Spatial Representation of Humboldt Park Community &Nutritional Assets

Puerto Rican Cultural Center
GEO242: GISII
Dr. Hwang
Nov. 16, 2010

Chad Stutsman
Kaitlin Beer
Edward Kulack

Table of Contents

Project Summary

1. Objective

For our GIS II group project we selected to partner with the Puerto Rican Cultural Center (PRCC), a community organization dedicated to serving the social, cultural, and health needs of the Puerto Rican and Latino community in Humboldt Park. Our project is a continuation of the previous GIS II projects. Accommodating the needs and wishes of the PRCC we began by expanding the previous group's dataset by adding in more restaurants, grocers, and community assets. This information was embedded into google earth to increase its accessibility of the Humboldt Park residents.

After researching the PRCC current programs and planned programs it's was decided that nutritional health would be a focus of our project. Programs like the Block-by-Block research initiative will conduct a statistical analysis of obesity and diabetes within the Humboldt Park community. In the hopes to assists in this project and future PRCC community projects this group enacted a research project of the produce availability provided by Humboldt Park restaurants and grocers.

2. Methods

The focus of this part of our research project focused Humboldt Park grocers and restaurants. This group's research began by collecting menus and engaging in onsite stock evaluations this group identified which specific restaurants and grocer had healthy options, in the form of produce, and which did not. Next, this group than conducted a 'network analysis' to establish the service area of each grocer and restaurant within the Humboldt Park community. Service area was defined as a ten minute walking distance around each entity. This data collection was used to produce four maps that show grocers and restaurants with no produce options had a larger service area than those food merchants with produce options. Overall the maps show that residence within the Humboldt Park community have easier access to unhealthy foods than healthy foods. Perhaps these spatial barriers are a contributed factor to the high levels of childhood obesity and diabetes found within the Humboldt Park community.

Needs Assessment

1. Background

Founded in 1973 the Puerto Rican Cultural Center (PRCC) has worked to serve the social, cultural, and health needs of the Puerto Rican and Latino community within and around the Humboldt Park neighborhood. Specifically, the PRCC's mission statement is to serve and preserve the social/cultural needs of Humboldt Park and the Puerto Rican community that resides there. The PRCC and its partners have developed comprehensive programs and networks in the community using very little funding, social capital, and its volunteers to develop the community into a successful and culturally defined area to live in.

In 2004, the Consortium to Lower Obesity in Chicago Children (CLOCC) conducted surveys that found 60 percent of children in Humboldt Park and West Town are obese.[1] In addition, recent studies have a shown that 21 percent of Puerto Ricans living in Humboldt Park and West Town have diabetes.[2] Academic research and literature has shown that the high levels of obesity and diabetes within Humboldt Park's are associated with economic, cultural, and spatial barriers to healthy diets.

In regards to cultural barriers, Putnik and Pérez-Escamilla conducted a statistical analysis of sub-ethnic groups amongst Latinos; a group already identified with high levels of obesity and diabetes.[3] Their article found that "among Latino's in the US Puerto Ricans has the highest prevalence of type 2 diabetes."[4] The authors believe their results are caused by financial constraints and poor dietary intake attitruted to cultural foods that are high in fat and sugars. In regards to socio-economic levels Horowithz, Williams and Bickell's article highlights common financial barriers that prevent healthy lifestyles within impoverished communities. The authors point out that impoverished communities lack access to insurance, medical resources, and healthy diets as a result of financial constraints.[5] Finally, there are also spatial barriers called 'Food Deserts' that inhibit a community's access to produce. A food desert is defined as, "an urban areas with little or no access to nutritious food."[6] Often food desert exist because there are no food

[1] Morales, "Promoting Healthy Eating in East Humboldt Park."

[2] Thomas, "Taking diabetes fight to the streets: Campaign Targets Puerto Ricans in Humboldts Park, West Town."

[3] Perez-Escamilla and Putnik, "The role of acculturation in nutrition, lifestyle, and incidence of type 2 diabetes among Latinos," 860.

[4] Ibid., 866.

[5] Morales, "Promoting Healthy Eating in East Humboldt Park."

[6] Goldsberry and Acmoody, "Mapping Nutritional Terrain."

merchants within an accessible distances (i.e. a 20 minute walk). Or any food merchant within the area is too expansive for the communities' average consumer.[7]

In response to these health issues and barriers the PRCC and its partners have enacted health, fitness, and nutrition programs targeting the high level of childhood obesity in Humboldt Park and West Town. Such programs include community gardens and urban-agriculture that emphasize also reducing our ecological footprint, having fresh healthy food cultivated by the community, and promote the micro economy of the community. The community has a farmers market every Saturday throughout the warmer months of the year to provide fresh produce. To cope with those under socio-economic duress the community provides a food basket program that delivers 250 bags of food per month during the winter to needy families. There is also a mobile produce program that brings produce to peoples' doors to cope with the availability of healthy food. A partnership with the local Merchant Association runs a program called Buen Provecho that provides freezers with healthy alternatives in the their restaurants as well. To cover all bases the PRCC in conjunction with the Steans Center is close to releasing a cookbook for healthy Puerto Rican food that breaks from the misconception that's its culturally defined to be unhealthy (i.e. everything cooked lard). The PRCC also runs a newspaper produced by volunteers that is culturally directed and addresses many of the community concerns and seeks to educate the community how to collectively find solutions. A variety of educational initiatives bring awareness to the community about its health.

2. Goals

In accordance with their mission, the PRCC would like this group to use GIS to highlight those Humboldt Park community assets that are focused on health, heritage, and pride. This group will provide a data set that identifies healthy eating venues with affordable produce options. In addition, this group's dataset will also identify Humboldt Park community assets in the form of religious institutions, community gardens, or social programs. This group's project will assist the PRCC by providing an easily accessible format (i.e. google map) that promotes Humboldt Park community assets and businesses.

3. Objectives

Objectives for this group involved data transfer, collecting, processing, and mapping. First data was transferred from the previous GIS groups' project. Entities like religious institutions were kept and transferred to our projects' dataset. Second, data was collected on restaurants, grocers, and community assets. In regards to restaurants and grocers this included menu collection and evaluation on produce availability. This also involved researching restaurants and grocers overlooked by previous GIS projects. Third, collected and transferred data was processed which including merging datasets and clearing them of discrepancies. In addition, datasets were transferred to KMZ files. Finally, this group produced five JPEG maps and embedded its datasets into google earth.

[7] Ibid.

4. Information Products

This group's project produced a dataset containing financial and nutritional analysis on restaurants and grocers within the Humboldt Park neighborhood. Using this information this group produced a series of maps that show the financial and spatial barriers that limit access to produce. This group also expanded the dataset of previous GIS II project groups on community assets. Finally, this group transferred its dataset from ArcGIS to a KMZ file for the purpose of uploading to google maps.

System Requirements

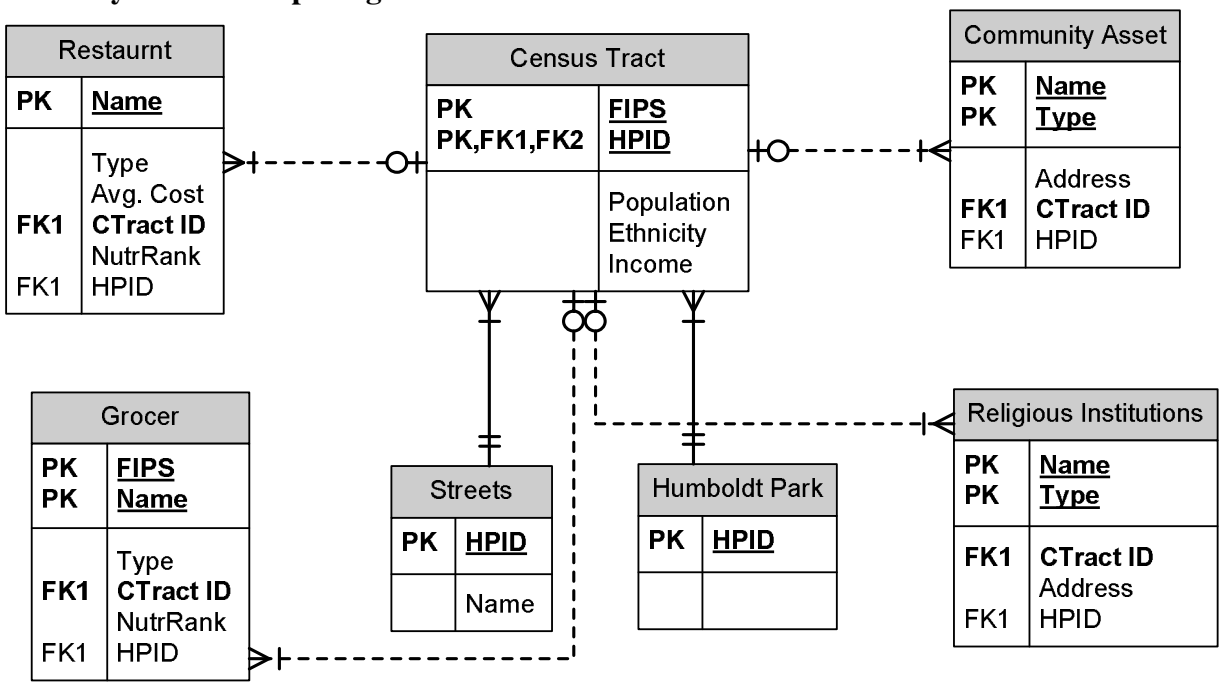
1. Introduction

The system requirements section background information on seven different entities labeled: Humboldt Park, census tract, streets, religious institutions, community assets, restaurants, and grocers. The first entity 'Humboldt Park' will provide the main spatial backdrop for this project. Census Tract will use block demographic data from US Census will require demographic and economic information on Humboldt Park residents including: population, ethnicity, income and poverty levels. In addition, Census Tract will be the keystone data set, which will be used to connect the remaining six entities. The next entity 'Streets' will help orient map viewers by providing spatial context through street names and locations. The entities 'Restaurants' and 'Grocers' provide Humboldt Park residents with information on healthy and affordable food options. Finally, both 'Community Assets' and 'Religious Institutions' will provide information on those health, fitness, and cultural programs that are available to Humboldt Park residents.

2. Data Requirements

Entities Need To Know	Street	Humboldt Park	Census Tract	Grocer	Restaurant	Religious Institution	Community Asset
Name	X			X	X	X	X
Type				X	X	X	X
Location	X	X	X	X	X	X	X
Population		X	X				
Ethnicity		X	X				
Income		X	X				
Average Cost					X		
Nutritional Rating				X	X		

3. Entity-Relationship Diagram



4. Processing Requirements

	Space	Attribute
Data Collection	Primary Data Capture (surveying area restaurants and grocers) Geocoding	Data input into excel spreadsheet Data transfer
Data Manipulation	Coordinate transformation	Normalization (cleanup) Field manipulations (addition of new attributes)
Data Analysis	Network and Buffer Analysis	Attribute Query
Data Visual ion	Google Maps Thematic Mapping-Graduated Color	Graphing

Data Acquisition

Part 1: Introduction

This group will be expanding the previous GIS groups project dataset by including more attribute data and more entities representing community assets, restaurants, and grocers. The dataset 'religious institution' will be transferred from the previous GIS groups' project. The six remaining data sets Humboldt Park, census tract, community assets, streets, restaurants, and grocers will be acquired. We will transfer our data to a KML file to embed into google maps. Furthermore, vector data --line, point, and polygon- will be used to represent Humboldt Park's boundaries and also represent streets, restaurants, grocers, religious institutions and communities' assets. . The expansion of attribute data will focus on those entities that are related to food service such as restaurants and grocers. The data will be expanded to include information on nutrition and affordability.

Data acquisition will be collected from five sources: the previous group's dataset, Humboldt Park merchants, the PRCC, the Division Street Development Association (DSDA), and the United States Census Bureau. The previous groups' dataset lacks nutritional and affordability information. Collecting menus and price information directly from Humboldt food merchants will be used to populate the missing data. The PRCC and the DSDA will provide information on restaurants, grocer, and community assets that are missing from the previous group's dataset. Finally, the Census Bureau will be used to provide demographic data about the Humboldt Park community.

Part 2: Data Dictionary

A. File Name: Restaurant

- Description: The data is a representation of Humboldt Park's restaurants. The data will provide a spatial representation of restaurants complimented with attribute data providing nutritional and cost information.
- Source of the data: PRCC, DSDA, and previous group's dataset.
- Processing steps:
    1. Restaurants are identified by information provided from the previously mentioned 'Source of Data'.
    2. Entities addresses will be identified and geocoded.
    3. Collecting menus and price information from the identified restaurants includes nutritional and cost attribute data.
    4. The nutritional and cost information is transferred to an ordinal dataset to identify help users identify which Grocer is healthy and affordable.
    5. Network analysis will be used to show the spatial accessibility (10 minute walking distance) by Humboldt Park residents.
- Spatial object type: point

Field Name	Description
Name	The name of the specific merchant
Type	Numeric identification of a grocer (1) or restaurant (2)
Address	Spatial location of specific entity
Avg_Cost	Average cost of meal for an individual
Nutrition	An ordinal rating of the availability of healthy options. (1) Healthy Options, (2) Limited Options, (3) No Options
TractID	Census tract identification.

B. File Name: Grocer

- Description: The data is a representation of Humboldt Park's grocers. The data will provide a spatial representation of grocers complimented with attribute data providing nutritional information.
- Source of the data: PRCC, DSDA, and previous group's dataset.
- Processing steps:
    1. Grocers are identified by information provided from the previously mentioned 'Source of Data'.
    2. Entities addresses will be identified and geocoded.
    3. Collecting menus and price information from the identified grocers includes nutritional data.
    4. The nutritional and cost information is transferred to an ordinal dataset to identify help users identify which Grocer is healthy and affordable.
    5. Network analysis will be used to show the spatial accessibility (10 minute walking distance) by Humboldt Park residents.
- Spatial object type: point

Field Name	Description
Name	The name of the specific merchant
Type	Numeric identification of a grocer (1) or restaurant (2)
Address	Spatial location of specific entity
Avg_Cost	Average cost of meal for an individual
Nutrition	An ordinal rating of the availability of healthy options. (1) Healthy Options, (2) Limited Options, (3) No Options
TractID	Census tract identification.

C. File Name: Census Tract

- Description: This data set will provide economic and ethnic demographic background on the Humboldt Park community.
- Source of the Data: US Census Bureau.
- Processing Steps:
    1. Collect online data from the Census Bureau relevant to Humboldt Park.
    2. Transferring relevant information to an attribute data set.
    3. Join attribute data to geography.
- Spatial object type: Polygon

Field Name	Description
FIPS	Federal information processing standards of census tract
Pop	Humboldt park population
Ethnicity	The ethnic breakdown of the Humboldt Park community
Income	Median income levels of the Humboldt Park community

C. File Name: Comm_Asset

- Description: This data will identify Humboldt Community Assets such as community gardens, social health and fitness programs, or farmer markets.
- Source of Data: PRCC
- Processing Steps:
    1. Community Assets will be identified through information provide by the PRCC.
    2. Each asset will be identified as a farmers market, community garden, health program, or fitness program.
    3. Geocoding address
- Spatial type: point

Name	Description
Name	The name of the specific merchant
Type	Numeric identification of a farmers market, (1) community garden, (2) health program, (3) fitness program
Address	Spatial location of specific entity
Tract ID	Census Tract identification

D. File Name: Humboldt

- Source of data: City of Chicago GiS Data
- Processing Steps:
- Spatial Type: Raster

Part 3: Fitness for Use

A. Restaurant: This data set will be an accurate spatial representation as long as collected addresses are geocoded correctly. In regards to attribute data the information will be complete and accurate only if collected nutritional and price information is correct and up to date. A main source of this information will be the collection of menus; if out of date the data provided will be inaccurate. This data is limited by time. Merchant will change products and price over time. In addition, some merchant may go out of business.

B. Grocer: This data set will be an accurate spatial representation as long as collected addresses are geocoded correctly. In regards to attribute data the information will be complete and accurate only if collected nutritional information is correct and up to date. A main source of this information will on site inspections of produce availability. This data is limited by time. Grocers will change products and price over time. In addition, some grocers may go out of business.

C. Census Tract: Because this data will be collected from the United States Census Bureau it is considered by most as a reliable representation of demographic characteristics. However, this dataset is limited by the fact that available census data is 10 years old and this year's census information is not available.

D. Comm_Asset: Information collected from the Internet and the PRCC on community assets will include address. If the addresses are accurate and correctly geocoded than this dataset will be accurate. However, like the Food_Mcht, this dataset will be limited by time. Community assets may move address or cease operation.

E. Religious Institutions: This dataset will be a continuation of the previous GIS groups' dataset. Although a few months old there is a possibility that some of these institutions have relocated or gone under.

Part 4: Data Acquisition Constraints

Part of this group's project was a continuation of the previous groups GIS project. In regards to entities like religious institutions this group transferred the previous group's data. However, in regards to other entities like restaurants and grocers this group continued, expanded, and updated the previous group's data. In regards to the restaurant entity this group expanded the data set by populating it with new and overlooked restaurants. In addition, the restaurant data set was expanded with new attribute data like nutritional ratings and average cost. New attribute data was acquired by traveling to Humboldt Park and collecting restaurant menus. This part of the project was the most time consuming and created limits on what could and could not be accomplished. Restaurants that did no have available menus were researched at the online websites www.metromix.com and www.yelp.com. Both websites were able to supply this group with additional menus. However, there were still a handful of restaurants that we could no acquire menu data; these restaurants were identified as 'no data' on completed maps. Menu's that were obtained were than evaluated and categorized within the restaurant data set. However, menus frequently change which necessitates updates for the restaurant data set. In regards to the grocer data set, these entities were evaluated by the abundance of produce available for sale. Stores do change their stock and for this reason the grocer data set will need to be updated as well.

The community assets were researched and identified online. These assets were identified by their services provided to Humboldt Park residence. Two-community asset entities were identified and mapped by this group but are outside of Humboldt Park.

Finally, the census tract data was collected from the United States Census Agency. This data origin is from the 2000 census because the 2010 census data is unavailable. Demographic information from this data set may have inaccuracies because of significant demographic changes within the last 10 years.

Data Analysis

Part 1: Introduction

As mentioned earlier the PRCC requested a GIS project that helps create awareness and accessibility of Humboldt Park community assets that are focused on health and fitness. In response this group will expand existing datasets with more community assets restaurants and grocers. Furthermore, in response to Humboldt Park's high-levels of childhood obesity this group will also produce a dataset that high light those community food merchants that have healthy food options. This project final product will produce five datasets –grocers, restaurants, religious institutions, community assets, census tract information, and an ortho-photo overlay of Humboldt Park- that will be imbedded into Google Maps.

Part 2: Information Products

A. Databases

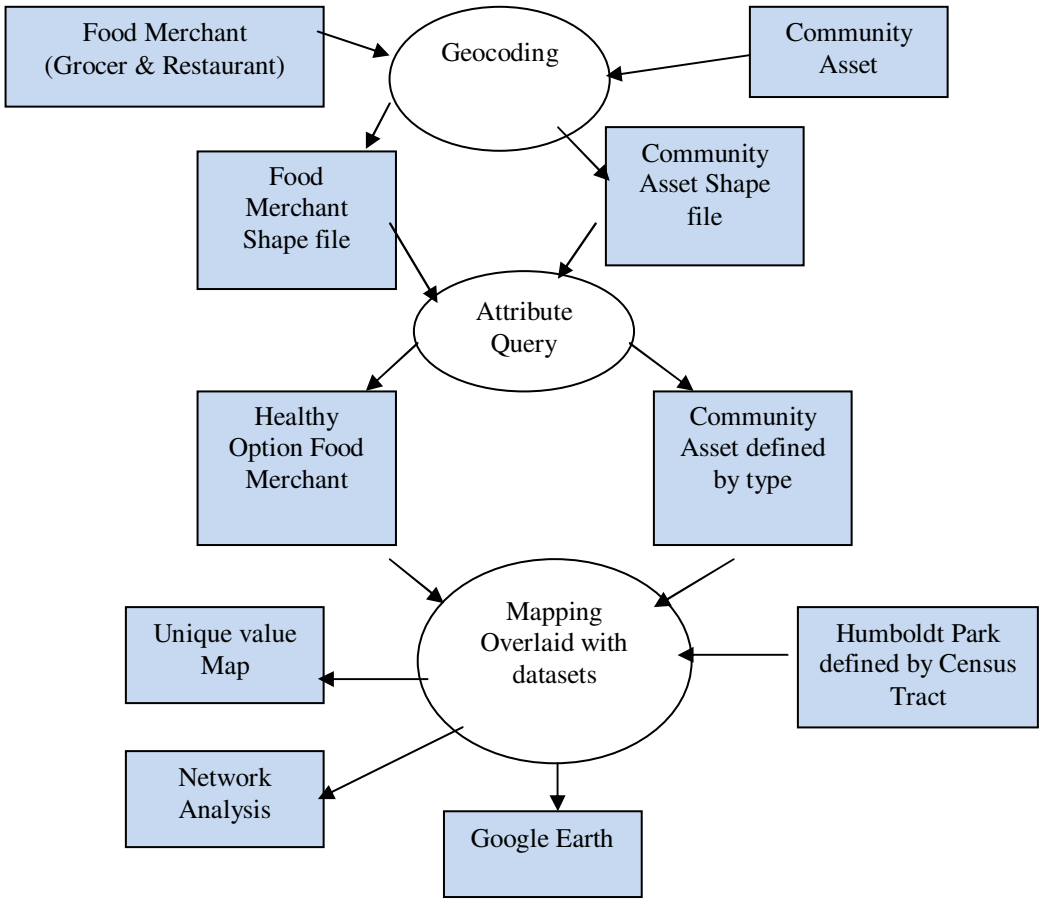
1. **Grocers:** This data set will cover grocers within Humboldt Park. Included in this dataset will be attribute produce availability. This data will be produced in a CSV file so it can be used in ArcGIS and updated by the PRCC or other GIS project teams. Furthermore, this data will be transferred to a KMZ file so it can be embedded within google earth.
2. **Restaurants:** This data set will cover restaurants within Humboldt Park. Included in this dataset will be attribute data on affordability and produce options. This data will be produced in a CSV file so it can be used in ArcGIS and updated by the PRCC or other GIS project teams. Furthermore, this data will be transferred to a KMZ file so it can be embedded within google earth.
3. **Community Assets:** This dataset will incorporate those community gardens, farmer markets, and health and fitness programs within Humboldt Park. This data will be produced in a CSV file so it can be used in ArcGIS and updated by the PRCC or other GIS project teams. Furthermore, this data will be transferred to a KMZ file so it can be embedded within google earth.
4. **Religious Institutions:** This dataset will be a continuation of the previous GIS groups' dataset. This data will be produced in a CSV file so it can be used in ArcGIS and updated by the PRCC or other GIS project teams. Furthermore, this data will be transferred to a KMZ file so it can be embedded within google earth.
5. **Census Tract Information:** This dataset will consist of block census information on the Humboldt Park community. Attribute data will include demographic information on ethnicity, income, and poverty levels. This data set will also be used to establish the spatial boundaries of Humboldt Park.

Furthermore, this data will be transferred to a KMZ file so it can be embedded within google earth.

6. **Humboldt Park:** This dataset will be an aerial ortho-photo of Humboldt Park, which will provide the foundation of this project. This photo overlay will be overplayed with shape files that represent grocers, religious institutions, restaurants and community assets. Furthermore, this data will be transferred to a KMZ file so it can be embedded within google earth.

B. Produced Maps

1. **Unique Values:** This map highlights Humboldt Park's assets. It will show the spatial boundaries of Humboldt Park and the geocoded locations of religious institutions, community assets, grocers, and restaurants. Found in Appendix A.
2. **Unique Values and Network analysis:** Two maps produced show the spatial service area of restaurants and grocers with healthy produce availability. In addition, two other produce maps show the spatial service area of grocers with no produce options. Found in Appendix B,C,D,E.
3. **Google Earth:** As mentioned all data sets will be transferred to KMZ format and embedded into google earth. This map allows for an increase in accessibility of by the PRCC, its partners, and Humboldt Park residences.



Results

The first map produced with the collected data set was a unique values map that highlights the various assets of Humboldt Park. The map titled "Community Assets & Food Vendors in Humboldt Park", which is also found in Appendix A, shows a spatial representation of religious institutions, community assets, restaurants, and grocers within the Humboldt Park neighborhood. The datasets from this map were transferred to KMZ file and embedded into google earth in order to increase the accessibility of this information.

After conducting onsite analysis of grocery stores and restaurant menu data collection a series of maps were produced to establish the accessibility of fresh produce within the Humboldt Park Community. First, the attribute data on both the grocer and restaurant entities were expanded to include a field titled "Nutri Opt". This entity was a rating on the availability of fresh produce for each grocer or restaurant. Specifically, this group conducted onsite inspections, for each of the eight grocer locations, to evaluate the availability of produce for each location. Of the eight grocers three were found to have produce availability while five were found to lack produce. Two maps were produced that showed the spatial accessibility of grocers within the Humboldt Park area. Spatial accessibility was defined in the article, "Mapping Nutritional Terrain" as a 10 minute walking distance for the average person.[8] Using a process call Network Analysis we were able to show the service area for each grocer. Two maps were produced that show the service area of grocers with produce to those without produce. The map titled "Grocery Produce Service Area in Humboldt Park", found in Appendix B, shows that the Northwest and Southwest corners of Humboldt Park lack walking distance access to grocery produce. In contrast, the map title "the Service Area of Grocers with No Produce", found in Appendix C shows a larger service area than the produce grocers. What both maps together show that there is easier access to unhealthy foods than healthy.

A similar process was conducted for restaurants as well. After inspecting menus restaurants were separated into four categories titled: healthy options, limited options, no options, and no data. For two of the categories, healthy options and no options, maps were produced that tell a similar story as the grocer maps. The first map title "Restaurant Produce Service Area in Humboldt Park", found in Appendix D shows a lack of access in the northwest and southwest corner. Similar to the no produce grocers the restaurants with no healthy options have a larger service area. The map titled "the Service Area of Restaurants with No Produce", found in Appendix E, shows that restaurants with unhealthy foods have are more accessible than those restaurants with healthy options.

Finally, in regards to restaurants attribute data was expanded to show the average cost of meals at each restaurant. Originally this data was intended to be used for spatial analysis, but do to the lack of time we were unable to produce any maps. However, an

[8] Ibid.

examination of the attribute field titled “AvgCost” found in the restaurant data set may show that there are also financial barriers to access of healthy options restaurants. Using the median income of both households and family, derived from US Census data, this group calculated the median daily food expenditure of Humboldt Park residents. For family median income it is $2.18 per meal where as household is $2.08. Both calculations show that the average prices at restaurants are too high for median meal expenditures, which represents a financial barrier to healthy foods available at restaurants.

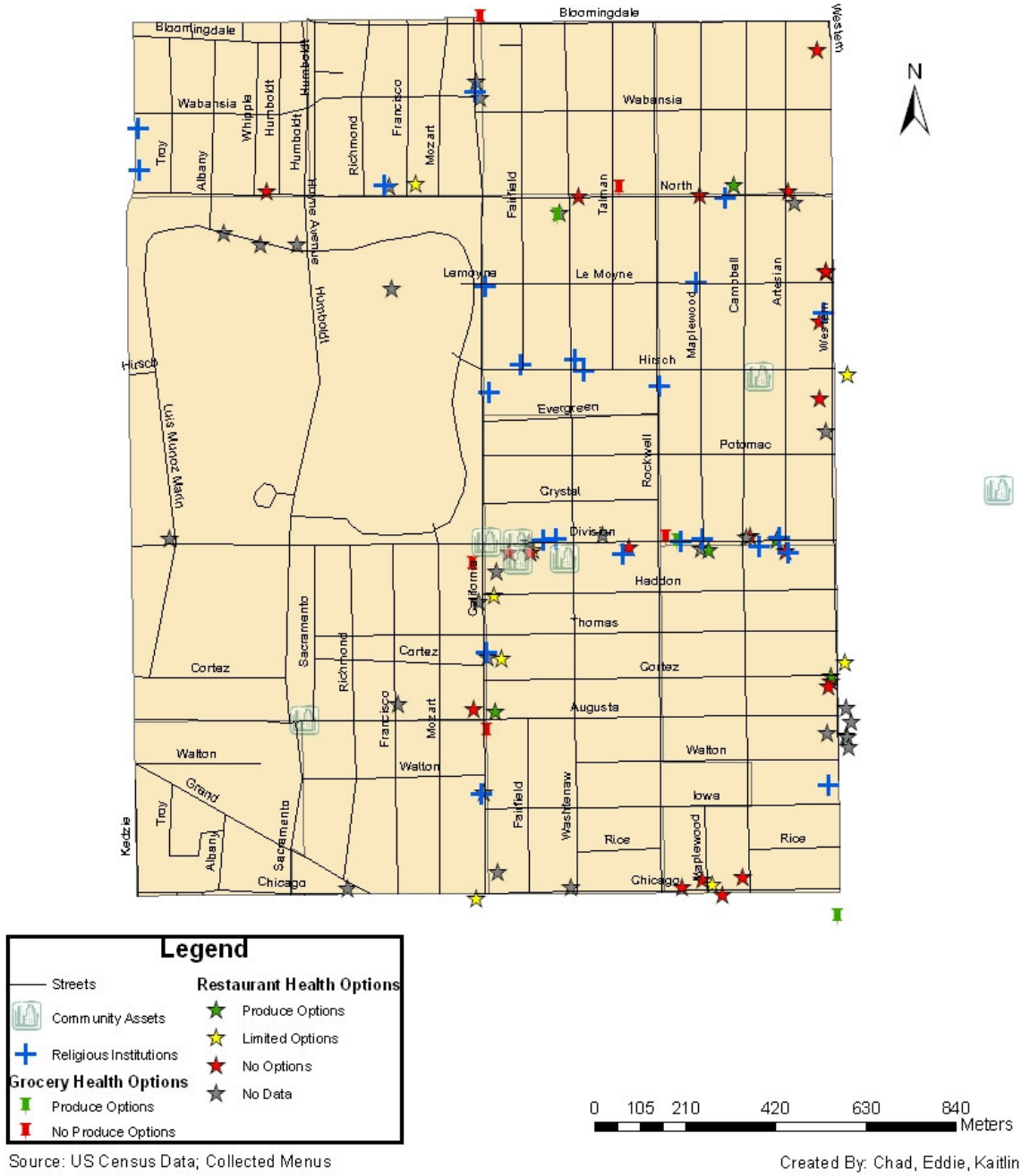
Summary, Conclusions, and Recommendations

The conclusion we made from our data was that the PRCC and partner community programs have had some success in reducing the lack of accessibility to healthy food in the area. The median income however, projects the average amount spent on a meal per day at $2.18, way below the average prices for the restaurants in the area. In order to maintain prevention of diabetes and child obesity, the community must maintain and expand the programs initiated by the Humboldt Park Diabetes Task Force to make nutritional food affordable and available especially to those who are financially struggling. The community has a farmers market every Saturday throughout the warmer months of the year to provide fresh produce. To cope with those under socio-economic duress the community provides a food basket program that delivers 250 bags of food per month during the winter to needy families. There is also a mobile produce program that brings produce to peoples' doors to cope with the availability of healthy food. A partnership with the local Merchant Association runs a program called Buen Provecho that provides freezers with healthy alternatives in the their restaurants as well. To cover all bases the PRCC in conjunction with the Steans Center is close to releasing a cookbook for healthy Puerto Rican food that breaks from the misconception that's its culturally defined to be unhealthy (i.e. everything cooked lard). The cookbook is to go in hand with its urban agriculture initiatives in its community gardens, an acre of space donated by the Chicago Park District, and a greenhouse on one of its high schools to be cultivated and distributed by the students. If successful the community has plans to begin building greenhouses all along Division Street. These programs are serving a larger purpose to make the community into a model for addressing inequalities in access to healthy food, which has had tremendous health effects on the community. They serve as a sustainable and cost efficient model for cultivating an actively aware community to bring about social justice by creating solutions for a healthier environment supported by its greening efforts.

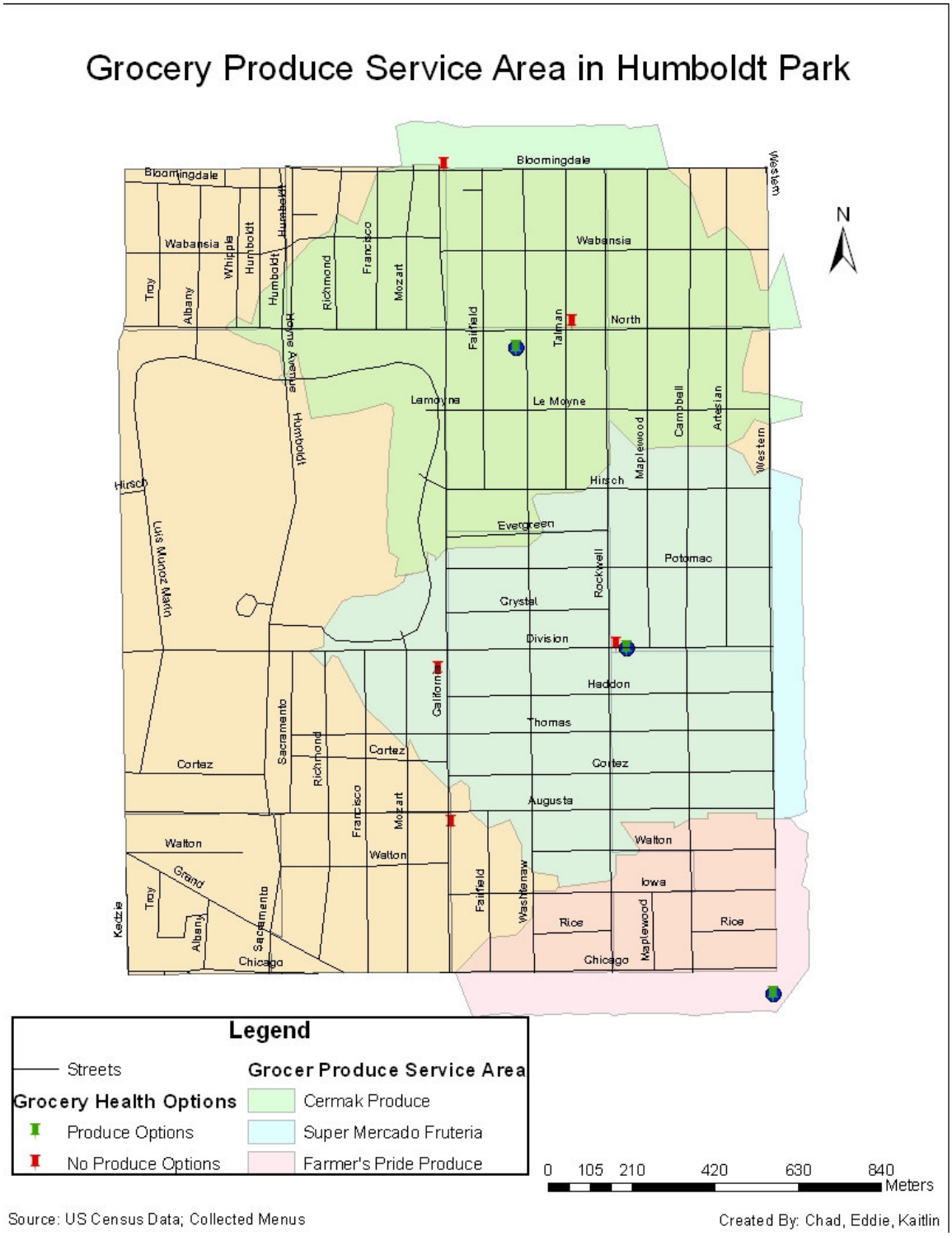
For future groups continuing this project we recommend they refine the methodology for attributing nutritional value to grocery stores and restaurants such as taking a full inventory of produce in grocery stores. It also may be wise to expand the data layers to include peripheral restaurants/grocers outside the areas we covered for Humboldt Park. We also advise searching for block-by-block food expenditure data to refine the way to attribute affordability of nutritional food. There was also not enough time to accurately digitize the community gardens and urban agricultural sites as well. In, addition there were plans to create guide/lab that guides participating BRAAC students through a step-by-step process in collecting GIS data of Humboldt Park GIS murals to be uploaded into GoogleMaps at the request of the PRCC, but we were unable to fulfill due to time constraints.

Appendix A

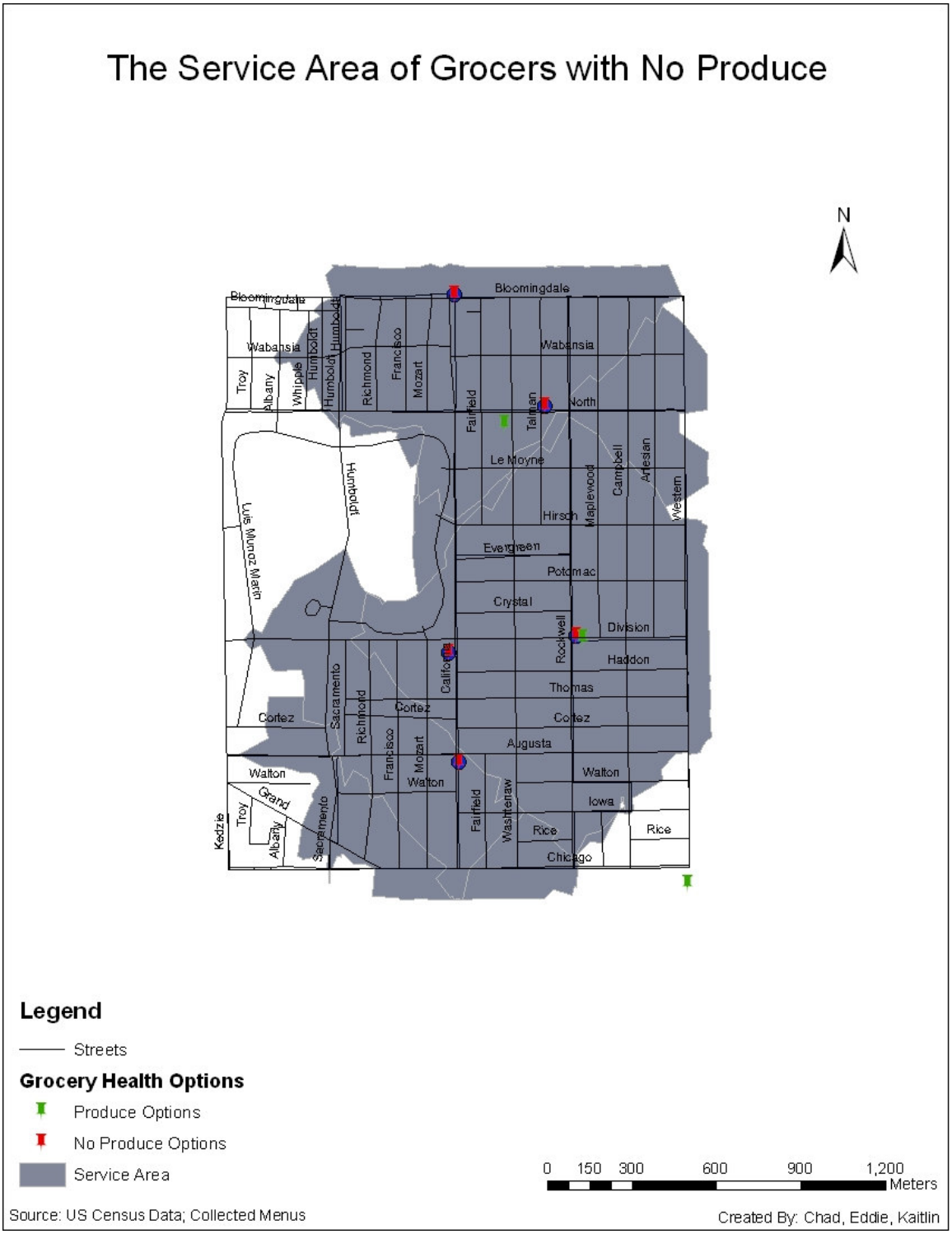
Community Assets & Food Vendors in Humboldt Park



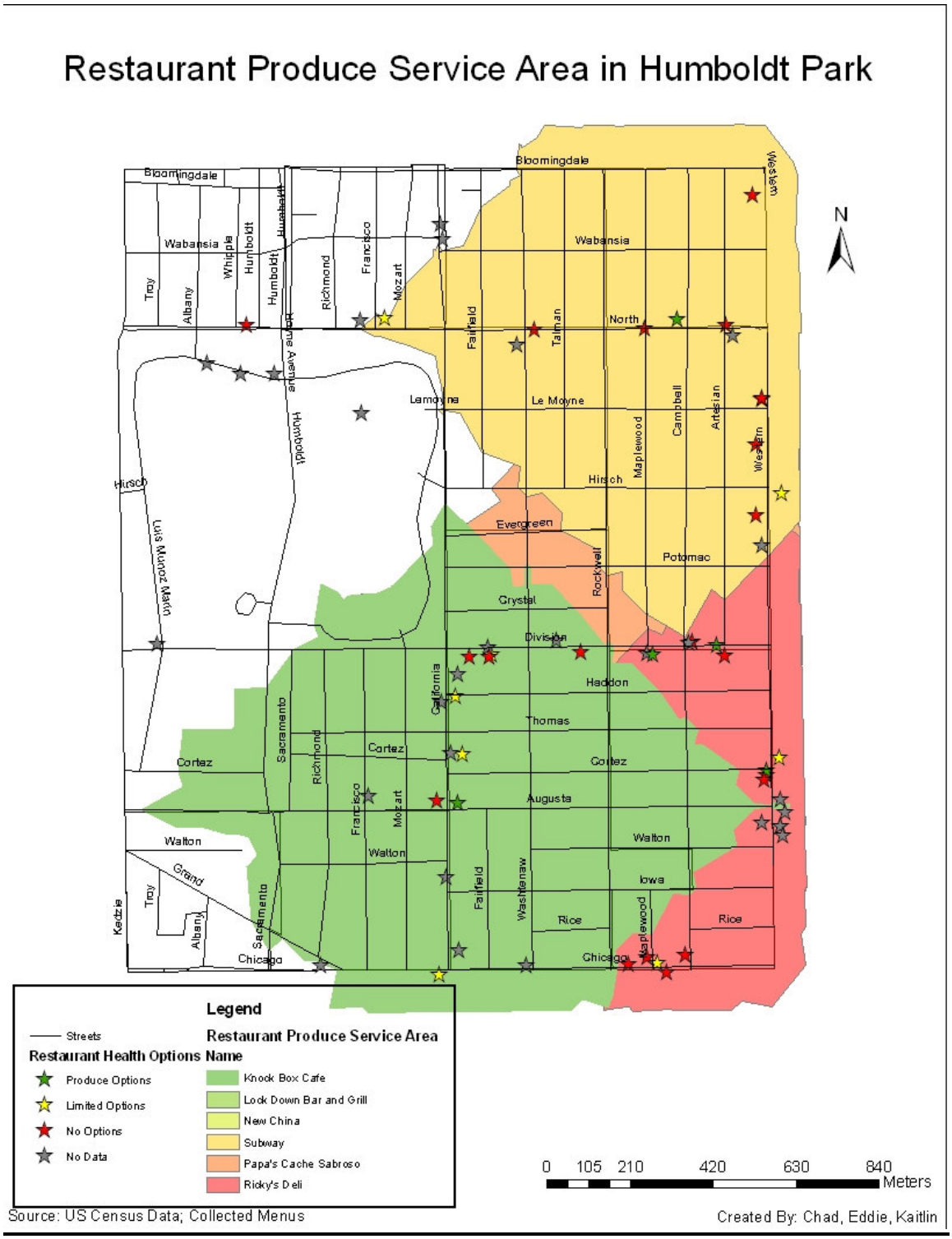
Appendix B


Grocery Produce Service Area in Humboldt Park
Bloomingdale
Wabansia
Troy
Albany
Whipple
Humboldt
Hurlbut
Richmond
Francisco
Mozart
Fairfield
Talman
North
Western
Lamoyne
Le Moyne
Campbell
Artesian
Maplewood
Hirsch
Evergreen
Potomac
Rockwell
Grystal
Division
Haddon
Thomas
Cortez
Augusta
Walton
Iowa
Rice
Chicago
Kedzie
Grand
Sacramento
Washtenaw
Luis Munoz Marin
Humboldt
N
Legend
Streets
Grocer Produce Service Area
Grocery Health Options
Produce Options
No Produce Options
Cermak Produce
Super Mercado Fruteria
Farmer's Pride Produce
0 105 210 420 630 840
Meters
Source: US Census Data; Collected Menus
Created By: Chad, Eddie, Kaitlin

Appendix C

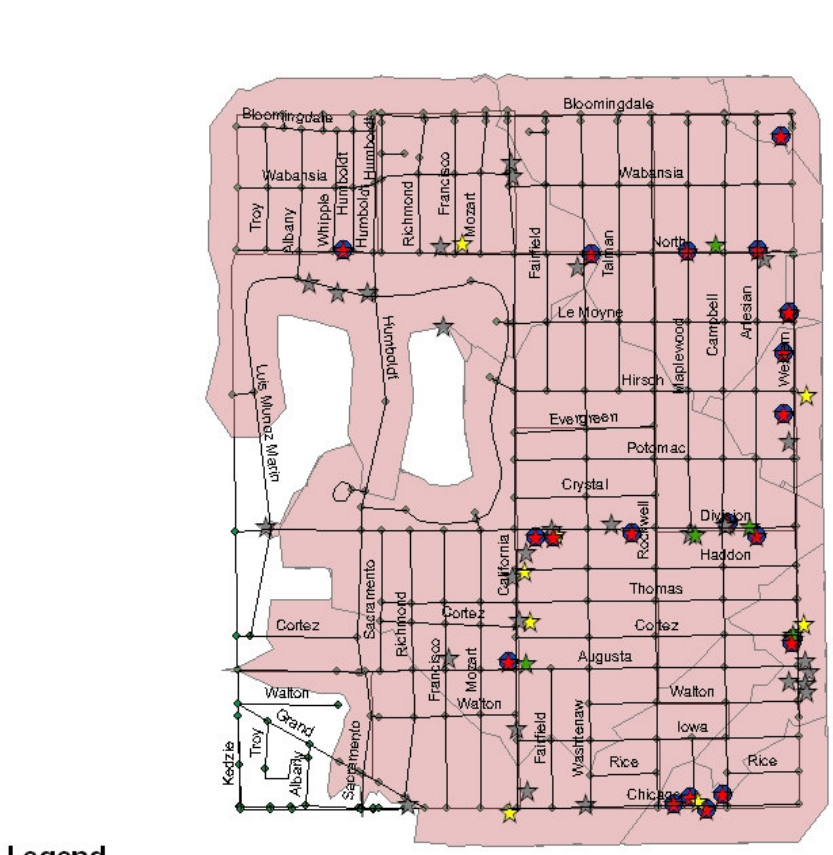

The Service Area of Grocers with No Produce
N
Bloomingdale
Wabansia
Troy
Albany
Whipple
Humboldt
Richmond
Francisco
Mozart
Fairfield
Talman
North
Le Moyne
Campbell
Artesian
Western
Maplewood
Hirsch
Evergreen
Potomac
Crystal
Division
Rockwell
Haddon
Thomas
Cortez
Augusta
Walton
Iowa
Rice
Chicago
Sacramento
Grand
Kedzie
Washtenaw
Luis Munoz Marin
Legend
Streets
Grocery Health Options
Produce Options
No Produce Options
Service Area
0 150 300 600 900 1,200
Meters
Source: US Census Data; Collected Menus
Created By: Chad, Eddie, Kaitlin

Appendix D


Restaurant Produce Service Area in Humboldt Park
Bloomingdale
Wabansia
Troy
Albany
Whipple
Humboldt
Richmond
Francisco
Mozart
Fairfield
Talman
North
Western
Lamoyne
Le Moyne
Maplewood
Campbell
Artesian
Hirsch
Evergreen
Potomac
Rockwell
Crystal
Division
Haddon
Thomas
Cortez
Augusta
Walton
Iowa
Rice
Chicago
Kedzie
Grand
Sacramento
California
Washtenaw
Luis Munoz Marin
Humboldt Park
N
Legend
Streets
Restaurant Produce Service Area
Restaurant Health Options Name
Produce Options
Limited Options
No Options
No Data
Knock Box Cafe
Lock Down Bar and Grill
New China
Subway
Papa's Cache Sabroso
Ricky's Deli
0 105 210 420 630 840
Meters
Source: US Census Data; Collected Menus
Created By: Chad, Eddie, Kaitlin

Appendix E

The Service Area of Restaurants with No Produce



Legend

Streets

Restaurant

Restaurant Health Options

- Produce Options
- Limited Options
- No Options
- No Data
- Service Area

0 150 300 600 900 1,200 Meters

Source: US Census Data; Collected Menus

Created By: Chad, Eddie, Kaitlin

Appendix F

Works Cited

Goldsberry, Kirk, and Sarah Acmoody. "Mapping Nutritional Terrain." *ArcUser*, Fall 2010.

Morales, Miguel. "Promoting Healthy Eating in East Humboldt Park." *Consortium to Lower Obesity in Chicago Children*, September 21, 2010. http://blog.clocc.net/2010/09/21/promoting-healthy-eating-in-east-humboldt-park/.

Perez-Escamilla, R., and P. Putnik. "The role of acculturation in nutrition, lifestyle, and incidence of type 2 diabetes among Latinos." *Journal of Nutrition* 137, no. 4 (2007): 860.

Thomas, Mofina. "Taking diabetes fight to the streets: Campaign Targets Puerto Ricans in Humboldts Park, West Town." *The Chicago Sun Times*, April 27, 2010, sec. Health.