Chicago Fair Trade

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Project Summary:

Chicago Fair Trade has requested our help to create a visual tool that projects information within their database onto a map of Chicago. The database is comprised of locations and addresses of various fair trade institutions, organizations, cafes and stores throughout the city. Chicago Fair Trade has asked us to do this because they need to assess the current state of their progress in reaching their goal; to revitalize the city of Chicago into an internationally renowned fair trade city. To meet this goal Chicago Fair Trade has been participating in, establishing, and advocating that at least one fair trade serving institution and retail store in each of Chicago's seventy-seven neighborhoods exist. This is to ensure that everyone within in the city can have access to fair trade goods as well as to increase awareness about fair trade goods throughout the neighborhoods that they may not be available in. In order to continue the spread of fair trade retailers and institutions throughout the city, Chicago Fair Trade needs to analyze which communities these outlets are accessible to and which communities don't have access to them. This will allow Chicago Fair Trade to increase awareness and knowledge about fair trade within these regions and assist in the creation of fair trade outlets for the community members to access.

Our job is to create a map that displays the current reach of their project. By creating a map that displays the locations of these institutions and stores in relation to the Chicago Community Areas, Chicago Fair Trade will better be able to determine which neighborhoods need more attention in spreading fair trade awareness and advocacy. We will also create a map for them that will clearly show the community areas that currently don't have any fair trade outlets within them. This will provide a visual that will allow them to determine which specific locations need more attention. These maps may be used as an analytical tool to decipher any trends between the location of fair trade organizations/institutions and the number of fair trade stores within neighborhoods by using a simple buffer tool analytical methodology. These maps will illustrate where attention needs to be focused by Chicago Fair Trade in order to continue working towards their goal of establishing Chicago as a Fair Trade City.
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1. **Introduction:**

Chicago Fair Trade is a non-profit organization dedicated to furthering the fair trade movement and making Chicago an international fair trade city. Members of Chicago fair Trade can be divided into either categories of individuals or organizations; where organizations collectively comprise business members, NGO's, faith organizations, and educational institutions/student groups. Chicago Fair Trade is involved in a variety of projects including campaigns to market fair trade sports goods to Chicago schools as well as working to ensure that the city's seventy-seven neighborhoods contain at least one supporting fair trade institution or retail outlet. In doing so, Chicago Fair Trade wishes to turn Chicago into an internationally reputable city known for fostering ideals of international equity, fairness and mutual respect within the international community. Moreover, the efforts of Fair Trade Chicago work towards increasing retail and economic opportunities within the city as well as promote environmental sustainable practices. The goal for our project was to create maps which plot the different fair trade outlets located in Chicago, showing all of the seventy-seven community areas, allowing

Chicago Fair Trade to find communities which need more fair trade locations. We have created three different maps of Chicago each showing the location of specific fair trade outlets. Also third map includes all fair trade locations and we highlighted community areas which do not have any fair trade outlets.

2. Needs Assessment:

The DePaul students assisting Fair Trade Chicago in meeting their goals will examine and map out the fair trade locations in Chicago's seventy-seven community neighborhoods using ArcGIS software. Given the clients interest in a having a map created that they could alter for future use, the DePaul group will look into the possibility of creating a map using software that Chicago Fair Trade could utilize on their own, such as GoogleMaps. To create these maps, DePaul partners will be utilizing the excel database that Chicago Fair Trade has provided. The map and other information created from this database is intended for use on Chicago Fair Trade's website. The map will not only mark the locations of all fair trade outlets and institutions but also provide public viewers with addresses and other relevant information about the locations as well. This goal of this format is to increase a consumer's knowledge and access of locations throughout the city that serve and cater to fair trade practices. The created maps will also find relevance to other fair trade suppliers as it will increase awareness of high demand fair trade city regions in an easy-to-interpret visual format.

By creating these visual tools, the DePaul team plans to answer the consumer's question on behalf of Fair Trade Chicago of where they can buy local fair trade items as well as to increase their awareness of the availability of such items. The goal of having Chicago internationally recognized as a fair trade city will begin by increasing methods in which Chicago is locally viewed and recognized as a fair trade city. Through accomplishing this project we will also be able to present a visual representation of the various locations of fair trade outlets in our communities, as well as the concentrations of these retailers in specific regions. The data presented by the DePaul team will aid in this process by giving Chicago Fair Trade a valuable tool to track and market Chicago as a city determined to practice and advocate fair trade ideals..

In order to accomplish the goals of creating a user friendly map that can be applied towards increasing customer awareness, increasing customer access, and increasing awareness amongst fair trade businesses of Chicago's standing as a fair trade city, the DePaul team has set forth three objectives. The first task to be completed is to update the current database to include any newly opened fair trade businesses that the current database does not contain. Once updated, the database will be used to compile and geocode the addresses of fair trade related businesses in all of Chicago's seventy-seven community areas. Upon the completion of this objective, the second task will be to create a map with the updated database information and with the symbology and format agreed upon with the client. By using clear and cohesive symbols, customers will be able to readily identify the location of fair trade outlets, institutions and advocacy centers. Moreover, such a format would allow for an analysis of how these organizations relate to one another. The final task will then be to highlight the areas that have little to no fair trade businesses in order to increase awareness of fair trade-desolate regions. This will provide Fair Trade Chicago with a visual tool to analyze and interpret where and how their efforts should be located throughout the city.

In order to answer the general question of, "where can customers locally buy fair trade products," the DePaul students will answer two questions. The first question is, "where is the exact location of fair trade businesses and institutions in Chicago?" This will be completed

through the compilation of the excel database as well as by creating the map using either/both ArcGIS or GoogleMaps software. Secondly, the DePaul team will identify whether the location is an institution, business or faith/advocacy center. The answer to this will be reflected both within the excel database file as well as within the map symbology itself.

As requested, we will provide a map of Chicago displaying fair trade shops, organization, and institutions. The information about the fair trade institutions has been provided by our client and will be expanded if need be. The database will then be used to geocode the locations to be displayed on a map. The map will include all of Chicago's neighborhoods and the location of the fair trade institutions. Each type of fair trade institutions will be represented by a different icon; this will make it easier for our client to analyze the map, allowing them to locate neighborhoods where more fair trade outlets, organizations, or institutions are needed.

3. System Requirements:

This section includes Data Requirements, ERDs, and the Processing Requirements that clearly describe and depict the steps and questions that are addressed for completion of the project in a successful manner. First, the Data Requirements section addresses the 4 fundamental questions our project aims to answer. In addition, the ERDs are used to conceptualize the semantic for the project. Moreover, the ERDs provide visual representations that clearly and explicitly show the processes taken in order to reach our final product. All of the ERD maps can be found in the appendix of the paper. Lastly, the Processing Requirements section of the project is a verbatim description of the GIS processes taken in order to create our final product, the mapping of our data.

Data Requirements

Need to Know Questions: ERD tables are found on the appendix

1) Are the locations provided to us fair trade organizations/institutions or businesses?

   Entity → Fair Trade Structure
   Attributes → Institution, Business, City, Neighborhood and Address
   Relationships → City, neighborhood, serves or sells fair trade product

2) What are the locations of all faith-based and "other" organizations and institutions within the city of Chicago that serve fair trade goods?

   Entity → Institutions and Organizations
   Attributes → Faith-Based or "Other," Serves Fair Trade goods, addresses
   Relationships → City, neighborhoods, fair trade products

3) What are the locations of all fair trade businesses, cafes and retailers throughout the city of Chicago that sell fair trade goods?

   Entity → Businesses
   Attributes → Café or Stores, sells fair trade products, addresses
   Relationships → City, neighborhoods, fair trade products

4) Which of Chicago's seventy-seven neighborhoods are devoid of all fair trade cafes, retailers, organizations and institutions?

Entity → Neighborhood
Attribute → Neighborhood name, no fair trade organizations or businesses exist within, N, NW, W, SW, or S side of Chicago
Relationships → City

Processing Requirements
Operations for Objective 1

1) Gather excel file database from Fair Trade Chicago of all known faith-based and other institutions, organizations cafes and retailers.
2) Create a column within the excel database entitled "Type" that classifies each location as "FB" (faith-based organization), "O" (other organization), "C" (café) or "S" (store).
3) Geocode excel addresses and project them onto a map of Chicago's neighborhoods found through the GIS/Geography departments website.
4) Export this data set as a separate shapefile containing all data points. Name it ORGandBUS.shp. Save this for future use.
5) Perform an attribute query to find the fair trade organizations and institutions. The query should look similar to; "Type" = "FB" AND "Type" = "O"
6) Record the number of selected files and export the data as a separate shapefile for future use and reference. Name this shapefile FBandO.shp
7) Perform an attribute query to find café's and businesses. Query should read similar to; "Type" = "C" AND "Type" = "S"
8) Record the number of selected files and export the selected data as a separate shapefile for future use and reference. Name this CandS.shp.

Operations for Objective 2

1) Select the FBandO.shp shapefile created in objective one
2) Using this shapefile, project the locations of all faith-based and other organizations/institutions onto a map of Chicago
3) Perform a query to differentiate faith-based and other organizations. Select by attribute so that the search only pulls out faith based organizations. Query should read; "Type" = "FB"
4) With this data selected, save it as a separate shapefile entitled FaithBased.shp.
5) Add the FaithBased.shp file as a layer to the map
6) Using the symbology option, find an appropriate symbol to represent this data set
7) Now perform a query to select all other organizations from the FBandO.shp layer. Locate "Type" = "O."
8) Save the selected data as a shapefile entitled OtherO.shp.
9) Using the symbology option, find an appropriate symbol to represent this data set
10) There should now be three layers present; the FBandO.shp file, the FaithBased.shp and the OtherO.shp.

Operations for Objective 3

1) Select the CandS.shp created in objective one

2) Using this shapefile, project the locations of all cafes and retailers onto a map of Chicago
3) Perform a query to differentiate cafes and stores. Select by attribute so that the search only pulls out fcafes. Query should read; "Type" = "C"
4) With this data selected, save it as a separate shapefile entitled Cafes.shp.
5) Add the Cafes.shp file as a layer to the map
6) Using the symbology option, find an appropriate symbol to represent this data set
7) Now perform a query to select stores from the CandS.shp layer. Locate "Type" = "S."
8) Save the selected data as a shapefile entitled Stores.shp.
9) Using the symbology option, find an appropriate symbol to represent this data set
10) There should now be three layers present; the CandS.shp, Cafes.shp and Stores.shp.

Operations for Objective 4
1) Ensure that a map of Chicago is projected as a layer using ARCMap software. Chicago maps can be found in the geography departments database. This map should display each of Chicago's community areas and have an appropriate attribute data table that allows for different communities to be selected.
2) Upload the ORGandBUS.shp file created in objective one and display it over the map of Chicago so that all data points are properly aligned.
3) Both the Chicago Map layer and the ORGandBus.shp files should contain an attribute table with a column entitled "COM" for community. Create a new column in the Chicago Map layer attribute table entitled "Fair Trade Service"
4) Look at the original excel file given by Chicago Fair Trade. For every community area that is listed under the "COM" section, put a "Yes" next to that neighborhood in the Chicago Map Layer attribute data table under the "Fair Trade Service" Column. This signifies that all those neighborhoods do in fact have some kind of fair trade service.
5) For all other community areas, mark them as "No" under the "Fair Trade Service" column.
6) Perform a query, search by attribute to that the query read; "Fair Trade Service" = "NO."
7) Save the selected data as a shapefile entitled NoFTCom.shp.
8) Open the attribute data table for this shapefile and create a new column entitled "Area."
9) For each of the neighborhoods without fair trade services, write whether they are on the North, Northwest, West, Southwest, and South sides of Chicago by typing in "N," "NW," "W," "SW," and "S" into the appropriate rows under the "Area" column. Save this for future analysis.

4. Data Acquisition:

This section of the project is comprised of three main sections: the Data Dictionary, the Data Fitness Use, and Data Acquisition Constraints. Our database specification or the Excel file obtained from Nancy Jones at Chicago Fair Trade. In this section, the Data Dictionary briefly describes the information for each data set our group utilizes in our project. Secondly, the Fitness for Use section answers a set of predetermined questions as listed by our instructor. Lastly, the Data Acquisition Constraints involves a description of any issues we faced while working on the project, which were quite minimal due to the fact that we received a very concise and thorough database from Chicago Fair Trade.

Data Dictionary

Data Set Name: Fair Trade Outlets

File Name: Fair Trade Outlets

Source: Fair Trade Chicago, Nancy Jones 312-212-1760

Processing Steps:
1. Convert address information in excel file to geocoded data
2. Add geocode data to map

Spatial Object Type: Point

Attributes:
Field Name   Name of Outlets
Latitude   Latitude in decimal degree, WGS84
Longitude   Longitude in decimal degree, WGS84
Icons   Outlet categories (café, store, faith-based institutions, other)
Data Format: Shapefile
Data Set Name: Chicago Community Area Map
File Name: Community Areas
Source: City of Chicago
http://www.cityofchicago.org/city/en/depts/doit/supp_info/gis_data.html

Processing Steps:
1. Import map
2. Label community areas

Spatial Object Type: Polygon

Attributes:
Field Name   Description
Area   Area measurement of the community
Area Number   Number of the community area
Community   Name of the community area

Data Format: Shapefile

<u>**Fitness for Use:**</u>

Scale and Resolution

The scale of the map reflects the size of the community areas to an appropriate scale for presenting our data. The resolution of the map is defined by the community boundaries.

Accuracy

Based on the information provided by Chicago Fair Trade, we conclude that the data is accurate.

Completeness

Attribute Completeness: The data that we received from Chicago Fair Trade is complete; it includes all addresses and community areas that each outlet is located at.

Spatial Completeness: The map includes all seventy seven community areas need for our project.

The data that we are using is current, it was provided by Chicago Fair Trade as their most recent data file of the outlets. This accuracy of Chicago Fair Trade's knowledge of all fair trade businesses and organizations can affect our assessment.

Data Acquisition Constraints

We were able to acquire all of the data we needed to for our project. However, if we were to expand our project and look at the surrounding Chicago suburbs, we would need to acquire the locations of fair trade retailers and institutions in those areas. We could then compare and contrast the different concentrations of fair trade retailers and institutions to get a more holistic understanding of the areas that need more fair trade. We also did not encounter any data acquisition constraints since the Chicago Fair Trade organization provided us with very thorough databases.

5. Data Analysis and Visualization:

 I n this section we have created three diffracted maps plotting the location of fair trade outlets in Chicago. By creating these maps showing the locations of these institutions and stores, Chicago Fair Trade will better be able to determine which neighborhoods need more attention in spreading fair trade awareness and advocacy. The map may also be used as an analytical tool to decipher any trends between the location of fair trade organizations/institutions and the number of fair trade stores within neighborhoods by using a simple buffer tool analytical methodology.

Map one shows the location of fair trade stores and cafes in Chicago.
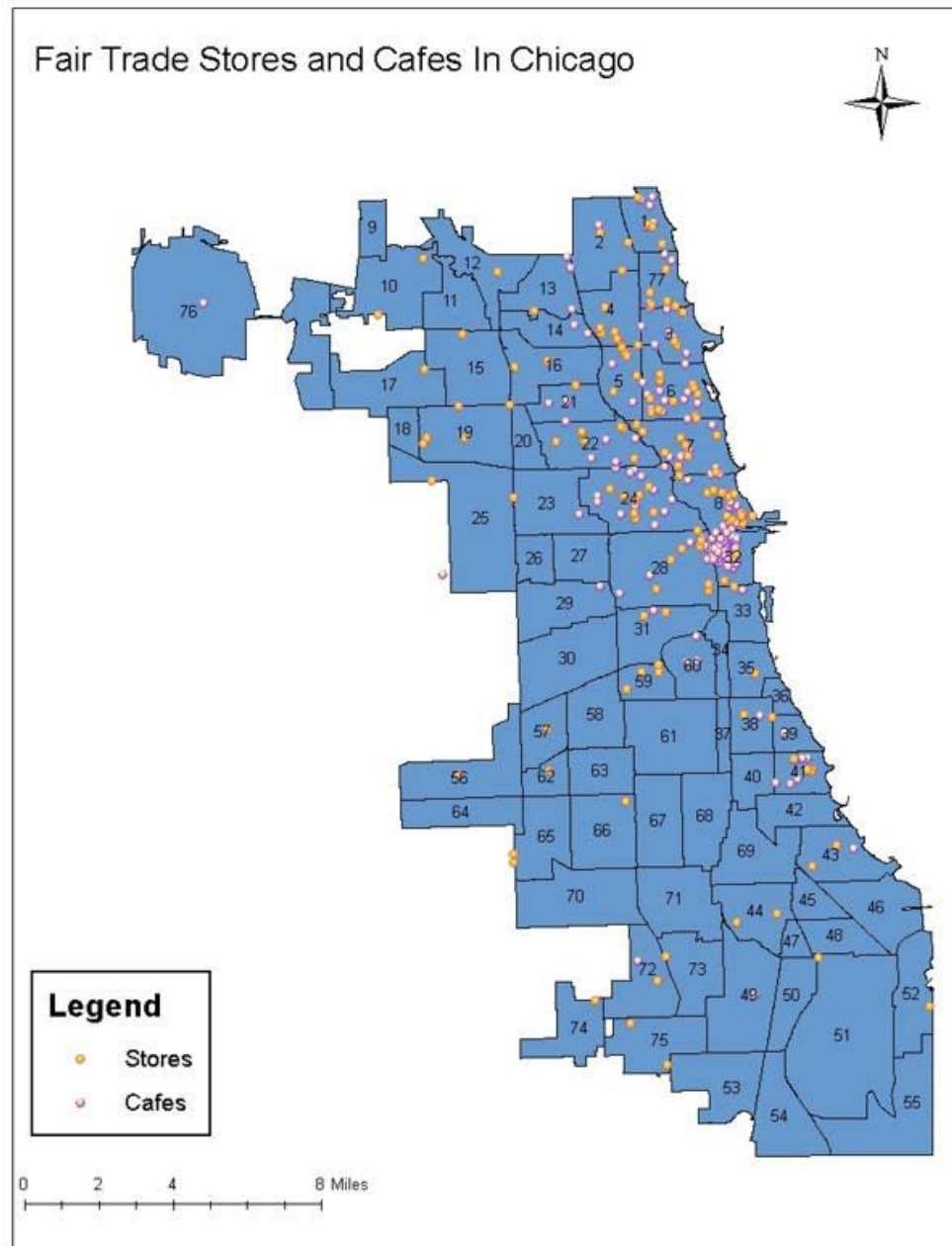
Map two shows the location of Fair trade fait based organization and other organizations.

Fair Trade Organizations In Chicago

Legend
- Faith Based Organizations
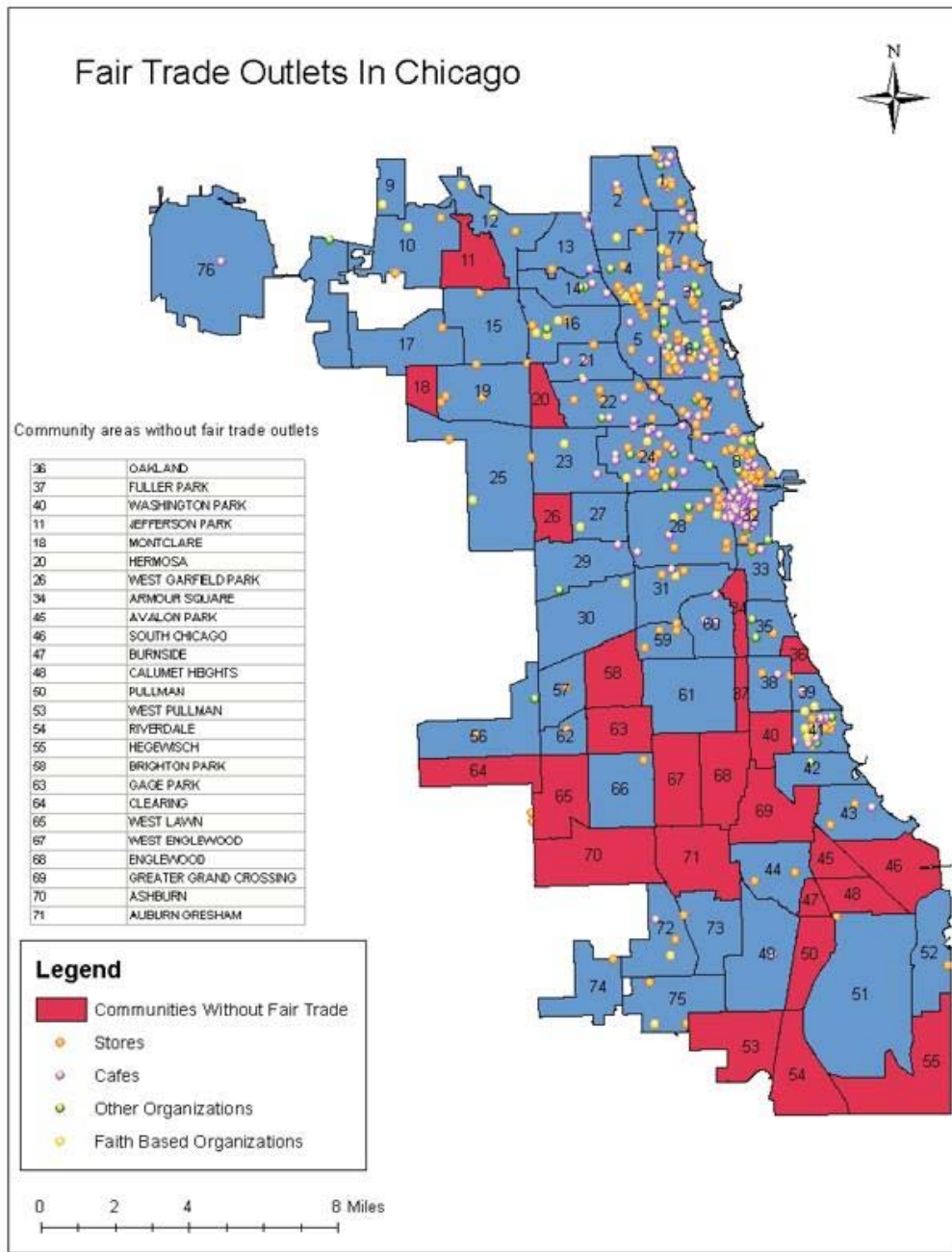- Other Organizations

0   2   4   8 Miles
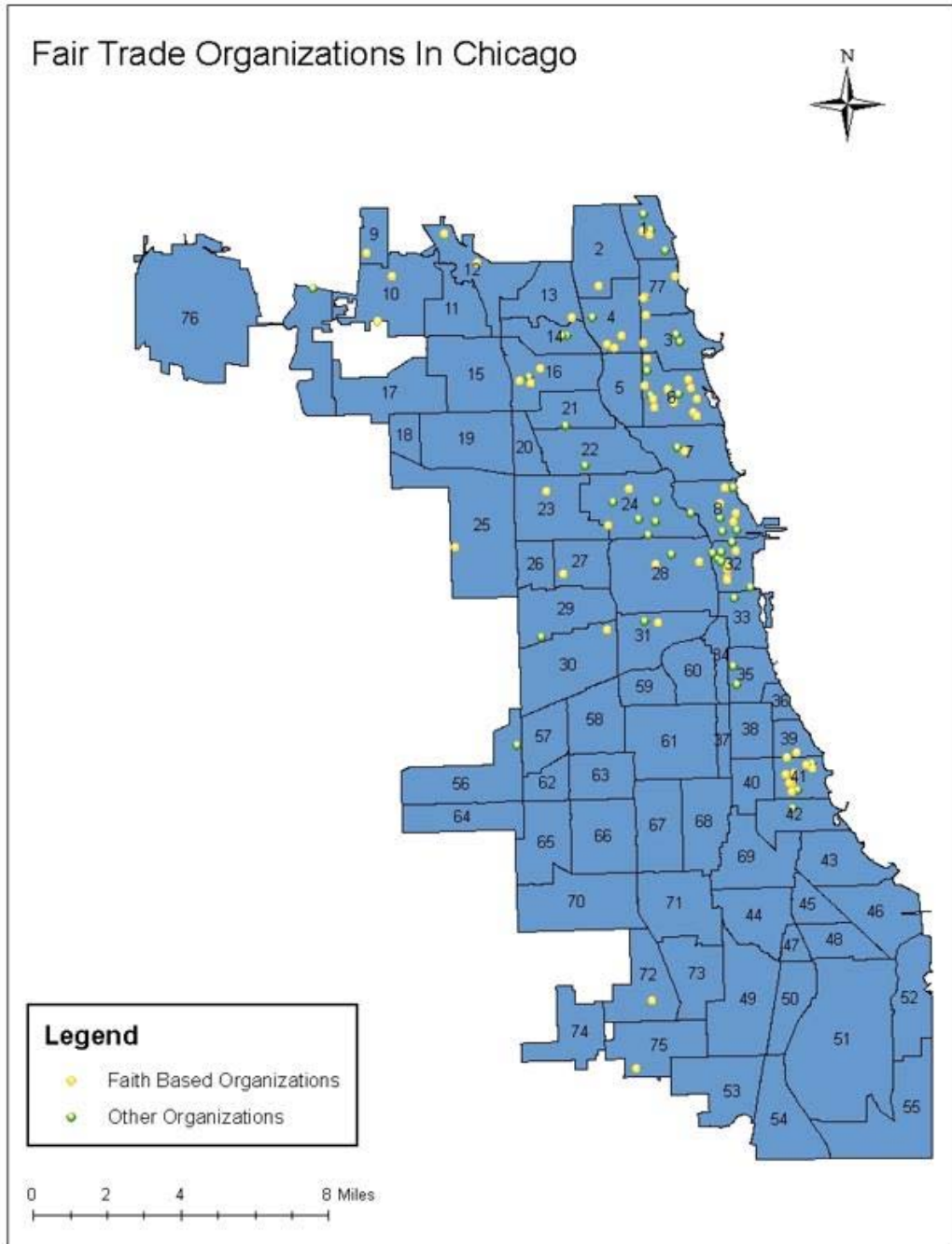
Map three shows all of the fair trade outlets and highlights community areas which do not have any outlets.

Fair Trade Outlets In Chicago

Community areas without fair trade outlets

36	OAKLAND
37	FULLER PARK
40	WASHINGTON PARK
11	JEFFERSON PARK
18	MONTCLARE
20	HERMOSA
26	WEST GARFIELD PARK
34	ARMOUR SQUARE
45	AVALON PARK
46	SOUTH CHICAGO
47	BURNSIDE
48	CALUMET HEIGHTS
50	PULLMAN
53	WEST PULLMAN
54	RIVERDALE
55	HEGEWISCH
58	BRIGHTON PARK
63	GAGE PARK
64	CLEARING
65	WEST LAWN
67	WEST ENGLEWOOD
68	ENGLEWOOD
69	GREATER GRAND CROSSING
70	ASHBURN
71	AUBURN GRESHAM

Legend

- Communities Without Fair Trade
- ● Stores
- ● Cafes
- ● Other Organizations
- ● Faith Based Organizations
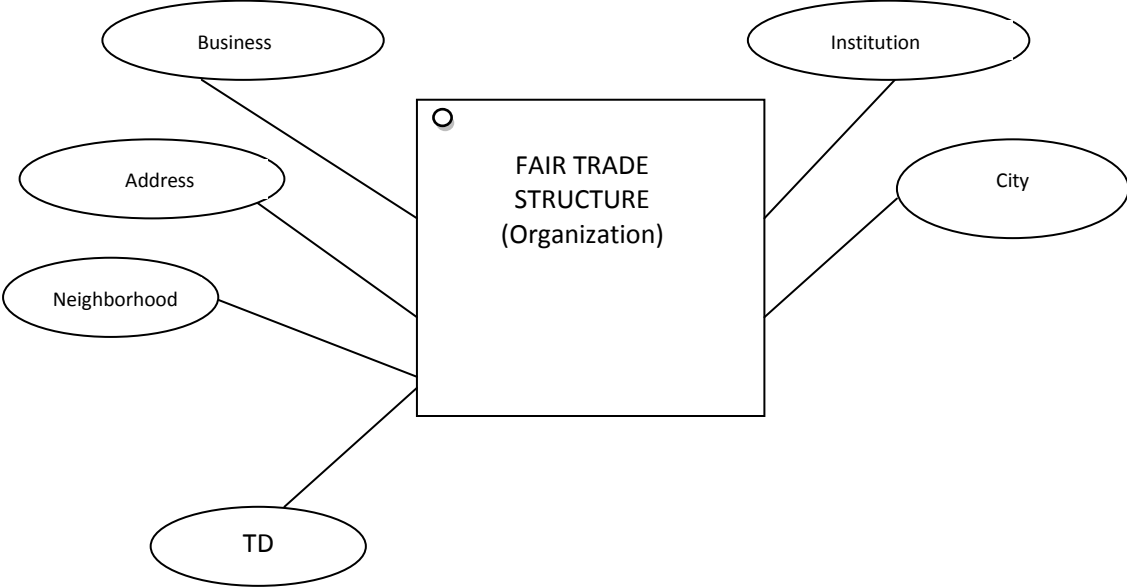
0   2   4   8 Miles

6. Results:

Upon completion of our project, we found out that the Downtown and North-East community areas have the most fair trade stores and organizations. Here we have the highest concentration of fair trade outlets. These communities are also known to have high income residents. We also discovered that the South-West community areas have the least amount of Fair Trade activity. In general the south side of Chicago has far fewer fair trade outlets then the north side of Chicago. This could be due to lower income level of southern community areas. The south side also lacks in faith based organization implementing fair trade, this can be clearly seen in map two.

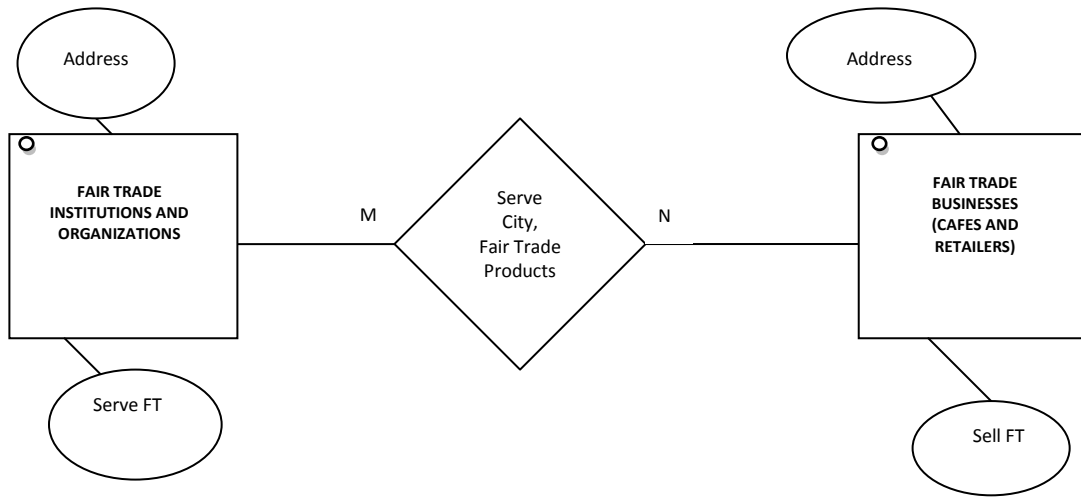### 7. Conclusion and Recommendation:

Looking at the results of our project Chicago is well on its way to becoming a fair trade city. It has a large number of fair trade outlets, including stores cafes, faith based organizations and other institution. However we found that Fair trade outlets are not proportionally distributed across the city. Most are located in the North-East side of the city in higher income communities; this could be one result of fair trade products having a higher cost. More focus has to be placed on the 25 community areas. For more informative maps future research could show the number of fair trade products being sold at each location. Distinction between fair trade products and fair trade ingredients could also be helpful. Finally separating different regions of Chicago into their own maps could also help in making the maps less cluttered.

ERD: Question 1

Business

Institution

Address

City

Neighborhood

FAIR TRADE
STRUCTURE
(Organization)

TD

EDR: Question 2 and 3

```
   ( Address )                                      ( Address )
       |                                                |
 ┌─────────────┐                                 ┌─────────────┐
 │ FAIR TRADE  │        ◇                         │ FAIR TRADE  │
 │ INSTITUTIONS│  M   Serve City,   N             │ BUSINESSES  │
 │ AND         │──── Fair Trade ────              │ (CAFES AND  │
 │ ORGANIZATIONS│      Products                   │ RETAILERS)  │
 └─────────────┘        ◇                         └─────────────┘
       |                                                |
  ( Serve FT )                                      ( Sell FT )
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ERD: Question 4