
•Administrative building
•Marketing
•Disposal of waste that cannot be recycled

Revenue Streams

•The grease hauler (we) pays for the trap upfront and the facility rents-to-own the trap from the grease hauler by paying a set amount each month ~$20
•The grease hauler then makes money by selling the grease that is captured in the grease traps to recyclers or others than want grease.
•The restaurant would prefer to pay nothing, but is unable to do that because of regulatory constraints.

www.businessmodelgeneration.com

SOCIAL MODEL

The Social Model Canvas

Designed for:

Designed by:

On: dd/mm/yyyy

Iteration #

Key Partners

- Firms able to recycle grease into fuel
- Facility owners
- Restaurant tenants
- Other Grease purchasers
- City officials to recommend them
- Restaurant Associations
- Coordinating with builders to ensure they have quality builders building the upgrades
- They would have to make these same partnerships in any city or town that they set up the non-profit in.

Key Activities

- Onsite facility assessments
- Workshops
- Onsite training
- Signage/literature
- Hauling grease
- Grant writing
- Lobbying for money as there are government funds for a lot of initiatives.
- Promotion of sustainable activities with schools to increase awareness of Non-profit

Key Resources

- Qualified inspectors and infrastructure designers
- Grant writers
- Meeting spaces to hold workshops
- Donations/ grant monies
- Marketing material

Value Propositions

This is a combined approach consisting of:

1. Provide support for identifying need for grease catchment and disposal.
   - Initial assessment
   - Write for grants/ funding for infrastructure
   - Ongoing training and education/ support
2. Be a grease hauler
   - Pick-up grease
   - Take to a recycler

The value of combined approach is that initial setup and support is tied with downstream collection activities making a one-stop shop. This can minimize the lack of ownership among the players. This model also gives the non-profit long-term visibility into if the process continues to work. This ntegrated approach encompasses the complete life cycle, increases efficiency and decreases middlemen.

Buy-In & Support

The nonprofit will get potential donors to care about their mission by explaining the good it will bring the neighborhood. Potential donors include environmental groups and affluent citizens.

They will ensure they only use quality builders and have quality experts on staff so they ensure a good reputation.
They will partner with other experts such as asking city inspectors to give training sessions to gain their support.
They will constantly interact with local communities to get tips on the facilities that will make the most impact

Deployment

They will go door-to-door to reach out to the restaurants and facility owners
They will get experts to recommend them to the businesses (i.e. city inspector, better business bureau, trade orgs)

Beneficiaries

The facility owner or restaurant owner has a way to get upgrades even if they cannot afford them. This can increase employee moral and reduces costs of drain blockages.

The general public in the neighborhood benefits as well. There will be a reduction in smell. This can also decrease the number of frustrating plumbing repairs that will involve ripping up streets and parking lots. This will general more community pride by neighbors appreciating the effort restaurants are going through to make the area a better place.

Mission Budget

Labor
Transportation
Equipment/ storage site for hauling grease
Disposal
Marketing
Administrative/ meeting spaces building

Revenue Streams:
Grants and donations
From selling grease to recyclers

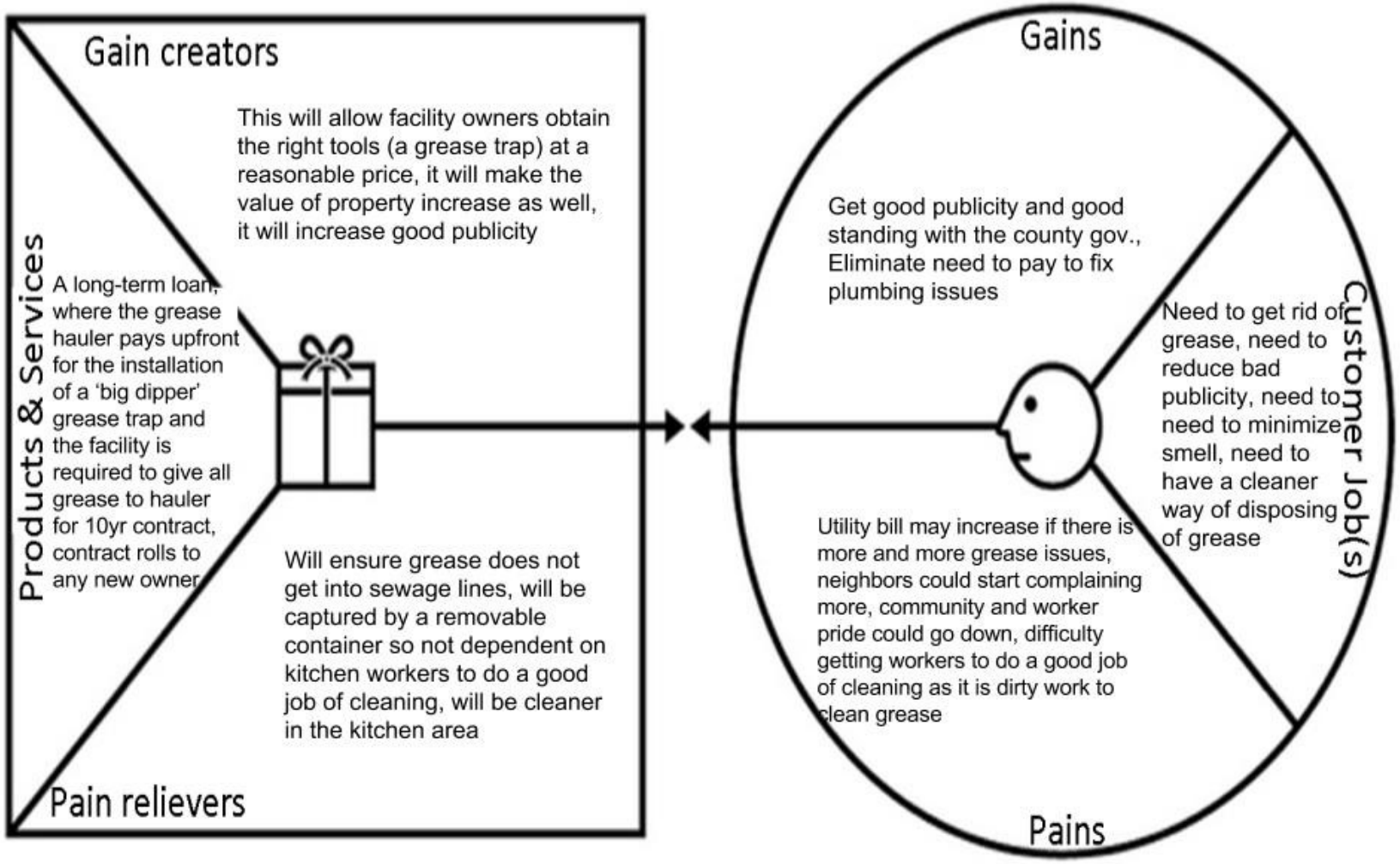
Mission Achievement/ Impact Factors

Want to achieve greatly reduced amounts of grease in the city sewage system
What a successful outcome looks like:
better grease traps, less smell, less plumbing blockages, if every restaurant can maintain a grease trap with well trained staff for a significant period of time.

www.businessmodelgeneration.com

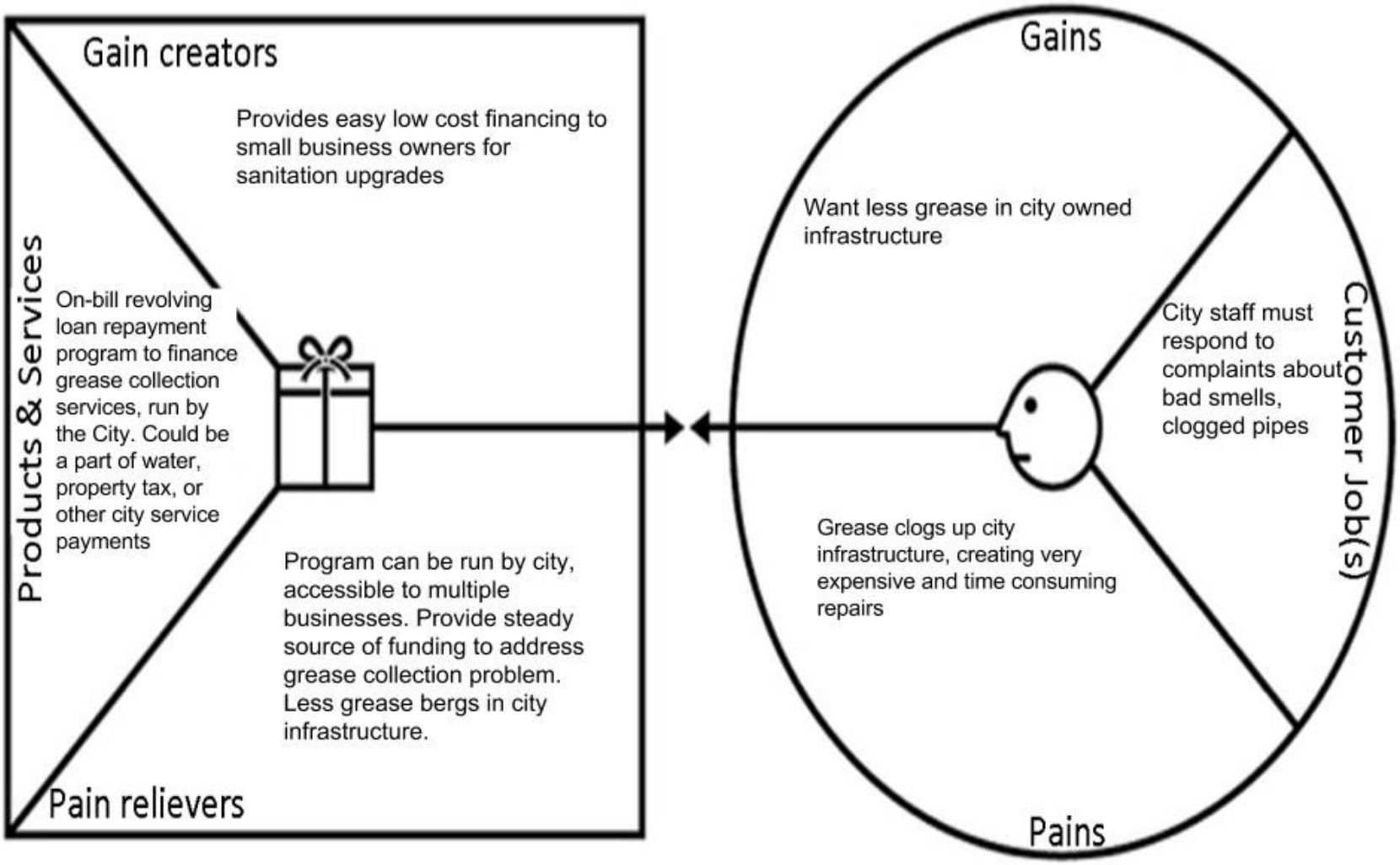
VALUE PROPOSITION

Customer: Facility Owner



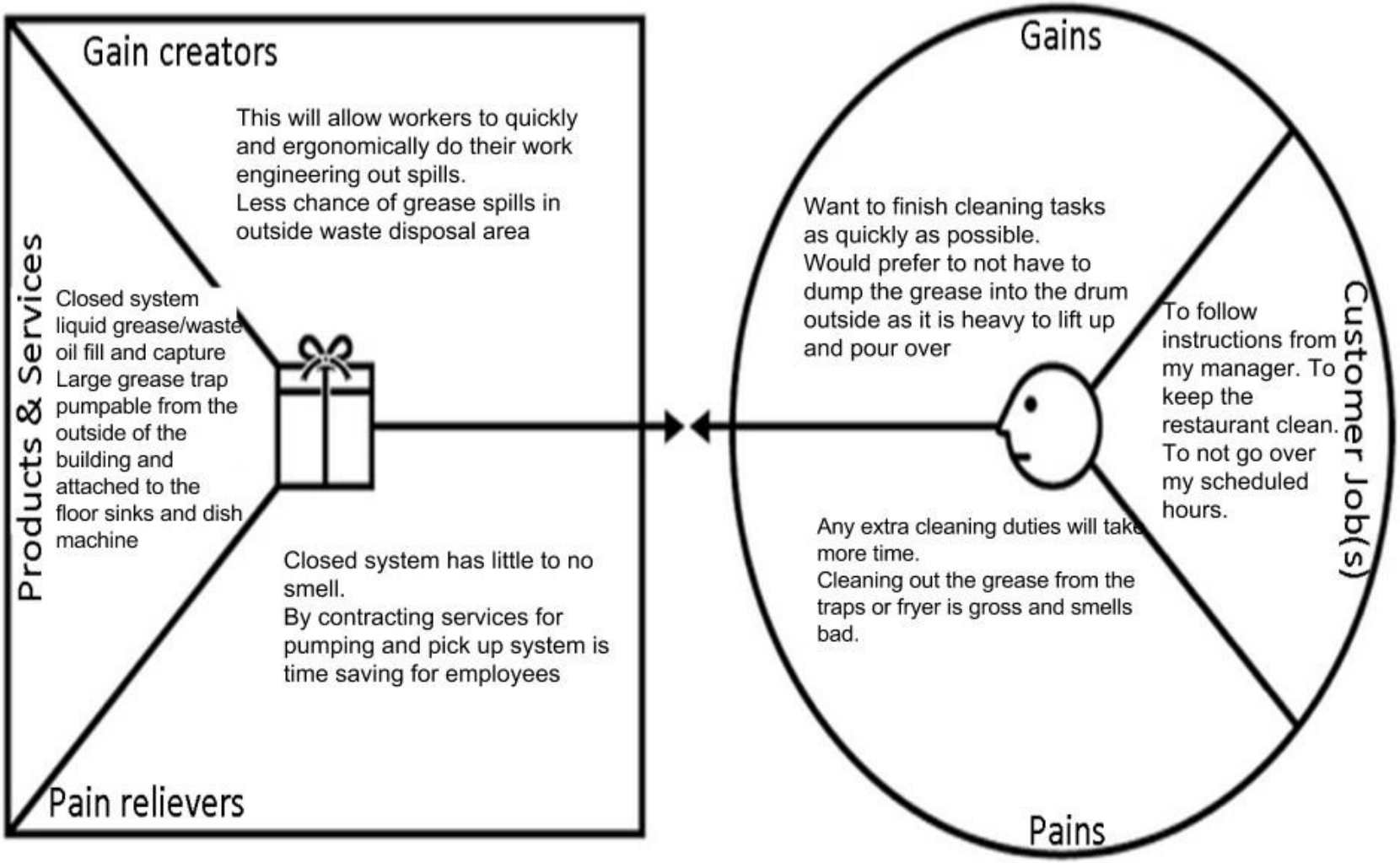
VALUE PROPOSITION

Customer: City of Brooklyn Park



VALUE PROPOSITION

Customer: Facility Worker



Problem Summary:

Organic waste can cause substantial problems to the city and citizens of Brooklyn Park including landfill crowding, odor, pests, and greenhouse gas emissions. Meeting county and state waste reduction goals will require broader implementation of organic waste reduction. (2) Organic waste makes up 31% of all waste in the state of Minnesota according to a 2013 report by Minnesota Pollution Control Agency.(1)

Restaurants send food to landfills because they are not aware of the price benefits of organics recycling, nor the opportunities to recycle. Grocery Stores often use organics recycling, but legacy procedures mean that the stores that recycle still send some waste to landfills. These problems are compounded by the fact that few establishments track quantitative metrics on food waste.

Organic Waste Reduction:

There are several ways to reduce the size of the organic waste stream including:

- Food Donation- Donating food to local food shelves and soup kitchens derives the highest value of expiring foods. It both limits food waste in landfills and improves quality of life for low income or vulnerable populations in the community.
    - Second Harvest Heartland
    - The Food Group (formerly Emergency Foodshelf Network)
- Food to Animal- Livestock farms can use food waste to feed their animals. Local farmers and waste haulers have existing agreements with food establishments in Brooklyn Park and there is an opportunity to strengthen these partnerships. This also reduces food waste in landfills.
    - Sanimax - Animal Feed Hauling Services
    - Direct Animal Farmers
- Composting- Food waste that cannot be recycled to feed people or animals can be composted. The Hennepin County Organic Recycling facility is located at:

  8100 Jefferson Highway N.
  Brooklyn Park, MN 55445

  This facility offers free composting to residents and small businesses, allowing up to six bags of organic waste drop-off per day.
- Supply Chain Improvements- Establishments can limit their waste by using local suppliers,increase ordering frequency and manage inventory more efficiently.

Federal Guidelines:

The EPA has developed a hierarchy of food recovery preference (https://www.epa.gov/sustainable-management-food/food-recovery-hierarchy). The agency states that prevention, or source reduction, is the best method, but when that is not possible, feeding hungry people is the next best solution. Waste that is not edible should be used as animal feed. Using organic waste as a source of energy is the fourth recommended practice, followed by composting. The landfill is the last and least supported option.

Hennepin County Solutions:

Minn. Stat. §115A, also known as the Waste Management Act, outlines waste management practices that protect the state's land, air, water, and public health and establishes waste reduction goals (https://www.pca.state.mn.us/sites/default/files/w-sw1-08.pdf). To incentivize cities and businesses to implement the waste management practices, funding is available in the form of grants. Hennepin county is a recipient of this funding, which has allowed it to support 120 organics recycling programs and $300,000 in grants to cities for innovative recycling and organics programs (http://www.hennepin.us/businessrecycling). The county has developed four strategies for organics recovery; target large businesses that create a large portion of food waste, evaluate current programs, increase curbside composting, and increase composting capacity.

Interview Summary:

Our site visits led us to three key findings for both restaurants and grocery stores. Restaurants in Brooklyn Park are unfamiliar with organic waste recycling options and are receptive to new solutions, but do not believe that the amount of organic waste they produce is a problem. Grocery stores are generally handling their organic waste well, sorting it out and using it as pig feed. There is still room for improvement, as not all stores are donating edible food, and instead throwing it away. Finally, grocery stores that have food waste recycling programs are not promoting or sharing their efforts with the community.

Stakeholders:

As a part of our research we compiled a list of stakeholders in Brooklyn Park who are involved in the reduction of organic waste. We ranked them based on both their interest in food waste and their power to make changes. We grouped relevant stakeholders into seven categories: Brooklyn Park government, citizens, the media, businesses, waste haulers, other government entities, and nonprofit organizations. We assessed that the city government is the most influential and has a relatively high interest in

reducing food waste, since it dedicated a Resilient Cities Project to the cause. Grocery stores and restaurants are moderately influential and have a mid-level interest in food waste. Nonprofits have great interest in reducing food waste, but the least amount of influence.

Solutions

Business Model Interpretation:
As a way of finding new solutions to address food waste, we developed a business model that demonstrates the untapped market that surrounds still good food. A food truck, or some other business that bought expiring food from grocery stores and restaurants, and resold it to consumers, would reduce the amount of food that ends up in the landfill. This business would benefit stores who would otherwise make no profit on the food, and promote sustainability in the community.

Social Model Interpretation:
We also developed a social model that promotes knowledge-sharing and engagement among businesses in Brooklyn Park. Our discussions with restaurant and grocery store owners revealed that there is a lack of knowledge about organic waste recycling options, so we modeled an organization that would promote the education of food waste. The organization would consist of grocery store and restaurant owners as well as waste haulers, who would be given awards based on their waste reduction efforts. The city government can be involved in creating or promoting the organization, but this is not required.

> Policy breakdown
> We encourage Brooklyn Park to use these insights to inform food waste reduction policies in a three step approach that assesses the problem in the short term, applies a financial disincentive in the medium term, and changes community behavior in the long term.

Short-term Policy Solution:
Quantifying the food waste problem is not easy. Methods of quantifying waste volumes are expensive and intrusive for businesses or the city. We propose that Brooklyn Park use their Food License Applications to gather information on current food waste disposal procedures by including a question asking establishments to specify current procedures.

Brooklyn Park should also take the lead on providing information on food waste recycling programs and initiatives to food establishments. All food establishments granted to food license would receive a pamphlet of information on food waste disposal techniques and community contacts for further information.

Medium Term Policy Solution:
After 1-2 years of information gathering, a waste reduction fee is added to the Food License Application for all food establishments without organic waste reduction procedures. The revenue stream created by the waste reduction fee can support continuing and expanding food waste reduction programs in Brooklyn Park.

Long Term Policy Solution:
Food waste is not limited to commercial establishment. In fact, over half of food waste disposed of in the United States comes from residential sources. (EPA) Forming a citizen Sustainability Commision to continue improving food waste and other sustainability initiatives promotes knowledge sharing between businesses and residents and encourages a behavior shift in organic waste disposal. This Commission should support education and training in organic waste disposal as well as create an award system to recognize outstanding accomplishment in sustainability practices further reinforcing importance to the issue to residents.

Conclusion:

County and state waste reduction goals are expected to require more reduction measures as time goes on requires more engagement Addressing food waste in restaurants and grocery stores in Brooklyn Park can provide substantial waste reduction and learning that can be applied to future waste reduction policies.

EPA: https://www.epa.gov/sites/production/files/2016-12/documents/food_waste_management_2014_12082016_508.pdf

Appendix: Stakeholder Analysis Table

Group	Name	Role	Influence on Policy Changes	Importance of Food Waste Reduction
Brooklyn Park City Government	Citizen long-range Improvement Committee	Studies issues pertaining to business development, transit, and community outreach, makes recommendations based on long-term trend analysis	High	Potentially high, since it was chosen as a resilient cities project
	Planning Commission	In charge of zoning, platting, and permitting	High, has the potential to change the waste hauler permitting process	Mid to Low
	City Council	Enact laws and allocate funding based on the recommendations of the committees	High	Mid to Low, depends on commissions
	Economic Development Authority	Promote economic development by adopting policies that help businesses	High, wants to promote business development, doesn't want to overburden with regulation	High, wants to promote business development, doesn't want to overburden with regulation
	Operations and Maintenance i.e. Tim Pratt	Public Works	Mid to Low	High
	Other City workers, including Gail Trenholm	Environmental Health/Community Development	Low	High
Citizens	Community Engagement Gatherings	The community group that created the 'Brooklyn Park 2025' plan that lays out the goals for the City	Mid-level	Mid-Level, one of the sub-goals is leadership in sustainable environmental practices
	Voters	Elect and re-elect government officials at all levels.	Mid	Mid
	Restaurant and grocery store patrons	Make decisions about quantities of food purchased, how much to eat, and how to dispose of food.	Low-Mid	Low-Mid
Media	Social Media	Concentrated audience, easily distributed messaging, creates awareness	Mid-level, if food waste advocates use it to raise awareness	Low, Potentially mid-level
	Print	"Park Pages" distributed by the City Government, "Brooklyn Park Sun Post" distributed privately	Low	Low, unless advocates write to paper

	Broadcast media	Channel 16 broadcasts all city council meetings	Low	Low, unless large stories break like the oil backup
Businesses	Grocery Stores	Cub, Festival, Dragon Star, Safari Grocery	Mid to High, Large stores bring lots of business	Mid to High, want to mitigate waste and make profit
	Restaurants	MT Noodles, Thanh-Vi, Cajun Deli, Popeyes, Pizza Hut, Lemongrass Thai	Mid to high	Mid to High, want to make a profit
Waste Haulers	Certified Haulers	Republic Waste, Waste Management, Sanimax, Restaurant Technologies	Low	Mid-High, may not want to change services offered, or may profit from businesses sorting out organics
	Local Pig Farmers	Receive food waste from grocery stores and restaurants, promote their business by encouraging composting.	Low	Mid-High, more organic waste means more business
Other Government Entities	State Legislature	Create State Policies	High	Low
	MPCA	Enforce State and Federal Policies, Protect the Environment	High	Mid to High
	Federal Government (USDA, EPA)	Create Federal Policies for States to implement	Mid to High	Low-Mid
	Hennepin County	Sets county waste goals through 2025, funds grants to enhance facilities to support recycling (http://www.hennepin.us/businessrecycling).	High Source of funding for many city projects	Mid-High Need city participation to meet waste reduction goals
	Met Council	Regional policy-making body, planning agency, and provider of essential services for the Twin Cities metropolitan region.	High	Low
Nonprofits	TC Food Justice	"Rescues" expiring food from grocery store shelves and delivers it to homeless shelter, community centers, food shelves	Low	High
	Emergency Foodshelf Network	Network of food shelves in MN	Low -Mid	Mid
	Second Harvest Heartland	Food Rescue group collect food from grocers and deliver to food shelves and soup kitchens	Low-Mid	Mid
	Zero Percent	Matches excess food from grocers and restaurants to homeless shelters	Mid	Mid

	MN Composting Council	Educating the public about composting practices based on sound science	Low-Mid	High
	Eureka Recycling	Non-profit zero waste group: educational website teaching visitors to compost	Mid Larger and more well know organization than other non-profits	High Zero waste goal set by board of directors

Appendix: Summary of Relevant Federal, State and Local Policies and Programs

Minnesota State Policy

Waste Management Act

Minn. Stat. §115A, also known as the Waste Management Act, outlines waste management practices that protect the state's land, air, water, and public health.

115A-02: Lists six priorities for creating an integrated waste management system.

(3) composting of source-separated compostable materials, including but not limited to, yard waste and food waste;(4) resource recovery through mixed municipal solid waste composting or incineration;

115A-557: The Waste Management Act allocates funding to county waste management programs including organics recycling.

115A-49: Establishes a program that encourages and assists cities and municipalities in creating solid waste management programs.

Hennepin County Policy

Solid Waste Management Master Plan

IIIE. Organics Recovery p.12
The county supported 120 organics recycling programs and $300,000 in grants to cities for innovative recycling and organics programs

V*H*. Strategies- Organics Recovery p.28
Four strategies for organics recovery: target large businesses that create a large portion of food waste, evaluate current programs, increase curbside composting, and increase composting capacity.

Brooklyn Park and Hennepin County Programs

Brooklyn Park hosts a website[1] with updated information about composting that largely applies to homeowners. They offer resources for purchasing or building a compost bin, and the address of the Hennepin County organic recycling drop-off location in Brooklyn Park, and a link to Hennepin County rules for composting and organics recycling, .

The drop-off location (8100 Jefferson Hwy, Brooklyn Park, MN 55445) is located in Brooklyn Park, but managed by Hennepin County. That address was unlabelled on Google Maps[2] as of Sunday evening - our team added the name and features of the location to make it easier for others to find. This facility handles multiple kinds of recycling, including organics recycling, and will not accept waste from any business. Hennepin County also maintains a website[3] with information about how to sort materials for this and other drop-off sites. The Green Disposal Guide[4] from Hennepin County contains a list of waste categories which does not include food.

From Hennepin County, Green Disposal Guide, http://www.hennepin.us/green-disposal-guide

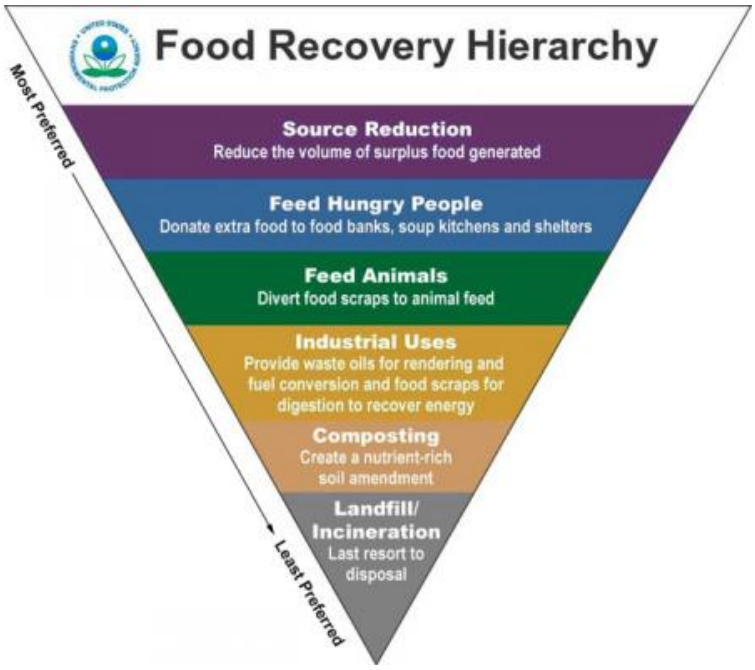
[1] http://www.brooklynpark.org/city-government/public-works/composting/
[2] https://www.google.com/maps/place/8100+Jefferson+Hwy,+Brooklyn+Park,+MN+55445
[3] http://www.hennepin.us/green-disposal-guide/drop-off-facilities
[4] http://www.hennepin.us/green-disposal-guide

Federal food-waste programs

The US Department of Agriculture (USDA) has integrated food waste reduction into many of its programs[5]. Many of these programs focus on reducing waste from agricultural sources, or finding new ways to reuse existing food waste through innovation. They have also funded research on food waste in America, apps to increase awareness of food expiration safety, and updates to government websites with safe storage information for food. USDA also implemented the Food Waste Champions[6] as of November 2016, which is a group of businesses and organizations like General Mills that commit to reducing in-house food waste by 50% by 2030.

The Environmental Protection Agency (EPA) has implemented a Food Recovery Challenge, which awards organizations based on their reductions to food waste[7]. This program incentivizes participation via a national award which has been awarded since 2013, and recognizes groups for source reduction, leadership, innovation, and education and outreach[8]. Free webinars, lower-cost operations, EPA recognition, and a free climate change report are among the other incentives mentioned on the EPA website[9].

The EPA has also developed a hierarchy of food recovery preference, which is intended mainly for homeowners[10].



[5] https://www.usda.gov/oce/foodwaste/usda_commitments.html
[6] https://www.usda.gov/oce/foodwaste/Champions/index.htm
[7] https://www.epa.gov/sustainable-management-food/food-recovery-challenge-frc
[8] https://www.epa.gov/sustainable-management-food/food-recovery-challenge-awards
[9] https://www.epa.gov/sustainable-management-food/food-recovery-challenge-frc
[10] https://www.epa.gov/sustainable-management-food/food-recovery-hierarchy

Opportunity for Organics Recycling: Brooklyn Park

Ashton Miller, Ben Ihde, Brianna Denk

May 1, 2017

Science to Action - Resilient Cities Project

45

UNIVERSITY OF MINNESOTA

Driven to Discover℠

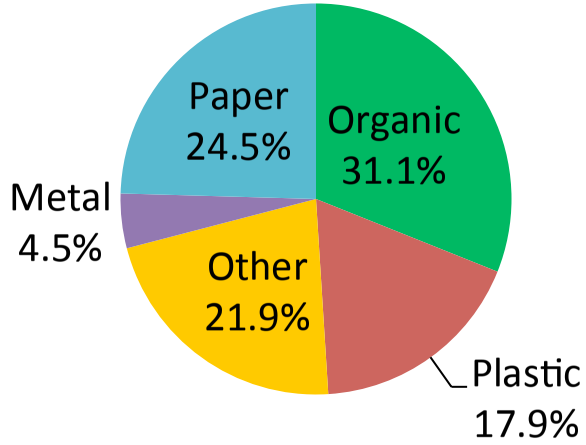
Agenda

1. Problem Definition
    a. Quantify the organic waste problem
    b. Organic waste in Brooklyn Park
    c. Site Visit Analysis
    d. Options for organic waste reduction

2. Options for the Solution
    a. Finding value in expiring food
    b. Knowledge-sharing and Engagement
    c. Policy Solution
        i. Short term
        ii. Medium term
        iii. Long term

Organic Waste

Minnesota Statewide Waste by Category (MPCA 2013)



Restaurant Waste (Massachusetts, 2002):

Disposed Waste [Full Service]	66	% of disposed waste by weight
Disposed Waste [Fast Food]	51	% of disposed waste by weight

Grocery Store Waste (Massachusetts, 2002):

Disposed Waste	63	% of disposed waste by weight

Organic Waste in Brooklyn Park

1. Occupies excessive landfill space
2. Produces unpleasant odors
    1. Complaints
3. Attracts pests
    1. Carry disease
4. Greenhouse gas emissions
    1. Methane: 10X more potent greenhouse gas than CO2

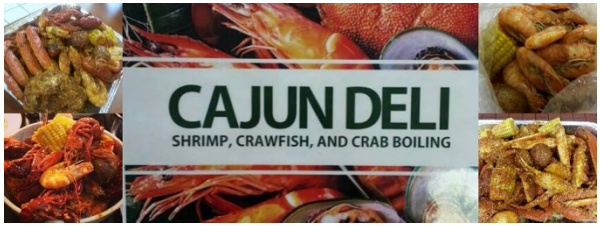
Problem Breakdown:

Restaurants send food to landfills because they are not aware of the price benefits of organics recycling, nor the opportunities to recycle.

Grocery Stores often use organics recycling, but legacy procedures mean that the stores that recycle still send some waste to landfills.

Compounding Factor:

Few establishments track quantitative metrics on food waste.



Site Visits

Thanh Vi Restaurant

MT NOODLES

LOUISIANA KITCHEN
POPEYES

Dragon Star Supermarket
龙星超市

TROPICAL FOODS
SUPERMARKET
EL PLATANERO
The supermarket for Everyone!!

Cub

50

Site Visit Analysis - Restaurants

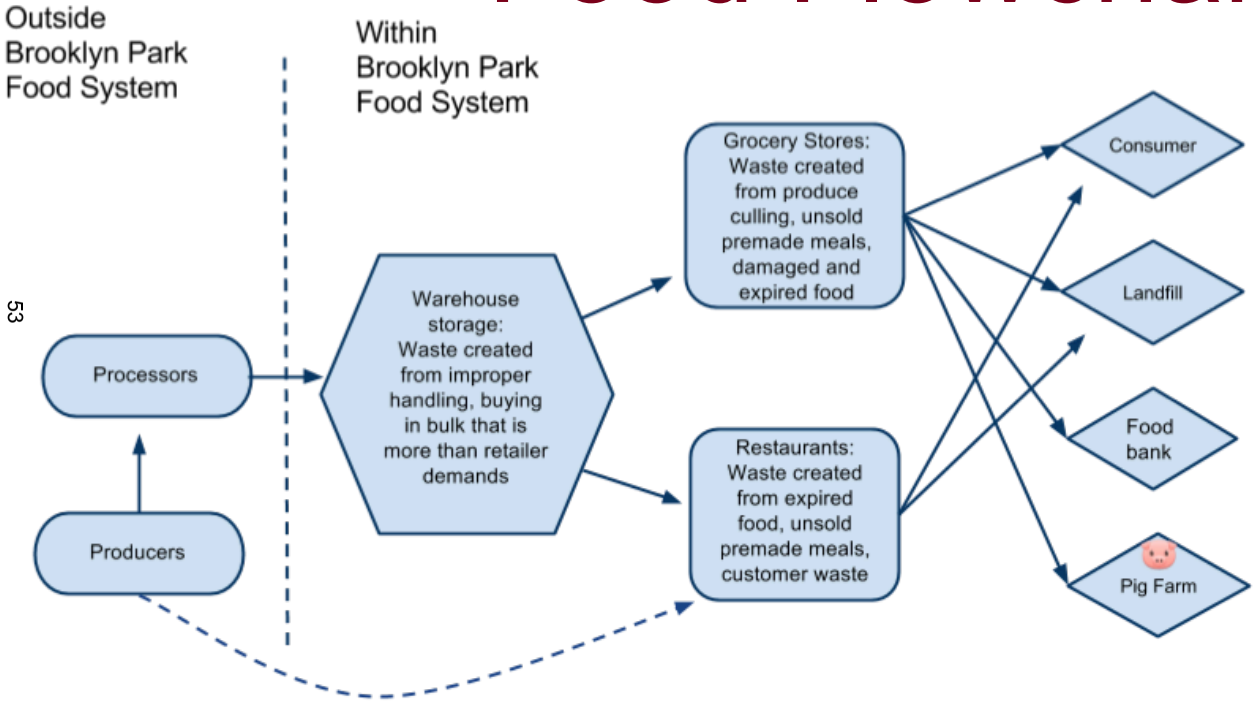
- Few metrics describing waste disposal
- Unfamiliar with organics recycling for businesses
- Receptive to trying new strategies

Site Visit Analysis - Grocery Stores

Image from:http://www.popedouglasrecycle.com/images/FoodtoAnimalComposting.JPG

- Two of the three stores we talked to sort food waste and recycle it as pig feed.
- Old sorting practices persist, so some food goes to landfills at all stores
- Do not advertise their organics recycling in the community

Food Flowchart



Consumer - Feeding people

Landfill - Food decomposes, creating greenhouse gases

Food Bank - Feeding people

Pig farm - Food feeds livestock

Site Visit Analysis - Concerns

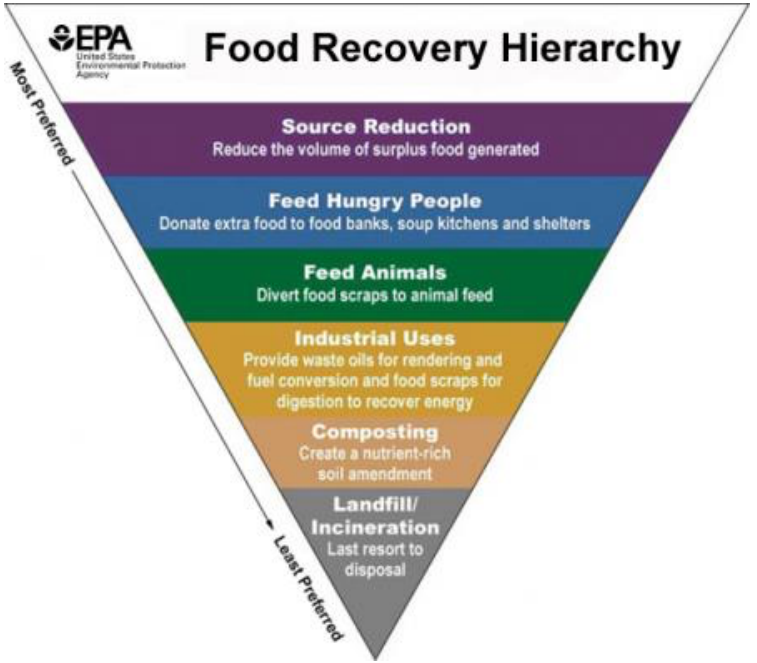
Access to Space:
Establishments' kitchens and dumpster areas are organized for the status quo. Reorganizing or expanding them would take time and money, or cooperation from the landlord.

Cost:
Establishments want to make profits and avoid increasing costs. This is a more important factor than concern for sustainability

Image from:
- http://www.newhavencashregister.com/sw/swchannel/images/users/7806/5240.jpg

How to reduce organic waste?

- Donating
  - Second Harvest Heartland
  - Community Emergency Assistance Programs (CEAP)
  - The Food Group (formerly the Emergency Food Shelf)
- Market food waste
  - Animal Farmers
  - Sanimax
- Composting
  - MN Composting Council
- Supply chain
  - Local suppliers and warehouses



Current Food Waste Policies

- Minnesota Waste Management Act (Minn. Stat. §115A)
- Hennepin County Solid Waste Management Master Plan
- Solid Waste Management Tax

Metropolitan Solid Waste Management Policy Plan MSW Management System Objectives

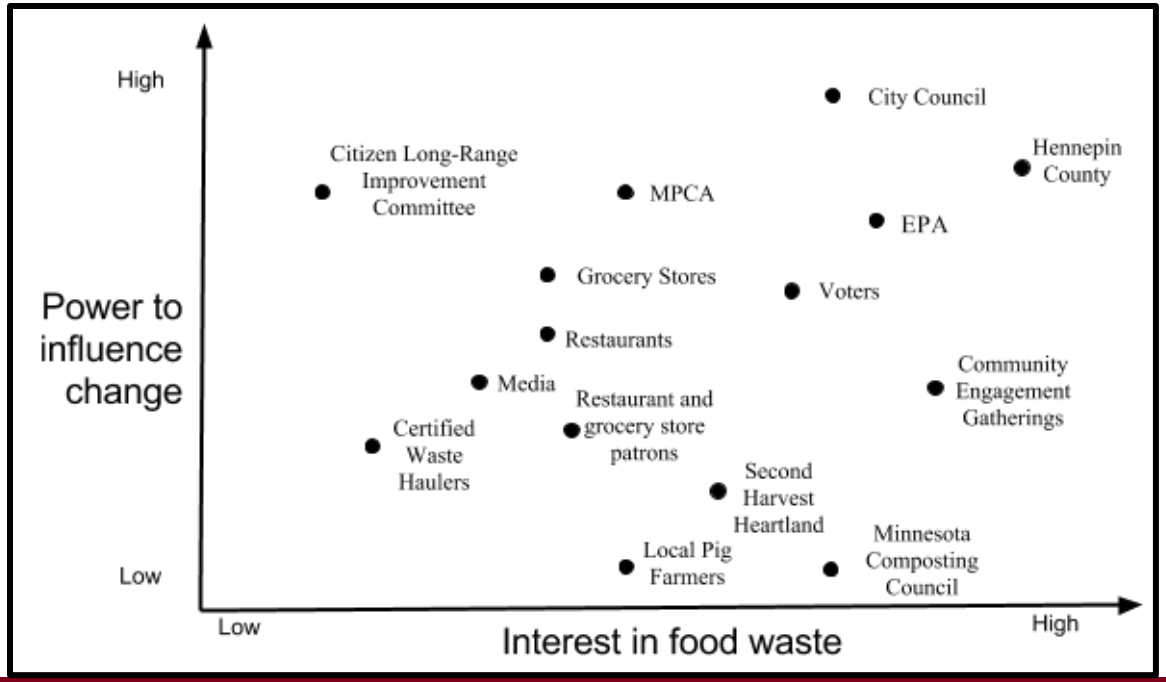
Management Method	2015	2020	2025	2030
Source Reduction and Reuse	1-2%	2-4%	3-5%	4-6%
Recycling	45-48%	47-51%	49-54%	54-60%
Organics Recovery	3-6%	4-8%	6-12%	9-15%
Resource Recovery	32-34%	32-33%	30-31%	24-28%
Maximum Landfill	20%	17%	15%	9%

Images from:
http://www.hennepin.us/~/media/hennepinus/your-government/projects-initiatives/documents/solid-waste-version-9.pdf?la=en
http://www.ci.minneapolis.mn.us/solid-waste/organics/WCMS1Q-074522

Hennepin County Grants

- 12 cities in Hennepin county, including Minneapolis and St. Louis Park, provide free organics recycling for all of their residents
- Local businesses have received funding to buy compost and sorting bins, upgrades or construction of recycling enclosures, software to manage product more efficiently, and access to recycling services

Stakeholder Map



Solutions

59

Finding Value in Expiring Foods

- Buys almost-expired food at low cost from restaurants and grocery stores, reducing their losses
- Uses near-expiration food to create meals
- Promotes the stores that have donated food
- Transports unused food to organic recycling facilities

Template from:
http://www.studiofluid.com/blog/free-food-truck-template/

Education and Engagement

Image Source:
http://www.brooklynpark.org/assets/1/15/EventDimensionMain/4554e8348f3d4faba682d6606147f2b91.JPG

- Organization of restaurants, grocery stores, and waste haulers
- Monthly informational email to share sustainable methods of disposal
- Annual conference with
  - Awards for sustainable waste management
  - Education about sustainable disposal options

Policy Solution - Short Term

Food License Application
Community Development Department
Code Enforcement & Public Health Division
5200 85th Avenue North / Brooklyn Park, MN 55443
Phone: (763) 493-8070 / Fax: (763) 493-8391

Waste Disposal:

Does your business separate food waste? ☐ Yes ☐ No

If Yes, please indicate method: ☐ Compost ☐ Donate ☐ Resale for Animal Feed ☐ Other _____

62

Require all restaurants and grocery stores to indicate whether they have a food waste plan and what type during annual license renewal.

Send food waste education/informational materials with yearly business license renewal.

Public Health Department can update policy without Council approval.

Policy Solution - Medium Term

Brooklyn Park

Food License Application

Community Development Department
Code Enforcement & Public Health Division
5200 85th Avenue North / Brooklyn Park, MN 55443
Phone: (763) 493-8070 / Fax: (763) 493-8391

Food Waste Disposal:
The City of Brooklyn Park is committed to reducing food waste. All food establishments that do not recycle food waste are subject to additional fees. Please indicate the reduction method **and** indicate the name of the end facility (i.e. name of food bank, animal farm, or composting location)
Does your business currently separate food waste from other waste? ☐ Yes ☐ No

☐ Donation_____ ☐ Animal Feed_____ ☐ Compost_____
☐ Other: _____

Require all food establishments to have a procedure to separate and dispose of food waste or be subject to a licensing cost which would increase over time.

This solution would require Council approval. Establishments would receive notice of the planned fee 18 months before it goes into effect.

Policy Solution – Long Term

Create a Sustainability Commission to guide the future of organic waste recycling and other sustainability initiatives.

The Commission would:

- Offer training and guidance
- Foster collaboration and information sharing
- Create award system to recognize outstanding accomplishment in sustainability practices in businesses and organizations

Policy Solutions

- Places value on expiring food
- Improves awareness of organic waste
- Encourages broad participation
- Informs future policies

65

Bibliography

Burns & McDonnell Engineering Company, Inc. (2013, December). 2013 Statewide Waste Characterization (Minnesota, Minnesota Pollution Control Agency). Retrieved April, 2017, from https://www.pca.state.mn.us/sites/default/files/w-sw1-60.pdf

Draper/Lennon, Inc. (2002, September 19). Identification, Characterization, and Mapping of Food Waste and Food Waste Generators In Massachusetts. Retrieved April, 2017, from http://www.mass.gov/eea/docs/dep/recycle/priorities/foodwast.pdf

Hennepin County, Environmental Services. (2012, April). Hennepin County Solid Waste Management Master Plan. Retrieved April, 2017, from http://www.hennepin.us/~/media/hennepinus/your-government/projects-initiatives/documents/solid-waste-version-9.pdf

Hennepin County, Environment and Energy. (2017). Business Recycling Grants 2017 Guidelines. Retrieved April, 2017, from http://www.hennepin.us/-/media/hennepinus/business/recycling-hazardous-waste/documents/business-recycling-grant-guidelines.docx?la=en

US EPA. (2017, February 19). Food Recovery Hierarchy. Retrieved April, 2017, from https://www.epa.gov/sustainable-management-food/food-recovery-hierarchy

Opportunity for Organics Recycling: Brooklyn Park

Ashton Miller, Ben Ihde, Brianna Denk

May 1, 2017

Science to Action - Resilient Cities Project

67

UNIVERSITY OF MINNESOTA

Driven to Discover℠

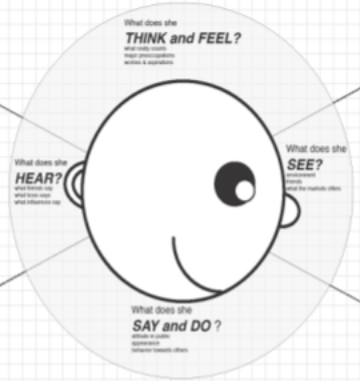
Appendix

Business Model - The Empathy Map

Designed for: Owner/Operator
Designed by: Brianna, Ben, Ashton
Date: 2/18/17
Interation: 1

Customer Perspective:

Tropical Foods



Think and feel?

- Waste is not a problem for employees
- Business is not suffering losses from waste
- Acknowledge that they do not know much waste disposal
- Unsure of options available and what would be best
- Adding restaurant will increase waste
- Strong responsibility to lead in the community and tenants in the building

HEAR?

- Customers happy with food selection
- Customers think food is high quality
- No customer complaints concerning dumpster
- Tenants do not prioritize waste services
- Tenants happy with access to waste services
- Employees believe practices are efficient and effective

SEE?

- Full dumpsters- not due to tenant waste, community dumping
- Less waste since they moved to this building- product is being sold in a timely manner
- Several other ethnic markets in close proximity to compete with
- Tenants contract their own specialized waste removal services (ie grease disposal)

SAY AND DO?

- Open to updating practices with our suggestions
- Only order what they need
- Throw all garbage in one dumpster
- Discourage improper waste disposal with tenants
- Engage employees in decision making
- Limit available perishables to meat
- Talks to customers at checkout

PAIN

PAINS: Uncertainty of how to execute business expansion (adding a restaurant), cannot control that the community disposes of large items near their dumpster, unsold food means a loss of potential profit.

GAIN

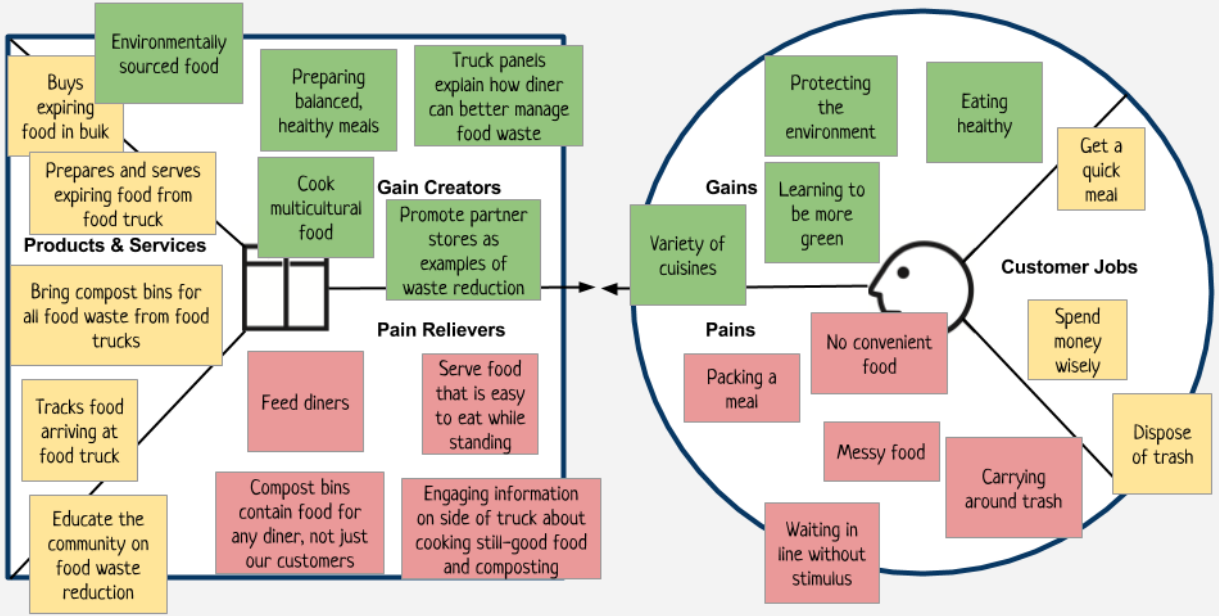
GAIN: Reducing dumpster overflow, implementing composting policy, being more environmentally friendly, preventing excess waste by adjusting food orders based on need, saving money.

www.XPLANE.com

The Value Proposition Canvas

Value Proposition "Still Good" Food Truck

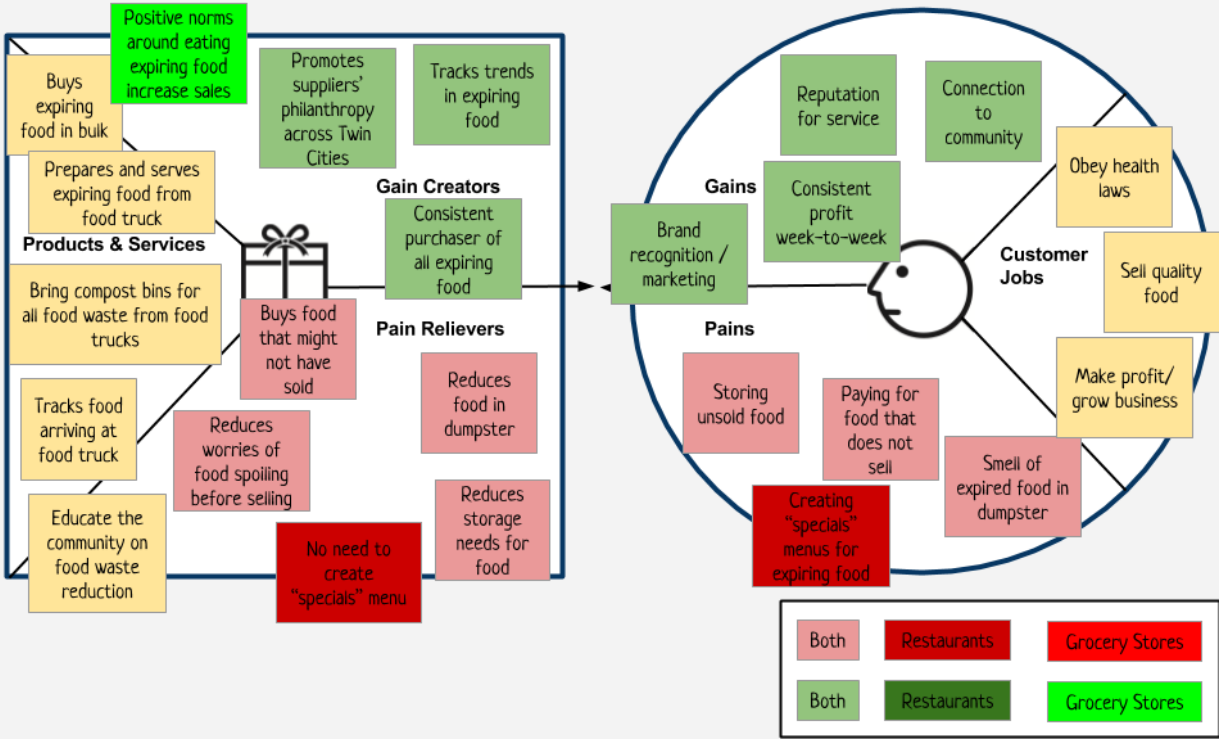
Customer Segment Diner



The Value Proposition Canvas

Value Proposition "Still Good" Food Truck

Customer Segment Grocery Store / Restaurant



The Business Model Canvas

Designed for:	Designed by:	On:	Iteration
"Still Good" - A Twin Cities food truck which serves meals made from out-of-date food.	Ashton, Ben, Brianna	04-09-2017	2

Key Partners

- Suppliers: The grocery stores and restaurants where the food truck would be buying expiring food.

- Venues that allow us to sell our food in the area will also be important.

- Diners that will buy food to support our mission of reducing waste.

- Supplier's' customer base could be motivated by the store's partnership

- Suppliers will inform the food truck when they have food about to expire, giving their guarantee that the food is still safe.

- Brooklyn Park will set laws that influence our costs and revenue structure

Key Activities

- Obtain and maintain a food truck permit
- Satisfy health and safety requirements
- Purchase still-good food
- Compost non-edibles
- Pick up food from suppliers
- Determine recipes to convert food into saleable products
- Drive to venues to sell food
- Prepare food for purchase
- Sell food to diners

Key Resources

- Permits and licenses
- Food truck
- Still-good food
- Bins to sort food waste
- Refrigeration and pantry space
- Cooking gas, electricity, water, and cooking apparatus
- Display materials for our current suppliers
- Compost bins for diners' waste
-Employees/Cooks

Value Propositions

Supplier pain relievers:
- Reduces losses due to unsold food
- Reduces storage requirements

Supplier gain producers:
- Increases contribution to community

Diner pain relievers:
- Eases hunger
- Reduces environmental harm by composting food waste
- Easily accessible location

Diner gain producers:
- Benefit of contributing to an environmental cause

Venues pain relievers:
- Customers don't leave to find food
- Less-hungry customers enjoy their time more
- Waste collection handled by truck, not venue

Venues gain producers:
- Profit-sharing - part of proceeds pay for a parking space at the venue

Customer Relationships

- Suppliers expect contact every few days to keep food truck informed on inventory of expiring food.

- Customers expect quality food and high levels of food safety.
- Customers enjoy variety of recipes.

- Establish relationship with venues, festivals, and events

Channels

- Face-to-face with customers
- Venues with outdoor areas and no in-house kitchen (e.g. Bauhaus Brewery)
- Existing food truck hubs (e.g. Marquette Avenue in downtown Minneapolis)
- Events with an environmental theme (e.g. Northern Spark)
- Brooklyn Park Industrial Park (weekday lunch hour)
- Social media
- Online presence

Customer Segments

- Grocery Stores/ Restaurants that sell the food used by Still Good.

- Venues that use the food truck to attract new customers

- Diners who buy the cooked meals

- The City of Brooklyn Park gains value, because they achieve one of their goals by reducing the amount of food waste that goes to the landfill.

Cost Structure

- Infrastructure (food truck, food prep equipment, waste disposal equipment)
- Labor (Food prep, marketing, management)
- "Still Good" food and compostable serving containers and utensils.
- Permitting costs

Revenue Streams

- Currently, customers are willing to pay very little for expiring food or will not consume it at all. They are willing to pay more for that "still good" food to be transformed into a quick, delicious meal. Customers are willing to pay for the sustainable, food waste reduction mission that the food truck touts.
- Suppliers are willing to sell food at a lower price to avoid putting it in the trash.

Template Source: www.businessmodelgeneration.com

Social Lean Canvas

www.socialleancanvas.com

Designed for:	Designed by:	On:	Iteration #
Brooklyn Park, MN	Ashton, Ben, Brianna	04-09-17	2

Purpose: To develop a virtuous cycle of sustainability in Brooklyn Park through an organization which gives yearly awards for sustainability to restaurants and grocery stores in Brooklyn Park, and provides monthly information about practical paths to sustainability.

Problem:
Restaurants and grocery stores in Brooklyn Park do not incorporate food waste management and other sustainability metrics into their planning procedures. They are unaware of best management practices or the waste hauler services that could implement them. This lack of awareness of alternative methods of waste management results in a lack of market pressure towards novel waste management methods.

Existing alternatives:
- Mailers from Brooklyn Park
- Advertising from waste haulers
- lesstrash.com
- Tax incentives and grants to improve waste disposal
- Hennepin County

Solution:
Create an organization comprising grocery stores, restaurants, and waste haulers, which gives annual awards for sustainability and provides consistent communication and education about waste-reduction methods to members. Sustainability criteria will be determined by Community College professors / Brooklyn Park city officials.

Key metrics:
- Reported waste disposal metrics (cost of disposal, volume of waste produced) by award applicants.
- Change in income for waste management companies
- Change in dollar amount of grants awarded per year.
- Proportion of awards displayed in establishments.

Unique value proposition:
- Restaurants and grocery stores compete with another to be recognized for awards showing their support of the community.
- Restaurants and grocery stores share their knowledge and successes with others
- Waste haulers will pay for access and targeted advertising to groceries and restaurants.

High-level concept:
Annual informational conferences and awards will drive Brooklyn Park businesses to pursue responsible food waste strategies because they seek public recognition and community prestige.
Monthly newsletters reinforce the goal and increase awareness of sustainable options.

Unfair advantage:
- Restaurants' competition for esteem will keep sustainability on their minds.
- Restaurants will want to be in the loop for up-to-date ways to reduce costs and improve sustainability
- Waste haulers earn more by shaping their services to suit the most establishments seeking this award.

Channels:
- Annual conference which distributes targeted information about sustainability options, and at which awards are given.
- News articles celebrating award winners.
- Monthly email newsletters with information about grants and opportunities.

Customer Segments:
- Restaurants and grocery stores
- Waste haulers
- News (to advertise winners)
- North Hennepin Area Chamber of Commerce

Early adopters:
- Restaurants and grocery stores that want to reduce their costs
- Waste haulers interested in connecting with restaurants and grocery stores.
- Local sustainability advocates.

Cost Structure:
The organization will employ one part-time employee to track trends in waste management and compose monthly newsletters.
The organization will pay judges to define rules for, and to adjudicate, the sustainability awards, and will provide a cash prize to add incentive to the award.

Financial Sustainability
Grocery stores and restaurants pay a low annual fee to gain information.
Waste haulers pay a high annual fee to have access to targeted customers.
Grants and donations will cover the remaining costs of the organization

Impact: Newsletters give establishments a pathway to greater sustainability, while motivating waste haulers to improve their practices. Annual awards are tailored to recognize (1) the establishments with the best-planned organics recycling programs, (2) the establishments and waste haulers that have made the largest improvements in organics recycling in the past year, and (3) the establishments in the lowest quartile that have made the greatest improvement in the past year. Co-benefits of these components include an increase in availability of waste disposal metrics, improvement in practices among the lowest quartile, and an increase in the average quality of waste haulers' services.