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Humboldt Park's Health & Wellness Resources

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Puerto Rican Cultural Center
GEO 242: GIS II
Professor Hwang
May 30, 2010

Aaron Anis, Rohail Dean
Dan Ariza & Lizzie Browder

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I. Introduction

1. Objective

The objective of the Humboldt Park Health and Wellness Resource project is to provide our client, the Puerto Rican Cultural Center (PRCC), with geographic information about locations that impact healthy living for the residents in Humboldt Park. Our group gathered geographic information about three categories of locations: religious institutions, restaurants and food vendors. We added these data sets to the larger, on-going GIS database between the PRCC and DePaul University that aims to map all types of health and wellness resources available in Humboldt Park.

2. Methods

First, our group met with Alejandro Molina, a member on the PRCC's board of directors. Mr. Molina informed our group of the PRCC's goal to establish a database of information about the location and contact information of health and wellness resources. The PRCC's long-term desire is to analyze the types of resources available in Humboldt Park as well as raise awareness about healthy lifestyles for community residents.

After meeting with Mr. Molina, our group decided to focus on gathering geographic data of three categories that Mr. Molina and the PRCC hoped to map in Humboldt Park. We defined the geographic area of Humboldt Park as the 72 blocks between Kedzie Avenue and Western Avenue from east to west and Chicago Avenue to Bloomingdale Avenue from the north to the south. We surveyed these streets for religious institutions, restaurants and food vendors. Then, the members of our group captured the geographic coordinates of these locations using Garmin GPS handheld receivers while walking, biking and rollerblading through the streets in the 72-block area.

For the final step of our project, our group uploaded the geographic coordinates from the Garmin GPS devices on to a computer. We edited the data and added the names, street addresses and phone numbers of the locations. This data set was geocoded to a map of Humboldt Park using ArcGIS software. Lastly, the ArcGIS shapefile was converted to a KMZ file and uploaded to the PRCC's Google map account.

3. Individual Group Members

Our group consisted of four students from Professor Hwang's Geography 242, GIS II class: Aaron Anis, Dan Ariza, Lizzie Browder and Rohail Dean. All group members had taken GIS I prior to this class and had basic knowledge of GIS capabilities such as ArcGIS software and Google maps.

4. Project Report

The following sections of this report are an extensive record of the steps, outlines and decisions we utilized while working toward our overall goal of gathering geographic information about religious institutions, restaurants and food vendors in Humboldt Park. Part II assesses the PRCC's needs and explains the background of its long-term project with DePaul University. Part III breaks down the system requirements of the project by listing the need to know questions (NTK questions). This section also includes Chen models and entity-relationship diagrams of these NTK questions. Part IV describes the data sets used in the project and scrutinizes the fitness for use of the data sets. Part V provides data analysis and lists the information products of our project on Humboldt Park's Health and Wellness Resources. Parts VI and VII provide a conclusion to this report and details the results as well as findings of the project. Part VIII is an appendix containing the information products and deliverable produced for the PRCC. Lastly, Part IX lists the references we cited in this report.

II. Needs Assessment

1. Background

The purpose of this project is to provide our client with a visual understanding of food locales and religious institutions in Humboldt Park, and to see how these variables correlates towards healthy living among its community members. This project requires us to work with two groups, one being Steans Center whose major goal is to “Promote changes in the quality of life of all people to ensure equal opportunity and fair access to resources that satisfy basic human needs of housing, health, education, employment, safety, and a livable environment” (Steans Center). Secondly, our major client is The Puerto Rican Cultural Center (PRCC) that promotes participants to think critically about their reality and to promote an ethics of self-reliance based on social responsibility (PRCC). The representative from PRCC has asked us to map these variables since a fraction of the community members are unaware of the locations within their community. And the executive director of the Steans center, Dr. Howard Rosing serves as our guide to retrieve and update from previous projects so we can meet the create a new database thus meeting our clients expectations.

Humboldt Park is located on Chicago’s Northwest Side adjacent to Humboldt Park (recreational park) itself. During the 1870s, Humboldt Park became home to migrating Norwegian and Danish communities. Throughout the 1870’s until present, the area has seen a successive flow of waves of different ethnicities, including Germans and Scandinavians. The draw for many of these people was the park, which was home to many political and cultural activities. The first major migration of Puerto Ricans to Chicago happened between 1950 and 1965. Soon after, in 1966, a three-day riot filled the streets with violence and anger after a police man shot a young Puerto Rican man. As time progressed, Puerto Ricans increasingly faced economic struggles while African Americans and Polish Americans began to move into the area, aggravating ethnic conflicts (Badillo, 2005).

As of today, Eastern Humboldt Park is dealing with rapid gentrification. There is a cluster of apartments, co-ops, and lofts located immediately west of Western Avenue. Its slow movement west has attracted much attention among land developers. Numerous residents fear for their homes and are opposed. As we record, the outcome of this process is still uncertain, but it could be assumed that Humboldt might become an extension of West Town, Buck town or Wicker Park. In this context, organizers have cultivated a strong sense of community built around a proud Puerto Rican identity therefore marking that Humboldt Park is here to stay (Wilson, & Grammenos, 2005).

Furthermore, many residents of Humboldt Park have been coping with diabetes and obesity-related health problems in recent years. Residents have been faced with a number of issues that contribute to these health problems, one of the largest being their limited access to healthy foods in their community. Specialists have shown through recent studies that there is a correlation between healthy living and socioeconomic factors. In the article “Quality of diabetes care in community health centers” This study assessed the quality of diabetes care in community health centers: In 55 Midwestern community health centers, Erie House Community center being one, the data shows that there is high levels of diabetes in under resourced communities. On average, 70% of the 2865 adult patients in each community health center had measurements of glycosylated hemoglobin, 26% had

dilated eye examinations, 66% had diet intervention, and 51% received foot care (Chin, 2000). The average glycosylated hemoglobin value per community health center was 8.6. Rates of adherence to process measures of quality were relatively low among community health centers, compared with the targets established by the American Diabetes Association (Chin, 2000). Though the scope of the data might have been bigger, it shows a general depiction of how level of diabetes in under resourced communities.

In effect, it is important to note how children of this community react to the high levels of diabetes. In The article "Prevalence of Obesity among Children in Six Chicago Communities" demonstrates the link between neighborhood childhood obesity rates and their respective race and class. The data on childhood obesity was collected by the Sinai Health System in Chicago in September 2002 to April 2003. The clients' project is based in Humboldt Park, and this survey uses Humboldt Park as a studied neighborhood. Childhood obesity rates in Humboldt Park were 48% as the national average is 16.8% (Margellos-Anast, 2008). The most interesting contrast of neighborhoods is seen when Humboldt Park and Norwood Park are juxtaposed. Norwood Park, a predominantly non-Hispanic white community on the north side of Chicago, has a median household income of \$53,000 and lowest childhood poverty rate of the selected communities (Margellos-Anast, 2008). Furthermore, the neighborhood is approximately 7 miles North West of Humboldt Park but shows a difference of 36.2% in childhood obesity.

2. Goals

The main goal that our group has for this project is to spatially map the religious institutions, restaurants and food vendors within the 72 block (Bloomingdale to Chicago and Western to Kedzie Avenues) of Humboldt Park. By having mapped out these variables, PRCC will be one step close to their long term goal of promoting Health and wellness awareness within the community.

3. Objectives

In the PRCC research project, data has been collected by various DePaul students, but the project requires additional data so PRCC can publish a map for the community residents. In order to reach our goal, we must first find out the locations of the religious institutions, restaurants and food vendors in the 72-block area. Our need to know (NTK) questions are: Where are the religious institutions, where are the restaurants and where are the food vendors located?

In order to complete this task, we would have to conduct a survey of the physical area. Secondly, we will utilize an older database of locations in Humboldt Park as a foundation for producing a new database to meet the goals of our project. Once this database is developed and the locations are mapped, PRCC can extend research the health and wellness programs and resources available in the Humboldt Park community.

4. Information Products

Our project produced three information products. First, we compiled information and geographic coordinates of religious institutions, restaurants and food vendors in Humboldt Park and put the data in a csv excel file. Second, we uploaded this data set into ArcGIS to make a shapefile as well as a KMZ file of these locations. Then, the KMZ file was added to the PRCC's Google map account.

III. System Requirements

I. Need to Know (NTK) Questions

- a. Where are the religious institutions?
- b. Where are the restaurants?
- c. Where are food vendors located?

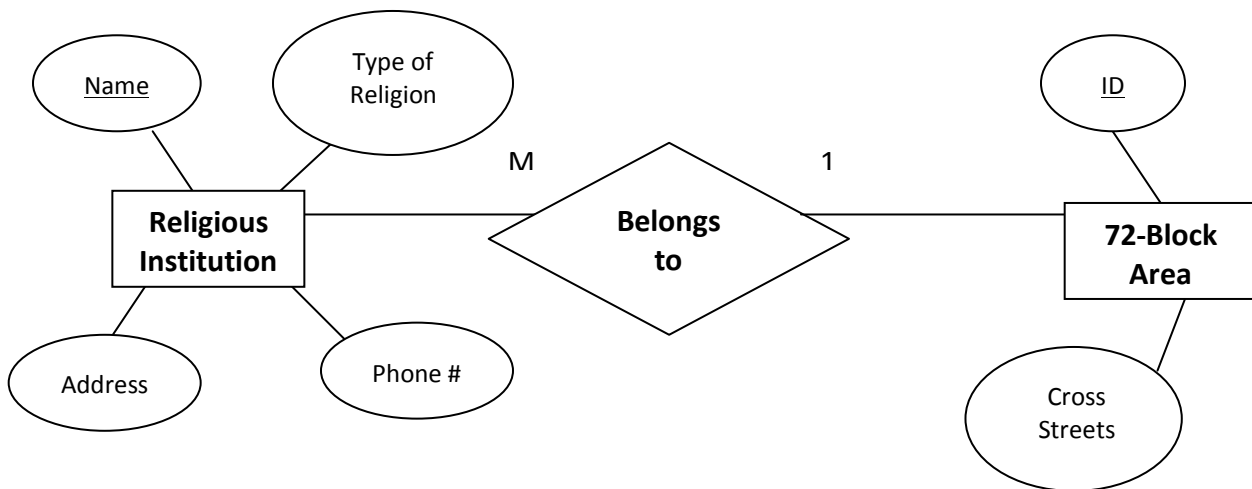
2. Data Requirements

Need to Know Questions & Entities Matrix

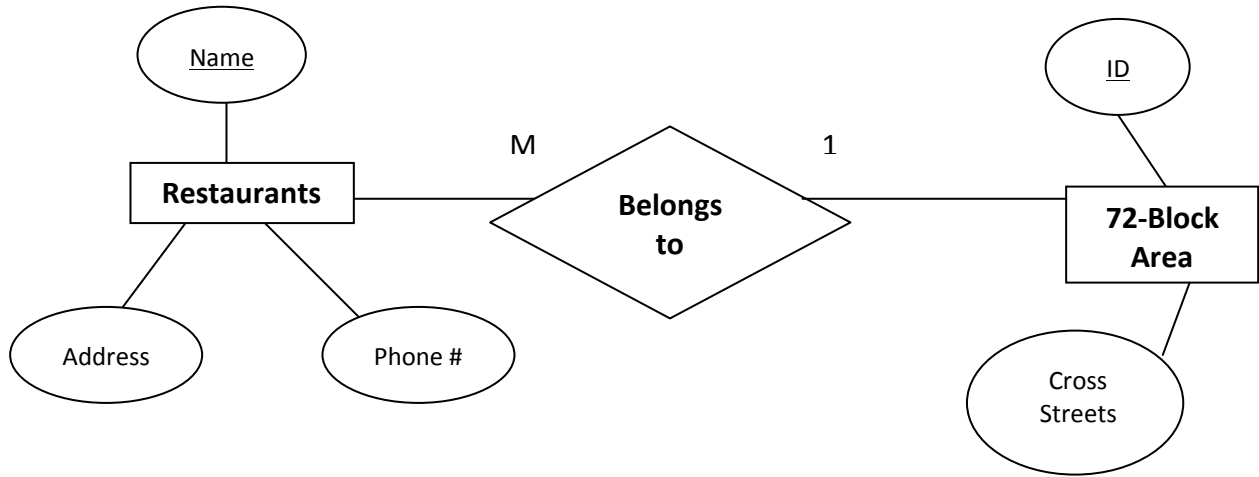
Entities / NTK Questions	72 Block Area	Religious Institutions	Restaurants	Food Vendors
Where are the religious institutions?	X	X		
Where are restaurants?	X		X	
Where are food vendors?	X			X

3. Chen Models for Need to Know Questions

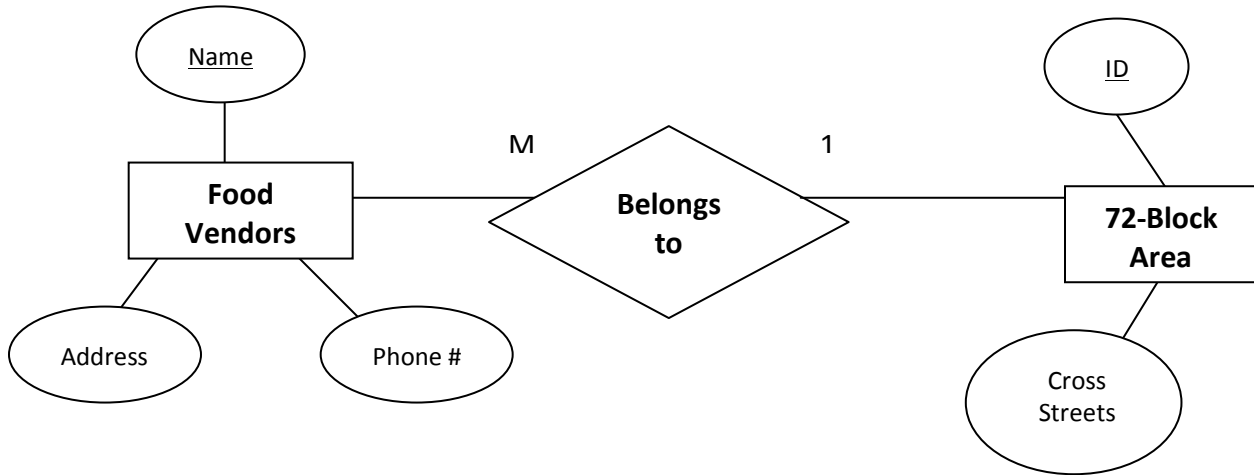
- a. Where are the religious institutions located in the 72-block area of Humboldt Park?



b. Where are the restaurants located in the 72-block area of Humboldt Park?

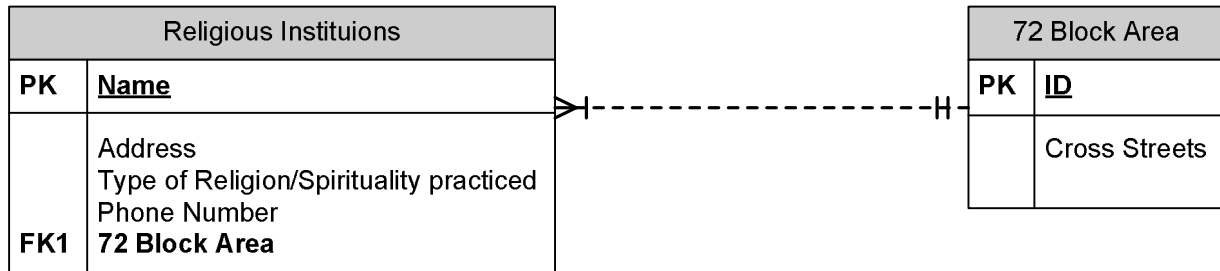


c. Where are the food vendors located in the 72-block area of Humboldt Park?

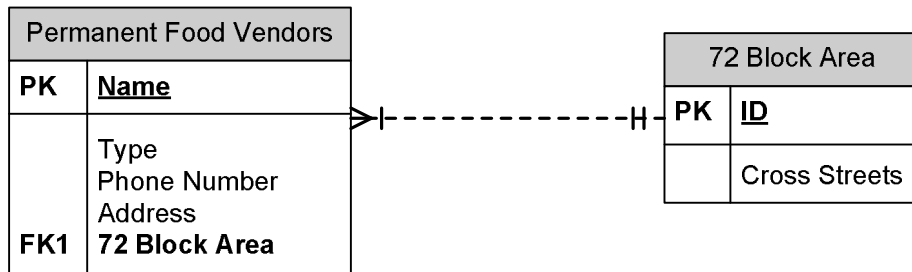


4. Entity-Relationship Diagrams (ERD) in Crow's feet models, made using Microsoft Visio

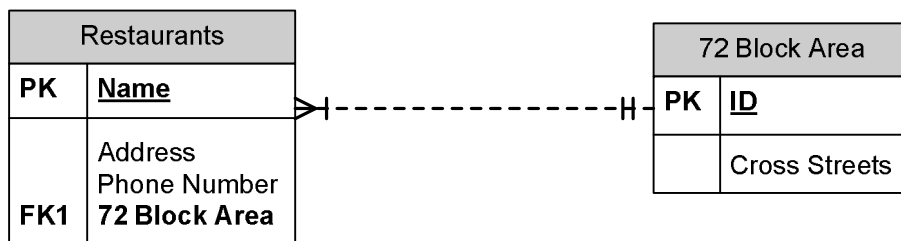
a. Where are the religious institutions?



b. Where are food vendors?



c. Where are restaurants?



5. Processing Requirements

Operations/ NTK Questions	Data Collection	Data Manipulation	Data Analysis	Data Visualization
Where are the religious institutions?	1. Primary/Secondary Data Capture 2. Data Transfer 3. Geocoding	1. Coordinate Transformation	1. Match coordinate points with attribute info	1. Thematic Mapping 2. Add to Google Maps
Where are restaurants?	1. Primary/Secondary Data Capture 2. Data Transfer 3. Geocoding	1. Coordinate Transformation	1. Match coordinate points with attribute info	1. Thematic Mapping 2. Add to Google Maps
Where are food vendors?	1. Primary/Secondary Data Capture 2. Data Transfer 3. Geocoding	1. Coordinate Transformation	1. Match coordinate points with attribute info	1. Thematic Mapping 2. Add to Google Maps

IV. Data Acquisition

1. Introduction

The types of spatial object data types we are working with are Polylines, Point and polygons. In order to complete our goal, we had to produce map that can visually portray the locations of our need to know questions within the boundaries of Humboldt Park's 72 blocks. In addition, our group created a dataset that PRCC can use for future projects.

2. Data Dictionary

a. Shape file of streets in Humboldt Park

File Name: Streets.sdc

Source of the Data: Geography server (C: drive > ArcGIS > streetmap 05 > USA > streetmap USA > streets> streets.sdc)

Processing Steps: clip to Humboldt Park, geocode (this file is referenced to NAD 1983), possibly snap streets to census blocks

Spatial Object Type: polyline

Attributes:

Field name	Description
ID	street identification number
Shape	type of feature
State	what state the street belongs to
County	what county the street belongs to
Tract	what census tract the street is in
Block	what block the street is in
Block ID	the number of the street block
Name	the name of the street block

Data Format: shape file

b. Shape file of census blocks in Chicago

File Name: Census Blocks

Source of the Data: City of Chicago GIS data;
http://www.cityofchicago.org/city/en/depts/doi/supp_info/gis_data.html

Processing Steps: clip to Humboldt Park, geocode (this file is referenced to NAD 1983)

Spatial Object Type: polygon

Attributes:

Field name	Description
------------	-------------

ID	block identification number
Shape	type of feature
Census tract	what census tract the block belongs to
Census block	what census block the block is in
Block type	what kind of block
Block ward	what ward the block is in
Block census	what census the block comes from (i.e Census 2000)
Perimeter	the measurement of the perimeter of the block
Block community	the community the block belongs to
Block zip	the zip code of the block
Shape area	the measurement of the perimeter of the block
Shape length	the measurement of the perimeter of the block

Data Format: shape file

c. Source Data of restaurants, religious institutions and food vendors in Humboldt Park

File Name: Humboldt Park locations

Source of the Data: database information from a company called InfoUSA

Processing Steps: turn into excel spreadsheets

Spatial Object Type: point

Data Format: shape file

3. Fitness for Use

a. Shape file of streets in Humboldt Park

a) Accuracy: This data set, Streets.doc, is accurate as it shows a street map of the major streets in the United States. This data set is accurate and reliable because we found it on the Geography lab server.

b) Completeness: The data is complete because it shows all of the streets within the United States. It simultaneously shows major roads and minor streets.

c) Current: This data is from 2005. While there may have been some changes in streets in the last five years, this is the most current data available for our project.

d) Logically consistent: This data set shows spatial consistency as the streets all connect and are displayed by lines in the shape file.

e) Limitations: While this data set is the best available file for our project at this time, it has some limitations. As it was produced in 2005, it does have a

five year time lapse. Also, the data is very expansive as it shows all of the streets in the United States. However, by clipping on ArcGIS, our group believes we can alter this data to just show the Humboldt Park neighborhood.

b. Shape file of census blocks in Chicago

a) Accuracy: The data set Census blocks is the most accurate census information available because it was produced during the last census.

b) Completeness: The data set is complete because it shows all census blocks within Chicago.

c) Current: This data is from 2000, the last time the census was taken.

d) Logically consistent: This data set shows spatial consistency as all census blocks are outlined and are adjacent to one another.

e) Limitations: One limitation of the Census blocks data set is that it shows all census blocks in Chicago. Our group will have to clip to the census blocks that compose the Humboldt Park neighborhood. However, using ArcGIS operations, we will be able to focus on the census locks within Humboldt Park.

d. Survey Data of restaurants, religious institutions and food vendors in Humboldt Park

a) Accuracy: The data sets give locations of places in Humboldt Park. Our group can then check the accuracy of the place.

b) Completeness: This data set is as complete as the information available on the internet. Our group will survey the Humboldt Park area to add any places that do not appear in these data sets. The attributes that we hope to include are complete in this data set.

c) Current: These data sets have been collected during 2009 and have been updated in 2010. Our group will also work to update them so they show the places that currently exist in Humboldt Park.

d) Logically consistent: This data set is spatial consistent.

e) Limitations: Human error serves as the biggest limitation for these survey data sets.

4. Data Acquisition Constraints

Data acquisition was the most time consuming part of our project and the data acquisition for this project is subject to human error. Our goal was to make a database of geographic information of religious institutions, restaurants and food vendors in Humboldt Park. A database containing this information did not already exist, therefore, we had to compile the geographic information ourselves. First, we used information from InfoUSA.com to get a general list of religious institutions, restaurants and food vendors in the 72-block area. Next, we had to field survey Humboldt Park to check the accuracy of the InfoUSA data. We found that the data was incomplete and there were more religious institutions, restaurants and food vendors in Humboldt Park than the InfoUSA data listed. After updating the amount of locations, the four group members surveyed the 72-block area with handheld Garmin GPS receivers in order to collect the geographic coordinates of the religious institutions, restaurants and food vendors. While the data is as complete and the group worked to get, the data sets are prone to human error such as typos or unidentified locations.

V. Data Analysis

1. Information Products

Our project for the Puerto Rican Culture Center will produce three databases of different categories of health and wellness resources available in Humboldt Park. We will also produce a point feature map that will show the spatial locations of the health and wellness resources we have surveyed in Humboldt Park. Below is a detailed description of these information products:

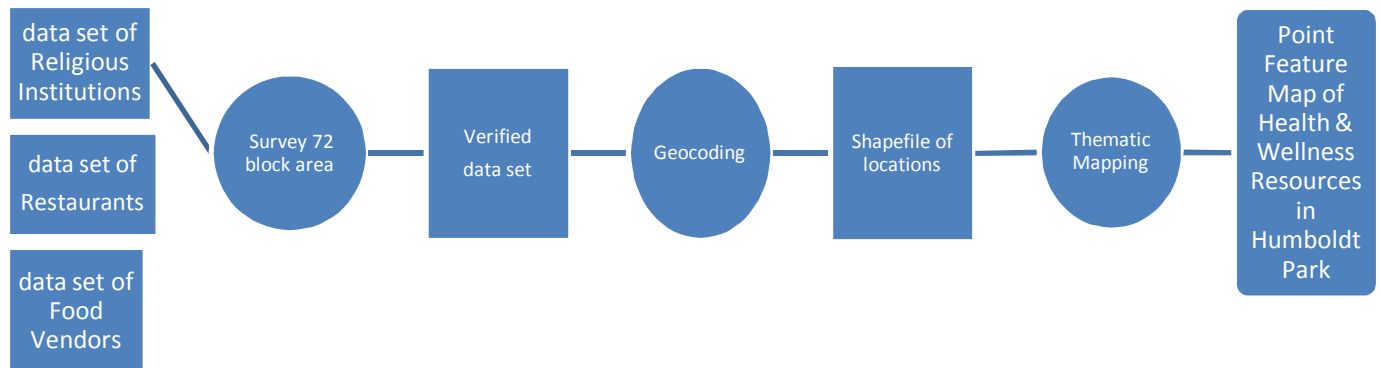
1. Data set of religious institutions: our group will locate and write down the contact information for religious institutions in Humboldt Park. We will put the information in a CSV file so it can be both utilized in ArcGIS as well as updated by the PRCC.

2. Data set of food vendors: our group will survey food vendors in Humboldt Park and create a CSV file of the places we locate. This file can be used in ArcGIS as well as by the PRCC to keep track of health and wellness resources in the community.

3. Data set of restaurants: we will survey and collect contact information of the Restaurants located in the Humboldt Park neighborhood. Contact information and other attributes of the locations of restaurants will be stored in a CSV excel file so the PRCC can update this information as new restaurants are opened or new attributes need to be added.

4. ArcGIS shapefile & KMZ file: using census block data, a street map, an aerial image of Humboldt Park and the survey data of religious institutions, restaurants and food vendors in Humboldt Park, we will create a shapefile showing the location of these entities in Humboldt Park. This shapefile will be converted into a KMZ file and uploaded to the PRCC's Google map account.

3. Data Visualization



VI. Results

1. Summary

For our project on Humboldt Park's Health and Wellness resources, our group asked three need to know questions. We asked, where are the religious institutions, restaurants and food vendors located in Humboldt Park? To answer these questions as well as add to the long-term project between the PRCC and DePaul University's Steans Center, our group set out to indentify and collect geographic about these locations. Our project was successful in terms of mapping the religious institutions, restaurants and food vendors in Humboldt Park. The ArcGIS shapefile we created provides a visual information product that shows our client where these locations are located. Additionally, the attributes that we collected about the locations such as address and phone number will help the PRCC analyze the availability of health and wellness resources in the Humboldt Park neighborhood.

2. Findings

Our project found that Humboldt Park is an extensive neighborhood home to many religious institutions, restaurants as well as food vendors ranging from large *supermercados* to small corner convenience stores and food carts. While our group recorded the contact information and geographic coordinates of many institutions in Humboldt Park, there are still more locations within the 72 blocks that we did not have time to include in our data set. Whether these locations are either a health asset or deter people from sustaining a healthy lifestyle is to be determined by the PRCC and future groups that may participate in this long-term project.

3. Recommendations

The results of our project show that Humboldt Park has many diverse places that could potentially support healthy living. While we surveyed the 72 blocks to the best of our ability, we suggest that the PRCC continually update the data sets of these locations in Humboldt Park. Our group would also suggest that the contact information we collected about the locations be used to assess each location's role as a health and wellness resource. For example, the religious institutions in Humboldt Park could be contacted to see whether they offer health classes or programs. Additionally, the restaurants can be called to see if they offer healthy meals on their menus and food vendors can be analyzed on the types of food they sell.

VII. Appendices

1. ArcGIS Shape File

The ArcGIS shapefile shows are preliminary work in mapping the points we recorded using handheld Garmin GPS receivers. The ArcGIS shapefiles that appear on this map were converted into KMZ files and then uploaded to the PRCC's Google map account, under the name GEO242_PRCC.

2. Google Map Print Out

Our group uploaded the KMZ files onto the PRCC's Google Map account and produced a Google map named GEO242_PRCC. This map is in the preliminary stages and needs to be updated with the addresses and phone numbers of the locations that appear on the map. Includes list of the locations added to the map.

3. Attribute Tables from ArcGIS

These attribute table are linked to the individual shapefiles on ArcGIS. Aside from the geographic coordinates, these attribute tables list the phone numbers and addresses of the locations we have mapped in Humboldt Park. This information should be used to update the descriptions of the points on the PRCC's Google map. Also, the PRCC can use the attribute information to contact the locations and assess how each one adds to healthy living.

- a. Attribute table listing information for religious institutions
- b. Attribute table listing information for restaurants
- c. Attribute table listing information for food vendors

4. Print out of PowerPoint presentation

Our group made and presented a PowerPoint describing what we did to accomplish our goal of mapping religious institutions, restaurants and food vendors in Humboldt Park as well as our results to Professor Hwang's GEO 242 class in Spring Quarter 2010. Attached is a slide handout of that presentation made using Microsoft PowerPoint.

VIII. References

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