Mapping the Andersonville Business District

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Project Summary

The Andersonville Cartography Committee (ACC) undertook a project in January 2009 on behalf of the Andersonville Development Corporation (ADC) to map the Andersonville business district. ADC is a nonprofit community development organization that works to foster sustainable community and economic development in the Andersonville commercial district. The organization needed a map to visualize information about the businesses in the business district along Clark Street, bordered by Ainsile Ave on the south and Victoria Ave on the north. They plan to use this information to track business uses in the community and the relationships between business attributes. When they first came to us, they requested a map detailing numerous attributes of the businesses. These included address, parcel, business name, business type, whether it is local or non-local, tenure, and its membership in eco-Andersonville. They ideally wanted all of these attributes mapped for both the first and second floors.

To begin this project, we did some research into Andersonville Development Corporation to familiarize ourselves with the organization's mission, goals for the project, and end use of the map. ADC engages businesses and property owners, attracts retail, runs the eco-Andersonville project, maintains streetscapes, and maps the business district. The Andersonville community is well known for its local businesses, and ADC would like to keep the neighborhood locally-owned. Recently, Newcastle Ltd. bought 22.5 million dollars worth of property in Andersonville, making it the largest retailer in the community. There is a worry that the large retailers will take away the authenticity of Andersonville, but Newcastle understands the value of locally-owned businesses. Locally owned businesses were proved to be particularly valuable for Andersonville, because in a 2004 poll, 72% of those polled responded that the locally owned businesses attracted them to the area.

Other relevant literature on GIS practices was also reviewed in preparation for this project. From an article on mistakes often made by planners using GIS, we determined that the ADC map is a reference tool, so we focused on providing information about the maps features (businesses) rather than creating a map suitable for presentation. The map will be used in ArcMap as a tool by the employees of ADC, so it was designed with that in mind. The use of GIS in planning was also reviewed, since the map will be used like a planning tool.

After doing the relevant research for the project, the system requirements were determined. Since the data was provided to us in Excel spreadsheets by Sara Dinges of ADC, we needed to use geocoding, database retrieval in DBMS, and visualization through colors and symbols to create the map. The data was also assessed for its quality. Since the data was updated by Sara specifically for this project, it was of high quality. Many of the attributes were incomplete though, thus preventing us from mapping all of the attributes originally planned. There was no eco-Andersonville or parcel data, so those attributes were excluded. However, space was created to add eco-Andersonville data when it becomes available. Since second-floor use was not a priority for ADC and since it mostly consists of residential uses, a second-floor map was also omitted from the project. After the data was assessed for quality, it was analyzed through normalization, geocoding, and mapping. The end result of the project is a reference map with

several layers that can be turned on and off. Business use, tenure, and locality are visualized through color, shading, and symbols, respectively.

The results of the project were largely as expected: Andersonville consists of predominately locally-owned businesses. We also found that 42 of the mapped businesses had been in operation for over 10 years, 19 of the mapped businesses had been in operation for over 5 years but less than 10 year, and 46 had been there for less than 5 years. These results show a very even distribution of business tenure, on average, in the area. The businesses that have been in Andersonville for longer than 10 years were 91% locally owned.

Since the map we have created is designed to be updated, there are some recommendations for future use. A more-functioning primary key system needs to be developed. Currently, every matched business has to be coded twice: once in the join table and again in the attribute table. A primary key needs to be created in the base map attribute table, but it cannot be the Parcel PIN or Building Number since multiple businesses share the same building, even at times, the same address. An easier system needs to be developed to allow the ADC to quickly make additions and changes to the list of businesses without the need to make changes to the underlying base map attribute table. In the future, any additional information, such as eco-Andersonville data, can be added to this base map, along with any changes or other new business information. This will be valuable for the tracking and retention of locally owned and sustainable businesses within the district.

Table of Contents

1. Introduction

The Andersonville Development Corporation (ADC) is a nonprofit community development organization that services the Andersonville neighborhood in Chicago, Illinois. The mission of the organization is to foster sustainable community and economic development in the Andersonville commercial district. It does this through engaging business and property owners, attracting retail, the eco-Andersonville project, events planning, streetscape maintenance, and most important for this project, business district mapping. ADC approached the Andersonville Cartography Committee (ACC) to assist with this mapping in January 2009. ADC needs were relatively straight forward: an ArcGIS map of the commercial district (Victoria Ave on the north, Ainsile Ave on the south, and the east and west allies behind Clark Street), detailing business

use, tenure, and whether the business is local or non-local. Initially ADC requested including first and second floor data, and well as membership in the eco-Andersonville project. However, these fields were not included primarily due to lack of information.

Creating the map for ADC began with a needs assessment. ACC established the information necessary for creating the map. Relevant literature was reviewed to obtain more information on the Andersonville community, a traditionally Swedish neighborhood well known for its local businesses, and similar GIS projects. After the needs were assessed, the system requirements were determined. The map was to be created using geocoding, database retrieval in DBMS, and visualization through colors and symbols. The data was also assessed for its quality. The data was acquired from Sara Dinges of ADC, with all business attributes recorded in Excel files. It was then analyzed through normalization, geocoding, and thematic mapping. The end result of the project is a map with several layers that can be turned on and off. Business use, tenure, and locality are visualized through color, shading, and symbols, respectively. Fields in the attribute table were also created for addition of eco-Andersonville data at a later point in time. The map shows that the majority of businesses in Andersonville are locally-owned and the relationship between business tenure, type, and local vs. non-local. The format of the map should be useful to the Andersonville Development Corporation in mapping, tracking, and retaining businesses in their commercial district. The map will be most useful if the recommendations we have made for future work are followed.

2. Needs Assessment

In order to assess the needs of the Andersonville Development Corporation, we first have to identify the "Need to know questions" of the group. There were several need-to-know questions that we had to answer to create a map for the ADC. The ADC initially wanted a map that included the address of each business in Andersonville, the floor, the business type, if the business is local or non-local, the tenure of the business, and if the business is Eco-Andersonville certified. All of the need-to-know questions correspond to attributes of the entity of concern, the businesses. Our goal was to use ArcGIS to map "Existing Conditions" of the Andersonville commercial strip, which is bordered by Victoria Avenue on the north, Ainslie Avenue on the south, and the east and west allies behind Clark Street. These existing conditions include Existing conditions include: Ground Floor Use, Second Floor Use, Business Tenure, and business locality. The overall purpose of this assignment in the context of the neighborhood is to foster sustainable community and economic development in Andersonville. The attributes for the ground floor businesses are the most important, as identified by the client. The ground floor is our team's first priority in mapping. The client needs a map with business information for future tracking and mapping.

Prior to creating the map for the ADC, we reviewed relevant literature on the Andersonville neighborhood and GIS practices. The Mission of the Andersonville Development Corporation is to "foster sustainable community and economic development in the Andersonville commercial district." The Andersonville Development Corporation is interested in the retail attraction of its district. Andersonville is famous in Chicago as one of the most authentic neighborhoods in the city. The uniqueness of its business district draws customers and shoppers from all over the city

and surrounding areas to come to the neighborhood. The Andersonville Development Corporation is interested in the life of its economic district, the advantages of having unique, locally owned, tenacious businesses, and how to make informed decisions about the future of the area. The ADC can use GIS to continuously map information and make comparisons on its business district. GIS will allow the ADC to keep record of every business in the district and see how businesses that are locally owned thrive in the area, and how the spatial allocation of businesses adds to the regions success. Mapping this district is going to be beneficial for the ADC. The following are the articles and websites we reviewed prior to beginning the map:

Urban Planning builds on GIS Data

This article is focused around the use of GIS in relation to urban design and planning. It explains how GIS can be used to reduce the amount of day to day tasks such as accessing information regarding parcel data. It also explains how GIS can help promote public involvement. GIS can also help get a better understanding of how a community can grow over time using growth simulations and predictive modeling. GIS also helps keep a level of continuity over time throughout a project.

GIS and Mapping: Pitfalls for Planners

When making a map with GIS, it is important to start with a full understanding of the purpose the map is intended to serve. There are three different ways maps can be used: as reference tools, as analytical tools, and as thematic maps for presentation. In the case of the Andersonville project, the Andersonville Development Corporation is looking for all three! Reference maps provide information on the location of features and incorporate a wide range of information about the features they describe. When creating a map, it is also important to produce a simple map. Two or three maps are often better than one that overwhelms the view with too much information. By creating layers on the map for Andersonville, multiple maps of Clark street will be created. We have made them several thematic maps so whatever information they are concerned with presenting at the time, they can in a clear manner.

Andersonville Chamber of Commerce Website

Andersonville is now considered one of Chicago's "hot" neighborhoods. It also enjoys nationwide renown for its unique commercial district, compromised almost entirely of locally owned, independent businesses. Studies about Andersonville's local economy reveal that locally owned businesses are a crucial part of the neighborhood's vitality. The community benefits more from business done by local businesses rather than commercial business. Because of this, different communities seek to emulate Andersonville's unique economy. In our thematic maps of Andersonville, we have clearly shown the comparison between locally owned business tenure and non-locally owned business tenure. GIS makes it efficient and obvious to use and see the locality and tenure of businesses.

Chicago Real Estate.com

In an article posted on Chicago Real Estate.com, a realty company called "Newcastle Ltd." Bought $22.5 million in Andersonville property. They became Andersonville's largest retailer in a recent, single transaction. There has always been worry about larger retailers taking away from the authenticity and uniqueness of Andersonville, but Newcastle Ltd has stressed it understands the value and appreciation of locally owned businesses. Our GIS mapping project will support Newcastle Ltd's choice to be mindful of the power of uniqueness in Andersonville. To keep the neighborhood thriving, the independent businesses must remain in operation with low tax rates to keep the attraction alive.

The Effects of Tax Increment Financing on Home Values in the City of Chicago

Tax Increment Financing seeks to provide funding for infrastructure and other development costs within a TIF district by freezing property tax given to non municipal taxing bodies and providing bonds that will be paid off through the increment of property tax above that baseline. The paper seeks to determine if TIF districts increase property values, are using appropriate neighborhoods, or merely shifts development within a region. And since Andersonville is part of a TIF district, do they actually work? Does the Andersonville TIF district benefit the neighborhood? The answer is that higher property taxes deter unique independent businesses from surviving. By keeping property taxes low, the Andersonville community actually benefits from a stronger economy because local unique business can stay in the area, attracting more companies. Our GIS mapping will show this.

3. System Requirements

This section contains information on how we assessed our project requirements through the lens of need-to-know questions, data management, collection, quality assessment and finally, mapping. We began with several need-to-know questions that we developed in order to create the exact type of map that our client was envisioning. These initial questions served as the model for what we needed to know. We needed to figure out how we were going to manage the data, how we were going to collect the data and how were we going to map the data. All of these questions correspond to attributes of the entity of concern, which is businesses in Andersonville. The ADC wanted a map that portrayed all the different businesses in Andersonville and showed what type of business they are, whether or not the business is local or non-local and the also the longevity of the business. We had to figure out how we were going to express all of this information in one map or if we were going to make all separate maps. We felt it best fit are clients goal to produce a map that had all of the information on different layers of the map and each layer could be turned on and off separately. We managed all of the data in excel spreadsheets, in a DBMS format. The method we used to collect this data for all of the attributes was through a data transfer using geocoding. Visually, we applied all of our attributes through map layers on ARCGIS and made it so that all of the attributes could be expressed at once or individually. We analyzed the data after mapping it and found it to accurately portray all of the information that our client was looking for in the project. We decided that the map would be the most clear if the business type was represented by solid colors, the longevity was represented by shading, and the local businesses got a star whereas the non-local businesses got a square.

4. Data Acquisition

This section contains information on the way in which we acquired the necessary data to accurately fulfill our client's goal. In order to create a map that could be used by the ADC we first had to obtain data on all of the businesses in Andersonville such as name, location, local vs. non-local, longevity of the business and the use of the business. We obtained this data from Sarah Dinges, an employee at the Anderson Development Corporation. The form in which we obtained this data was through excel spreadsheets. The data that we have been working with is accurate and recently updated information (as of January 2009). The way in which we went about processing the information was first by locating the data provided to us by the ADC in excel format. Secondly we used data manipulation to combine multiple spreadsheets into one useable spreadsheet. Lastly we geocoded the excel data into a format that was readable by GIS shape files so that we could begin mapping. The data is spatially complete and the scale is appropriate in relation to the Andersonville business district. Although the positional accuracy may be slightly off in the sense that it is hard to imagine the map in context with the rest of chicagoland and it is also difficult to spatially comprehend the amount or area that our map covers. However, this is irrelevant to the objectives of our project: we do not need to show the Andersonville Business District in the context of the rest of the city. The small-scale neighborhood map is an appropriate representation because the ADC only cares about showing businesses within this district in the context of the district itself. One positive of using such a small area of land to map is that we could show more detail and more information about the businesses without it looking like a jumble of words. The only constraint that we had on our data was that Ms. Dinges was never able to give us the information on eco-andersonville, which we had planned to map out as well and use a leaf to symbolize it. Due to the fact that the ADC themselves have not even gotten the eco-andersonville information it was impossible for us to get our hands on it. Overall we were able to obtain all of the data we needed for our client to accomplish their goal and the data that we could no use (eco-andersonville) ended up being not important anyway.

5. Data Analysis

Our client needs to know specific qualities about each business in their neighborhood. Our information product for all of these questions is identified- one thematic map with several layers clearly displaying visual information for each need to know question. Our GIS operations in order for us to produce our final product are 1.) normalizing all of our data for each specific need to know question (obtained in Excel Spreadsheets from ADC, and then combined into one Dbase file). 2) Geocoding this information in order to make this data spatial for our GIS program to read and work with (this involves changing the information from a street address into XY coordinates). 3) query to select each business in a finite space of Andersonville, and understand each business's specific attributes and 4) make an efficient thematic map that shows the location of each business on the Andersonville strip, each one's category, each one's tenure and each one's qualification of local vs. non-local.

6. Results

We found that the section of Andersonville that we mapped has an overwhelming number of locally owned businesses in comparison to non-locally owned businesses. There are approximately 15 non-locally owned businesses in the entire map (14%), while there are 99 locally owned businesses that we were able to map (86%). This shows that right now, an overwhelming amount of the economy for Andersonville is created by locally owned businesses.

Please see this map below for a concentrated look at ratio and placement of locally owned businesses in Andersonville:

As far at the longevity of businesses in Andersonville go, we found that 42 of the mapped businesses had been in operation for over 10 years, 19 of the mapped businesses had been in operation for over 5 years but less than 10 year, and 46 had been there for less than 5 years. These results show a very even distribution of business tenure, on average, in the area.

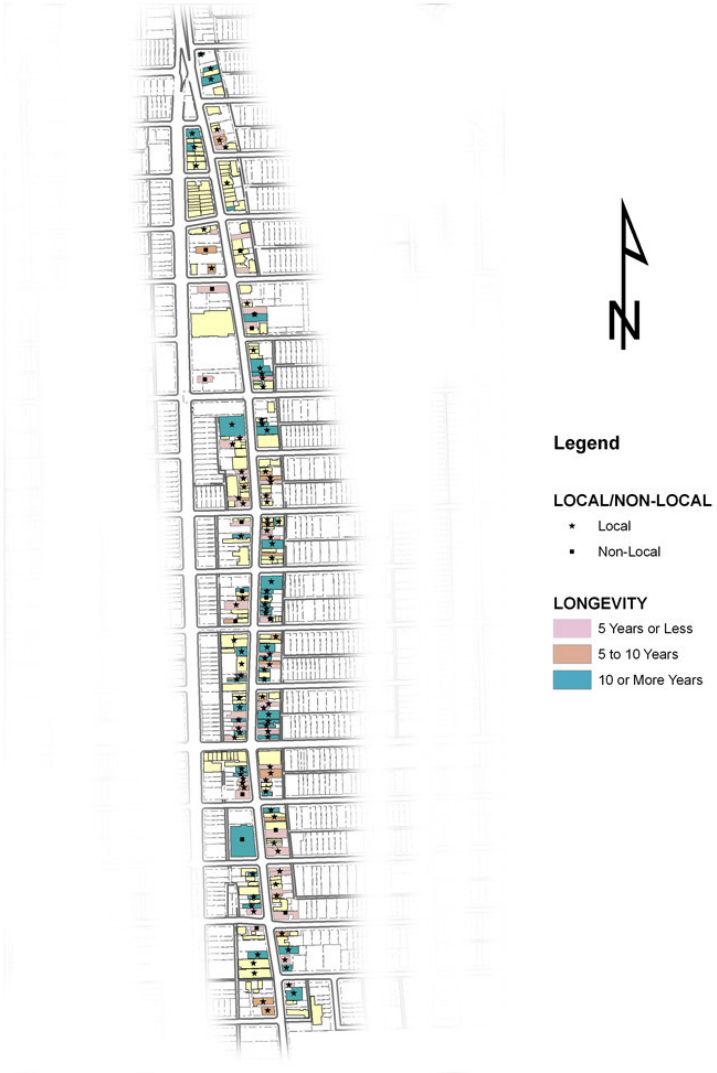
Longevity of Businesses In Andersonville

The relationship between Locality of Business and Longevity of Business
Out of all businesses that have been in the area for more than 10 years:

42 were locally owned and 4 were non-locally owned!
91% locally owned, 9% non-locally owned.

Out of all businesses that have been in the area for 5-10 years:
16 were locally owned, 2 were non-locally owned
88% locally owned, 12% non-locally owned

Out of businesses that have been in the area for less than 5 years:
31 were locally owned, 9 were non-locally owned
77% locally owned, 23% non-locally owned



Overall, locally owned businesses are far higher in frequency than non-locally owned businesses. In the category of operating for more than 10 years, the percentage of locally owned businesses was the greatest. In the category of operating less than five years, the percentage of non-locally owned businesses was higher than it was in any other group.

Type, Longevity and Locality of Andersonville Businesses

7. Summary, Conclusions, and Recommendations

The objective of this project was to create a base map for the Andersonville Development Corporation. The existing businesses, along with their tenure, business type, and local or non-local status were to be mapped as well. Part of the original goal included mapping second-floor uses as well, but this was eventually eliminated for the project as the majority of second-floor units were residential. The locations of eco-Andersonville certified businesses were also going to be mapped for this project, but the data would not be available in time so was therefore excluded. Through analyzing and manipulating the data, a reference map with multiple layers was created using ArcGIS software.

The main goal of this project was to complete a base map including the ground floor businesses in the Andersonville Business District, which we have accomplished. Separate maps were created featuring each aspect of the businesses (local vs. nonlocal, tenure, type, and use), as well as a map containing all of the information in layers which can be turned on and off. This gives the client the option to use the best map for their needs. We feel that the approach we took, which included combining and analyzing the data, then using ArcGIS to display it in this fashion, was the best method for producing what the client required. In this way we accomplished the goal of giving the ADC a base map for further planning and mapping.

In order to make the process of adding or updating data go more smoothly, we had some recommendations. A more-functioning primary key system needs to be developed. Currently, every matched business has to be coded twice: once in the join table and again in the attribute table. This process is laborious and prone to error. A primary key needs to be created in the base map attribute table, but it cannot be the Parcel PIN or Building Number since multiple businesses share the same building, even at times, the same address. To complete the project on time, the primary key system created, for the most part, got the job done, but an easier system needs to be developed to allow the ADC to quickly make additions and changes to the list of businesses without the need to make changes to the underlying base map attribute table. In the future, any additional information, such as eco-Andersonville data, can be added to this base map, along with any changes or other new business information. This will be valuable for the tracking and retention of locally owned and sustainable businesses within the district.

Appendix A

Contacts:

Sara Dinges, Program Manger, Andersonville Development Corporation
Sara is the main contact and provided the original data, as well as research direction.

Diana Maties, Lab Assistant
Diana Maties was instrumental in manipulating the source data into a cohesive whole. Her knowledge, insight, patience, and understanding of the inherent difficulties of working with incomplete data, data that doesn't make sense, and being a sounding board is the only reason a single map was produced.

Laura Levy
Laura Levy, a fellow student, gave insight into how to Cook County Assessors Office uses and maps parcel information. She also directed the group to the online lookup of all Cook County buildings.

Appendix B

Additional information used included the Ravenswood neighborhood building shapefile and attribute table from which the Andersonville Development Corporation created the Clark Street shapefile. In addition, the Cook County Assessors Office website was used to gain a better understanding of the relationship between building and parcel.

Appendix C

This is a section of the original joined attribute table provided by the ADC. The highlighted sections show there are many instances where the ADC business was attributed to a different address. From studying the varied attribute tables, it became apparent there was no primary key at all to join the ADC info. It looked like the ADC tried to use the business address as a quasi primary key, and this is why businesses have two disparate addresses.

Appendix D

These are screen grabs of some the "polygons" in the ADC basemap. There are many lines and slivers coded into the shapefile. These need to be eliminated or joined to other polygons.