University of Redlands

**Identifying Target Markets for Spanish Language Publications
in Southern California**

A Major Individual Project submitted in partial satisfaction of the requirements
for the degree of Master of Science in Geographic Information Systems

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Identifying Target Markets for Spanish Language Publication in Southern California

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Abstract

Identifying Target Markets for Spanish Language Publication in Southern California

by

Noor Yusuf Najem Yusuf

The *Press-Enterprise* is a publisher in Riverside County, California, which traces its roots to 1878. The Press-Enterprise began publishing daily sports news, local news, community events, and more. One of their products is the Spanish newspaper *La Prensa*, which is an information source for the Inland Empire's Hispanic community. *La Prensa* is available weekly and for free. Currently the newspaper is distributed through more than two thousands news racks and stores in the three different counties: Riverside, Los Angeles, and San Bernardino. In order to increase the number of subscribers for *La Prensa*, the marketing department of *Press-Enterprise* needed to know where the market is for the highest proportion of distribution of the Spanish newspapers to introduce home delivery for the Spanish product. Thus, the client needed to perform analysis to identify good market areas for home delivery of *La Prensa*. The Identifying Target Markets for Spanish Language Publication in southern California (ITMSLP) project helped to identify the neighborhoods where there is a Hispanic concentration. A Trade area analysis used to show the current distribution and aggregate the demographic information for the distributions' neighborhoods. Also, regression model was built to estimate the potentials of acceptance of home delivery of the newspaper and Find Similar analysis was conducted to show the recommended block groups for distribution. The final results were delivered to the client in the form of hard-copy maps and an online mapping application.

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List of Acronyms and Definitions

ITMSLP	Identify Target Markets for Spanish Language Publications
GIS	Geographic Information System
DOMTAP	Dominant Tapestry Code
MPI	Market Potential Indexes
DRAW	Number of newspaper placed on news rack or stores
WBS	Work Breakdown Structure

WBS is subdividing the major project deliverables and project work into smaller more manageable components. Used to organize and define the total scope of the project during planning.

Chapter 1 – Introduction

Every newspaper firm tends to ask basic questions to locate their customers like “who are the customers?”, “where do they locate?”, and “how to find them?”. The answers to these questions help them set their strategic plans to target their customers and thus to increase their distribution and sales in newspaper industry. Many media marketing departments have been using geographic information system (GIS) to map demographics and the locations of viewers or subscribers. The Press-Enterprise, a publisher in southern California, has also attempted to use mapping techniques to locate their customers, however, with limited success due to the shortage of expertise. The publisher wanted to introduce home delivery for *La Prensa*, a Spanish-language newspaper, and increase the subscription. But they needed to know who reads the newspaper, where these readers are located, and the best method to reach them. Therefore, this project conducted a series of analyses to identify the markets for Spanish publications in three counties of southern California: San Bernardino, Los Angeles, and Riverside. In this report, this project will be referred as ITMSLP standing for Identifying Target Markets for Spanish Language Publications.

1.1 Client

The client for this project was the Press-Enterprise. It is a publisher in the Riverside County, California, which traces its roots to 1878, when Riverside pharmacist and teacher James H. Roe published a weekly paper called *The Press*. Seven years later, the Press-Enterprise began publishing daily sports news, local news, community events, and more. Today, the Press-Enterprise is the largest newspaper in the Inland Empire of southern California, publishing eight products tailored to particular regions in the Riverside County (Enterprise Media, 2010).

One of their products is the Spanish newspaper *La Prensa*, which is an information source for the Inland Empire’s Hispanic community. *La Prensa* was launched on February 13, 1999, and is available weekly and for free. Currently the newspaper is distributed through more than two thousands news racks and stores in the three different counties: Riverside, Los Angeles, and San Bernardino (Enterprise, 2010). The point of contact of this project was Karen Kokiko, who is the VP of Marketing. She is responsible for defining the appropriate marketing organization for the company, customer segment selection, and related product positioning.

1.2 Problem Statement

The client has used different ways to introduce the home delivery for *La Prensa* in the target areas. For example, the client used random and guesswork methods by selecting random areas to distribute the Spanish newspaper for each home in that area. However, they received many complaints from residents who do not read Spanish newspapers, which led them to look for a better approach. In order to increase the number of subscribers for *La Prensa*, the marketing department needed to know where the best markets are for the distribution of Spanish newspapers. Understanding the potential

customers' profile is also essential to the success in selling home delivery subscriptions for the Spanish product. Thus, the client needed to perform analysis to identify the good market areas for home delivery of *La Prensa*.

1.3 Proposed Solution

The ITMSLP project helped to identify the neighborhoods where there is a Hispanic concentration. A regression model was built to estimate the potentials of acceptance of home delivery of the newspaper. Various variables, including income, newspaper reading, education level, and the concentration of adult males, were included in the model and the final results were delivered to the client in form of hard-copy maps and an online mapping application.

1.3.1 Goals and Objectives

The goal of the ITMSLP project was to help to inform and refine the current distribution of *La Prensa*. Specifically, the first objective of ITMSLP project was to provide the client with a series of analyses to show the trade areas of current newspaper distributors, and to predict the best marketing locations using the demographic data. The second objective was to show these maps in more efficient ways, particularly the user should be able to interact with the data and see the final maps in good quality. To this end, a web application was implemented to enable the user to select and search for specific locations, display the demographic information for a selected area, and read the result clearly.

1.3.2 Scope

The study area of this project consisted of three counties in southern California: San Bernardino, Los Angeles, and Riverside. Although the map display in the final web application included five counties, including Orange and San Diego counties, the analysis was confined to the data for these three counties. This project relied on the demographic data provided by Esri's Business Analyst, and the data provided by the client, like the ZIP codes that they distribute the product in, and the store location with the level of sales. The project deliverables include the maps showing the target market for the Spanish publication and the locations of current and potential distribution sites, and a web application that the client can use to interact with the maps. The web application provided the client with a clear picture of the Hispanic demographic data and the target locations.

1.3.3 Methods

This project followed the waterfall methodology, starting from collecting client requirements, analyzing the requirements, searching for suitable data, working with different analyses, and evaluating the output. As defined by Shewhart in 1950, "Plan - Do- Check and Act" cycle (Project Management Institute, 2004) were the main steps that the ITMSLP project followed in each phase of the waterfall model. Project development moved from concept, through design, implementation, testing, installation, troubleshooting, and ended at operation and maintenance; there was no overlap between these phases.

There were a few analytical methods applied in this study. First, a cluster analysis was conducted to identify how many clusters existing in the current newspaper distributors (the stores where the newspaper were distributed for free). Second, a trade area analysis was performed to locate the customers for each distribution cluster along with overlay analysis to aggregate the demographic data for each trade area. Third, a regression analysis model was built to examine the variables that influence the amount of distributions of the newspaper. Finally, the distribution prediction was made for each census block group using Find Similar analysis. This result was then used to predict residents' willingness to accept home delivery.

1.4 Audience

This paper addresses the needs of a newspaper's marketing department, and its Spanish-language media strategic planners, to target their customers using demographic data and GIS. Most of the analysis results used Business Analyst data (demographic and ESRI Tapestry segmentation) with marketing analysis methodologies, and displayed the maps in a simple web application. Marketing and Spanish-language publication teams may be interested in using the analysis results through the web.

1.5 Overview of the Rest of This Report

This paper contains six chapters. Chapter Two is the literature review which provides background for the project and reviews about similar analyses and projects from different sources. Chapter Three is the system analysis and design for the project. Four is more data related and database design and goes through the process of preparing the data used in this project. Chapter Five covers the actual work and the implementation; with the final results in Chapter Six. Chapter Seven is the final conclusion and future work suggestions.

Chapter 2 – Background and Literature Review

The primary purpose of the ITMSLP project is to provide the client with a clear idea of the market and help them to decide where to offer home delivery for the Spanish-Language products. The client has used different ways to reach and cover most of the target locations, from guesswork to targeting the ZIP codes with high percentages of Hispanics. Given the failure of the previous attempts, the company needed to know the target locations where the home delivery of *La Prensa* is more likely to be accepted. This project focused on using demographic data to find neighborhoods whose residents mirror a target customer. This chapter introduces the idea of using the demographic data in marketing and different analysis that can be used to identify the target market with some case studies.

2.1 Application of GIS in Marketing

The primary focus for all direct marketers is the customers: how to identify them, reach them, keep them, and find more like them. To succeed in reaching these goals there must be an understanding of customers' demographics, behaviors, and buying patterns, because this will increase chances of retaining them and finding more like them. The spatial technologies have grown in the business world. For example, consumer service, billboard advertising, newspaper, and retail are industries that often serve their customer directly with GIS (Pick, 2007). These GIS applications in marketing often rely on demographic data and Community Tapestry data.

2.1.1 Overview of GIS application in Marketing

Customers have addresses, preferences, and patterns. Newspaper distribution has geographic coverage area. Therefore, locational information is very important to locate stores and customers. Understanding the spatial dimension of marketing and marketing analysis can improve a firm's ability to serve their customers. Since GIS has the strength in managing, analyzing, and displaying spatial data, the marketing managers who use these tools will be more successful. GIS tools and analysis are vast, but provide four essential capabilities relating to marketing (Miller, 2007):

- Enhanced spatial insight and understanding into marketing which help marketer to better understand their market. For example the World Treasures, functional online stores, defined market segments and assigned them to ZIP codes, created segments for their subscriber profiles, and, finally, display it on maps to get better information on the geographic concentration of attractive ZIP codes.
- Greater potential for visualization in marketing analysis by exploring demographic characteristics, analyzing this data by creating a buffer around each distribution store, and then comparing the market area characteristics. Finally displaying the result in map with graphics shows the characteristics for each area, like the Meiers Home Furnishings, a fictional firm.
- The addition of powerful spatial analysis tools. In some cases the spatial dimension can be analyzed to get more information. For example Outdoor Living

Inc, a fictional company, had an inherently spatial problem about how to identify the locations that provide high concentrations of the firm's targeted families.

- Enhance communication capabilities in marketing reports and presentation. This is extension of the visualization discussed above. Maps, text, tables, and charts allow better communicating and interacting within analysis results.

2.1.2 Demographic Data

Data are important to start any analysis. Demographic data have played a key role in shaping the housing market boom that began in the mid-1990s (Peters & MacDonald, 2004). In fact, since the 1990 census, GIS has been a necessary tool for any significant census analysis. It became more powerful and easier to use because it is connected directly with census data. Census data can now be incorporated into GIS with other data sources. For instance, by mapping census data, demographers can identify census tracts with high concentrations of elderly residents. Market researchers can find neighborhoods whose residents mirror a target customer's profile. Journalists used census data to find compelling stories. For example, Herzog (2003) analyzed the census data at census tract level and used the Associated Press Census 2000 website to target customer profile. Many other newspapers continue to use the census data to help them with their business. Similarly in journalism marketing, there are many case studies that show how journalists use the census data in investigative reporting (Herzog, 2003). Also, Washington Times case study that uses the GIS to increase subscription rate of daily newspapers (ESRI, 2005). The Washington Times chose Esri's ArcGIS Business Analyst software integrated with Esri's demographic data to refine the subscriber and reader profiles. They appended Tapestry segmentation codes to each subscriber record by ZIP code. These targeted ZIP codes were then aggregated into one of the 65 Tapestry segments based on demographic variables such as age, income, home value, occupation, household type, education, and other consumer behavior characteristics. A few newspapers have mapped the population data by race (Herzog, 2003).

Outsides the United States, demographic data have been used as well to improve decision-making process. For example, UM CURIOUS MINDS and MINDSHARE are two media strategic planner companies in the Kingdom of Bahrain and the Middle East that have agreed on the importance of knowing the demographic data for target locations. Demographic data are used to set the advertisement plan or set the distribution for certain advertisement in newspapers. Kazem (2010) classified the different Bahrainis newspapers by using the Census data:

- Akhbar-Alkahleej Arabic newspaper targets Arabic readers, age of 50 years and above.
- Al-Ayam Arabic newspaper targets Arabic readers, age from 30 to 50 years.
- Gulf Daily News (GDN), an English newspaper, targets non Arabic readers, and so on.

In addition to the census data, Community Tapestry data, provided by Esri, is another important demographic data source for many GIS applications. Tapestry Segmentation systems operate on the theory that people with similar tastes, lifestyles, and behaviors seek others with the same tastes—"like seeks like." These behaviors can be measured, predicted, and targeted. ESRI's Tapestry Segmentation system combines the

“who” of lifestyle demographics with the “where” of local neighborhood geography to create a model for various lifestyle classifications or segments of actual neighborhoods with addresses—distinct behavioral market segments. Specifically,

“Tapestry Segmentation represents the fourth generation of market segmentation systems that began 30 years ago. The 65-segments Tapestry Segmentation system classifies U.S. neighborhoods based on their socioeconomic and demographic compositions. The power of Tapestry Segmentation allows you to profile consumers in a number of ways including, standard geographic areas including census tract, block group, ZIP Code, and ZIP+4, user-defined areas such as rings or polygons based on distance, drive time, or other specifications, customer addresses or site locations. The versatility of Tapestry Segmentation provides several methods of dividing the 65 segments into summary groups for a broader view of U.S. neighborhoods, life-Mode: 12 summary groups based on lifestyle and life-stage, urbanization: 11 summary groups based on geographic and physical features along with income” (ESRI, 2009a, page 3).

2.2 GIS Analysis Tools in Marketing

There are a variety of methods that can help firms know more about their customers and predict customer behavior. Profiling customers is one of the methods used to target customers. Segmenting customers or grouping the customers into segment by common characteristics, helps to acquire and retain customers. Profiling customers helps to analyze and target customers. Although there are different methods for marketing, only four relevant analyses are discussed in this section.

2.2.1 Geodemographic Profiling

Geodemographic profiling is a method for inferring socioeconomic and demographic characteristics of people based on where they live. Geodemographic profiling is a technique that helps in developing demographic analysis and obtaining demographic characteristics for an area. The technique is based on the premise that populations tend to cluster geographically into groups with relatively similar socioeconomic, demographic, and lifestyle characteristics. This technique looks for similarities and differences rather than precise measures of population characteristics. Geodemographic profiling works better in small size of a geographic unit or area because it actually generalizes the different personal characteristics. The degree of homogeneity among the households in a block group of 500 households is likely to be higher than in a census tract of 1,400 households or ZIP code of 12,000 households. Therefore, the block group offers a better scale at which geodemographic profiling can work (Miller, 2007).

2.2.2 Trade Area Analysis

Market analysis often proceeds by first calculating the trade area, then calculating competitive supply. Trade area is defined by several ways. The simplest way of defining it is by assuming the customer will select the nearest store for them to pick the newspapers. Trade area may also be defined as consumer concentration, which is not a measure of convenience. Once market area is defined by one of the methods above,

demographic characteristics of the target customers can be analyzed by aggregating the data within the trade area.

ESRI Business Analyst provides advance methods to aggregate data within a trade area (ESRI, 2009c):

- Center point method (all or nothing approach). This method aggregates the data of the center point of a block group only if the trade area contains that point, even though only part of the block group may be within the trade area (Figure 2-1).

Figure 2-1: Center Point Method

- Area base method. This method depends on proportion of the block group area covered by the trade area. Although this method is more accurate than the center point method, it assumes that population is uniformly distributed which is not always true. It might calculate 40 percent from the population in the block group, but in reality 40 percent of the population is not in the area covered by trade area, so the result will be less accurate (Figure 2-2).

Figure 2-2: Area base method

- Block point method is the default option in Business Analyst. This is the most accurate method, which is based on the smallest geography, the census block point. Block points are the centroids of city blocks. It does not just give the exact population, but also analyzes if the population is based on total household units or total population (Figure 2-3). Only small subsets of data (households, population, housing units, and number of businesses) are available at the Block points.

Figure 2-3: Block point method

Sarkar and Greene (2009) case study focused on the distribution strategy of a Spanish-language bridal magazine launched a small business firm based in southern California. Management's objectives included increase circulation, development of a nationwide marketing strategy, and position the magazine as a brand name product in order to attract a committed roster of advertisers. Trade area analysis has been used to investigate the magazine's current distribution and compute accessibility of existing magazine distributors in relation to neighboring population centers. Trade area analysis has been applied using a one mile buffer for each distribution point and aggregate (a) number of distribution centers (b) average Hispanic population, and (c) average median age of Hispanic population for BODAS La Revista USA combining insights into consumer behavior. Geodemographic analysis was conducted to gain insights into customer characteristics in magazine distributor trade areas.

2.2.3 Regression Analysis in Marketing

Regression analysis is another method often used to identify the relationships between demographic characteristics and readership or sales of products. For example, Malthouse and Calder (2006) conducted a study on one hundred and one different newspapers and markets. This study finds the strongest predictors of readership are length of residence and age in most markets. Income also has a highly significant positive overall effect. The effect of education is small, but varies across newspapers markets. The fraction of variation in readership accounted for by demographics is small, showing that newspapers have a broad reach across demographic groups.

Another example was by George and Waldfogel (2003). In the study, the analysis focused on the readership and race. The results showed that black people are most likely to purchase a daily newspaper in markets with larger black populations, and blacks are less likely to purchase a paper in a market with a larger white population. The similar pattern was found for Hispanic and non-Hispanic populations.

2.3 Summary

Demographic data are the key for marketing analysis and targeting the best customers. There are many different analysis tools used in the marketing field. Selecting the appropriate tool depends on the availability of the data and the application. In this paper, trade area analysis and regression analysis have been selected to solve the client's problem by using both demographic data at the block group level and the Community Tapestry data. Analysis output and maps need a platform to display and since the spatial

technologies have grown in the business world, the newer technology platforms have involved, in particular the web integration platform. The web services platform encourages greater direct contact, without intermediaries, between the user and the product or service. In addition, this trend is also consistent with finding that the web-services platforms are beneficial (Pick, 2007). This project focused on analytical maps displayed in a web application, where viewing and searching for information is more effective and easy than in a hard copy map.

Chapter 3 – Systems Analysis and Design

This chapter discusses user's needs, functional and non-functional requirements, and system design. A detailed functional specification defines the full set of system capabilities to be implemented. The system architecture shows how the system addresses the client's needs by using GIS capabilities and the web technology to examine customer profiles, estimate the best location to target the customers, and represent the final results in an interactive mapping environment.

3.1 Problem Statement

The client has used different ways to introduce the home delivery for *La Prensa* in the target areas. For example, the client used random and guesswork methods by selecting random areas to distribute the Spanish newspaper for each home in that area. However, they received many complaints from residents who do not read Spanish newspapers, which led them to look for a better approach. In order to increase the number of subscribers for *La Prensa*, the marketing department needed to know where the best markets are for the distribution of Spanish newspapers. Understanding the potential customers' profile is also essential to the success in selling home delivery subscriptions for the Spanish product. Thus, the client needed to perform analysis to identify the good market areas for home delivery of *La Prensa*.

3.2 Requirements Analysis

After several meetings with the client, details were identified to help specify the requirements to meet their needs. As a result, functional requirements and non functional requirements have been listed.

3.2.1 Functional Requirements

A function requirement is the approach taken to reach the desired result. The system functional requirements that are extracted from the client requirements are stated in detail as follows:

- The user would be able to use the system to determine where they can introduce home delivery for Spanish production by displaying different types of analytic maps and interacting with these maps.
- The user would be able to access the system through a web browser and use the Internet to retrieve the information from the hosted server.
- The user would be able to display different maps for five of California counties: San Bernardino, Los Angeles, Riverside, San Diego, and Orange counties.
- The user would be able to choose functionality in the system where explained in (Table 1.)
- Analytical maps, hard copy maps shows the analysis result and help the user to determine where can introduce the home delivery.

Table 1. System Functions

<u>Functions</u>	<u>Description</u>
Visualize location	The user would be able to use a search engine to locate the area desired. The system should provide different methods of search including: search by ZIP code, search by area, and search by county. The user would be able to choose between the layer and information desired to be displayed from the different analytical maps provided by the system. Also the user would be able to move between listed maps and overlay the different maps by using the map tools provided
Search location	The system would allow the user to search for location and display information related to it on the map (search by ZIP code, search by area, and search by county).

3.2.2 Non-Functional Requirements

Non-functional requirements for the system include a user-friendly interface that allows users to use the functions easily and helps user navigate between the maps. Several features of the system that made it successful include clearly designed maps with meaningful symbology, centralized map display area, and icons that can easily to be hid and displayed. Table 2 summaries the non-functional requirements.

Table 2. Non- Functional requirements

<u>Technical</u>	<u>Description</u>
platform	Windows (XP, 7) client side. ESRI ArcGIS desktop and windows server 2003 in server side. Flash builder for coding and development.
Network	Internet is used to access the server and use the web application. Internet will be enough for the first year of support and maintenance, after that the intranet will be used to access the server.
<u>Operational</u>	<u>Description</u>
Retrieve data easily and smoothly	Bandwidth given to retrieve the data from the server easily and smoothly. After one year support and maintenance the system should be hosted in the client's server.

<u>Technical</u>	<u>Description</u>
Database update	System database will be updated every 10 years with the release of new census data or with the new release of Business Analyst data provided by ESRI
Downtime	Since the application is information provider and it is not used on daily basis, downtime is allowed from 1 to 2 days

3.3 System Design

System design must be specified properly to support user performance requirements. Missing one piece of the system will limit performance and will result in higher costs with further development. System design considers user needs, the requirements, the technology to be used, and the overall system architecture.

System architecture design is a process developed to promote successful system operations. This process is built on existing information technology (IT) infrastructure (server side) and provides specific recommendations for hardware and network solutions based on existing and projected user needs. The system architecture contained two main tiers: client tier and server tier. The client would be able to access the application through the Internet and the web server with the ArcGIS server, which would access the database to fetch data (Figure 3-1). The recommended workstation for client side is a GIS standard workstation (Dual Core Intel Xeon processor 5130; 2 GHz, 4MB L2, 16MB memory; 80GB hard drive). In the client tier the user would be able to use the workstation to access the web application and retrieve the data through the internet. The sever tier contained the internet server and the ArcGIS server. ArcGIS server contained the GIS data, the GIS data retrieved from the server by the client, and the development workstation. The development workstation contained the ArcGIS desktop application that produced the hardcopy maps and the analyses results.

Figure 3-1: System Architecture Diagram

3.4 Project Plan

The project plan contained several phases and each phase included different specific tasks. Having a feasible project plan helps maintain the project progress and direction within the required project time frame. However, the project plan was changed and modified during the implementation due to the unexpected technical difficulties or data availability. The project was divided into five main phases along with one self improvement phase; this phase included the ArcGIS training and Flex training needed for development. Project phases were:

- Initiation Phase
- Self Improvement
- Planning Phase
- Executing Phase
- Monitor and Control Phase
- Project Closing Phase

The Initiation phase described the project and specified the business needs. This phase involved creating a preliminary scope statement and project proposal, outlining the main tasks based on the client's requirements and background review. The Planning

phase discussed all planning processes for different constituent processes and interactions to plan and manage a successful project. In this phase the project plan was created, project scope was defined, work breakdown structure (WBS) was created, tasks were specified, and other activities were defined, like the project communication. The Executing phase was the action phase that executed the plan in parallel with project quality assurance. This phase workflow divided into three main tasks to execute and manage the project plan. The first task was to collect the data and work with it. This task used Shewhart's (1950) 'Plan -Do- Check and Act' too heavily, which caused more time than expected (Figure 3-2).

Figure 3-2: Executing Phase Diagram – Collect and Work with Data

The second task in the executing phase was to create maps. This task included creating a map template and applying this template to the data output from the analysis. Developing the web application was the last task in the executing phase where the web application was developed. The web application development was not included in the main client requirement, but was added to allow the user access the demographic maps at the level of block groups. This task was divided into subtasks: design the application, development and programming, test the application, and update to reach the final application. Executing phase deliverables can be summarized as follows:

- Analyze data: GIS data in format, like layers showed the targeted location for the client's current and potential market and showed different analysis results. This is considered the core of the project, and the most important deliverable, and with this data the project has met the analysis required from the client.
- Map templates: the hardcopy maps were provided in this phase as template. This is one of the outputs provided by the project as the final product will show the analyzed data and the client analysis output in the form of map reports.

- Web application: this is the final product of the project. Web application allows the client to interact with analytical maps. The web application was another presentation for the analytical maps and gives the client the option of viewing the maps as softcopy. This web application was customized to have the functionality of the GIS application, like zoom in or zoom out. The idea of the web application is that the client can access it in different places for presenting purposes.

The Monitoring and Controlling phase contained the tasks of monitoring and controlling the project work, making sure that scope statement was met, controlling the project schedule, and monitoring project risks. The Closing phase was the end of the project after the final deliverables of the project were submitted to the client. The project was completed by gaining the approval of the client.

3.5 Summary

Although the project faced some difficulties during its implementation, such as lack of data and delays in receiving them from client, the project fulfilled the main objective. Focus on achieving return on analysis maps and taking time in planning different aspects of the project were the keys to the success of this project. In addition, making sure the client's objective of locating the Hispanic customer and identifying the target locations was met.

Chapter 4 – Database Design

This chapter explains the conceptual model for this project and the entities needed to be included in the database. The logical model was also defined to contain all required datasets in form of the Esri geodatabase. After specifying the data needed and collecting them from their sources, the database was created, and the data were loaded into the geodatabase.

4.1 Conceptual Data Model

The conceptual model is where entities involved in the project are defined, relations between the entities are specified, and attributes needed for those entities are declared. This design model gives a clear idea about required data for the analysis. It will identify the features and relationships.

Unified Modeling Language (UML) diagrams were created in Visio to show the conceptual diagram for this project, which contains two main entities: *La Prensa* distribution stores and block groups (Figure 4-1). Block groups were selected as one of the main entities because the analysis result is requested by the client to display at the block groups level. Some block groups contained one distribution store and other contained more than one stores. Also there was some block groups that did not contain any distribution store. There were also different entities involved in the project to present the base map. Those entities represented as: counties boundaries, ZIP codes, block groups.

Figure 4-1: Conceptual Diagram

4.2 Logical Data Model

The logical model was derived from the conceptual model. In this model, scheme of identifiers, or keys, for the unique identification of each entity is declared and a list of attributes is defined. The geodatabase used for this project is simple and is composed of two feature datasets: LaPrensa_stores and BaseMap (Figure 4-2). The LaPrensa_Store feature dataset only contains a point feature class representing *La Prensa* stores. The attributes related to this feature class was derived from the original data from the client, which includes address of the stores, the name of the stores, and the rate of *La Prensa* distribution in each store (DRAW). The base map was needed to draw the study area and represent the analysis output. The government's boundaries were used as the base map such as counties, ZIP codes, and block groups. Attributes related to each base map feature class were derived directly from original feature classes, and these attributes were selected by the recommendation from the literature review and by the request from the

client. Most of attributes pertains to the socio-economic characteristics of each block group, including total population, Hispanic population, total households income, education, adult male population, adult female population, block group area, and block group name.

4-2 Logical Diagram - Feature Class Attributes

4.3 Data Sources

There were two different data sources for this project: excel sheet data from the client containing location of retail stores with the number of distribution, and the Esri Business Analyst data for the demographic data. The base map data came from two sources: Business Analyst and ArcGIS online data map service.

4.3.1 Client Data

The client provided data as an excel sheet which contains the Spanish newspaper retail stores and news racks where the newspaper is distributed. The retail store data fields are explained in Table 3. This data provided addresses for each store or news racks. Although some data had accurate addresses, some did not. Comparing the relationship between the retail store data and the block groups, some block groups had one stores and other block groups had many stores. The client was using the ZIP code as an administration boundary to check their distribution level. These stores or news rack data were selected according to guess work or previous knowledge of Hispanic concentration, thus there were no specific criteria to select the locations.

Table 3. Client Excel Data

<u>Field</u>	<u>Description</u>
ROUTE ID	Alphanumeric. Route ID used by the client shows the addresses belonging to which route of distribution.
BUINESS NAME	Shows the store name or business name that the distribution happens in or nearby where the newspaper is distributed.
Address	Address of the location of the distribution (actual or nearby)
City	City name where the store is located.
ZIP	ZIP codes where the store is located.
DRAW	The DRAW indicates only the number of newspapers placed on the rack. The lower the number means lower Hispanic traffic picking up newspapers. The higher number means that more Hispanic bought newspapers, thus signifying higher traffic volumes.

4.3.2 ESRI Business Analyst Data

Demographic data were the key to this project analysis. The Esri Business Analyst suite is composed of Web-based, desktop, and server applications that enable businesses to access a wealth of data. The data used for this project was Business Analyst desktop data. Block group data were customized for this project's purpose. In addition to the block group dataset, this project included Esri's Market Potential data, which provides information about the newspaper reader in a table. It measures the likely demand for a product or service in an area. The data include an expected number of consumers and a Market Potential Index (MPI) for each product or service. An MPI compares the demand for a specific product or service in an area with the national demand for that product or

service. The MPI values at the U.S. level are 100, representing overall demand. A value of more than 100 represents higher demand, and a value of less than 100 represents lower demand. For example, an index of 120 implies that demand in the area is likely to be 20 percent higher than the U.S. average; an index of 85 implies a demand that is 15 percent lower (ESRI, 2009b). MPI values are linked with Tapestry Segmentation values in the block group attributes table. Tapestry Segmentation classifies all U.S. residential neighborhoods into 65 segments based on socioeconomic and demographic characteristics. The Tapestry Segmentation allows to profile consumers. The 65 segments divided into summary groups for a broader view of U.S. neighborhoods by the life Mode: 12 summary groups based on lifestyle, and urbanization: 11 summary groups based on geographic and physical features along with income. MPI data were mainly used during the analysis process and was not loaded into the database.

4.4 Data Scrubbing and Loading

Data from the client were modified and geocoded to get the accurate location of the stores. The address locator, US_street_addresses, was used to geocode the store addresses against the Tele Atlas Street Address Range database (US Nationwide streets). The output feature class, *La Prensa* Retailers stores, contains more than 2000 locations. However, a majority of the stores do not have the information on the *La Prensa* distribution. Therefore, these stores were removed and only 618 stores were included for the analysis. The final feature class, LaPrensa_stores, has the same attributes listed in Table 3 with one field added to contain the matching address from the geocoding process. The base map data were imported to project the database by selecting required data and attributes.

4.5 Summary

The conceptual data model explains needed entities and the main entities used for analysis. After defining the conceptual model, it was determined that the logical model needed to consist of the geodatabase. The logical model explained the datasets, which were created and loaded into the geodatabase. Because the client had provided the data in the form of an excel sheet, only the geocoding process was needed to make sure that the data were exported into the geodatabase points form.

Chapter 5 – Implementation

The implementation of this project was composed of two major tasks: analyzing the relationship between *La Prensa* distribution and neighborhoods, and building the web application. To determine the impact of neighborhood characteristics on *La Prensa* distribution, four types of analyses were conducted: cluster analysis, trade area analysis, regression analysis, and Find Similar analysis. The results suggested the target locations for home delivery of *La Prensa*. The web application was developed using Flex to customize main functions including: search by ZIP code, search by county, identify block groups, and maps tools. Hard copy maps of analysis results were also delivered to the client.

5.1 Analyzing the Relationship between Neighborhood Characteristics and *La Prensa* Distribution

Analyzing the relationship between neighborhood characteristics and *La Prensa* distribution started with finding store clusters, as the distribution stores selected by the client were already clustered. Based on the store clusters, a trade area analysis was carried out to examine the impact of neighborhood characteristics on the distribution of *La Prensa* newspaper. Finally, the target areas were recommended by finding the neighborhoods similar to the trade areas that already had high distribution. Figure 5-1 summarizes the analytical flow.

Figure 5-1: Analyzing Relationship Between Neighborhood Characteristics and *La Prensa* Distribution Workflow

5.1.1 Finding Trade Area of Store Clusters

In some cases the stores were very close to each other; some were even found in the same shopping mall. This suggests that it is difficult to link each individual store with its own individual neighborhood. Therefore, cluster analysis was conducted to identify store clusters that existed in the current newspaper distributors (the stores where the newspaper is distributed for free). The Multiple Mean Center Tool in Business Analyst was used to

solve this problem. However, this tool requires the number of clusters to be one input parameter; since it uses the k-means clustering method. To figure out the appropriate number of clusters, an algorithm called Find Multiple Mean Center was implemented using a Python script (see Appendix B for details). The Find Multiple Mean Center accepts two inputs: two and a half mile buffer around each store as a polygon feature class, and *La Prensa* stores feature class. Buffers around each store were created using the Buffer tool from the analysis toolbox in ArcMap. The distance used to create buffer zones around stores was two and a half miles (2.5 miles). This distance was determined according to the assumption that stores located within a five minute driving distance belong to the same cluster. Given that the average driving speed is 30mph in an urban area, the five minute driving distance is about 2.5 miles. Using the stores and their buffer zones, the Find Multiple Mean Center iteratively created a hierarchy of mean centers for different clusters of stores. Initially, stores within each buffer were selected, and then the mean center for each group of selected stores was found. The sum of the distribution of the selected group of stores was calculated and added to the mean center point. After six iterations, no two mean centers remained separated by less than 2.5 miles. A total of 32 clusters were obtained and this number was used as an input to the k-means clustering tool in Business Analyst (BA).

The k-means approach finds geographic concentrations in a set of points and determines their center points. After identifying a cluster partition, the process continues iteratively until all points are associated with the closest mean center. To account for the distribution volume of each store, the weighted mean center was used in this method and 32 store clusters were identified. The total number of distributions of *La Prensa* for each cluster was one of the output attributes, which was used for the regression analysis. Using the BA's k-means clustering tool and the customized Find Multiple Mean Center tool, two sets of clusters were obtained. To a great extent, the two sets of clusters were similar, which will be further discussed in Chapter 6.

Trade area analysis was performed after the cluster analysis to find the customers within a five minute driving distance of each distribution cluster. In this analysis, Network Analyst was selected to calculate driving time on the street network. After the trade areas were found, the overlay tool in BA was used to aggregate the demographic data at the block group level for each trade area. As explained in Chapter 2, the area-based aggregation method was chosen because it allows for the aggregation of the most desired demographic variables. .

The variables aggregated from overlay analysis included:

- 2009 Male Population 18+
- 2009 Female Population 18+
- 2009 Total Hispanic Population
- 2009 Total household
- 2009 Unemployed Population 16+
- 2009 Education 25+ Bach Deg
- 2009 Education 25+ Grad Deg
- 2009 Medium household Income

In addition to the demographic variables, Market Potential Index (MPI) data were also considered for the regression analysis. MPI data provide information about customers' reading behaviors within the trade area. However, MPI was not aggregated in

the overlay process. These data were available in a table. Columns represented index numbers that were a reference for the Tapestry segment. Rows contained the index values for different goods, services, attitudes, and activities. Three main values were selected from the reading behavior: Light Newspaper Reader, Medium Newspaper Reader, and Heavy Newspaper Reader.

The MPI data were added to the original trade area attribute table using the Join Field toolbox available in ArcMap. Join Field was the dominant Tapestry segment (DOMTAP: Dominant Tapestry Code) in the trade area attribute table and Indexes in the MPI data. MPI data were first exported and opened in Excel; then spatial paste and transpose functions were used to get the indexes into rows. The result was joined to the trade area attribute table (Appendix A).

5.1.2 Examining Neighborhood Demographic Characteristics

One previous study (George & Waldfogel, 2003) showed that blacks and whites are more likely to buy daily newspapers in markets with respectively larger black and white populations. Similar results hold for Hispanics and non-Hispanics. In this analysis, the interest was in whether the *La Prensa* distribution significantly depended on the Hispanic population, and whether there were other factors influencing the distribution. A regression analysis model was built to examine the variables that may affect the distribution of the newspaper. PASW Statistics 18 software was used to run the regression analysis. Table 4 summarizes both dependent variables and independent variables that were taken into account. First, correlation analysis was applied to each pair of variables to test how strongly they were associated. The independent variables that were not significantly correlated were chosen to be included into the regression model. The model coefficients were estimated using the least square method.

Table 4. Variables Involved in Exploratory Stage in Regression

<u>Response variable</u>	<u>Description</u>
DRAW	Newspaper distribution aggregated at each cluster
<u>Explanatory variable</u>	<u>Description</u>
Number of stores	The number of stores represented by each cluster.

2009 Male Population 18+	Male population age 18 and above
2009 Total Hispanic Population	Hispanic Origin total population
2009 Total households	
2009 Unemployed Population 16+	Unemployed population whose age is 16 years and above
2009 Education 25+ Bach Deg	Population age 25 and above by Educational Attainment: Bachelor's Degree
2009 Medium household Income	
2009 Hispanic Percentage	Percentage of Hispanic origin population
2009 Male 18+ percentage	Percentage of male population age 18 and above
2009 Unemployed Population 16+ Percentage	Percentage of Unemployed population age 16 and above
Heavy newspaper reader	Market potential Indexes value for Heavy newspaper reading behavior

Once the model was estimated, it was evaluated based on the F test result and R^2 , as well as the t test results for each individual independent variable. The final model includes only the significant variables and will be discussed in detail in Chapter 6.

5.1.3 Find Similar Neighborhoods

Business Analyst provides Find Similar analysis based on scoring locations against a known and well performing distribution location. It is based on the idea that the characteristics of a good distribution location can be found elsewhere. This tool was used to find the areas that have similar demographic characteristics to that of high distribution trade areas. Therefore, the highest distribution trade area was selected to be the master site, against which the similar block groups were to be found. The demographic characteristics for comparison were indicated by the previous regression analysis results. There were two approaches provided by this tool and the Conventional Find Similar method was used. The Conventional Find Similar method ranks the block groups by comparing the values of demographic variables with +/- percentage of changes from the value in the master site.

5.2 Building Web Application

Creating the web application required preparing documents to display the analysis results and different maps. This map document contained the layers to be shown in the web

application. The map document contains *La Prensa* stores and the base map, with the analysis results shown for the block groups. While preparing the document, the natural breaks was used to classify the demographic characteristics for each layer technique. After preparing the map document, hardcopy maps were printed and ArcGIS map services were created.

The web application was developed using ArcGIS map services and the Flex framework. It was designed and built using Adobe Flash builder 4.0, The Adobe Flash plug-in will be automatically installed on the client's side when the application is first run. ArcGIS map services are displayed in the web application. This web application was built to allow the client to interact with different demographic maps and the analysis results. ArcGIS resource center sample codes were used as a reference to implement the functions available in the application. To build the web application, interface design specification was set (Figure 5-2). Using C# programming language and Extensible Markup Language (xml) in the Flash builder, and with the help of the samples codes, the web application was built with the functions shown below:

1. Search: two types of searches are provided. Search by ZIP code and search by county. A window will be displayed when the user clicks on search function and he/she can choose desired search type.
2. Explore: different tools were created to allow the user to explore the different maps, including pan, zoom in, zoom out, full extent, next extent, previous extent, and the ability to switch between different layers. A transparent tool was included to control the maps transparency, and an Identify tool to retrieve demographic information.
3. Legend: a legend is also provided to show the layers legend.

Figure 5-2: Web Application Interface Design

5.3 Summary

Using the weighted mean center to find the store clusters helped in analyzing the relationship between the neighborhoods and *La Prensa* stores. Clustering was implemented using the find multiple mean center iteration tool and Business Analyst mean center. After identifying clusters of *La Prensa* stores, demographic characteristics were studied using different analyses: trade area analysis, regression analysis, and find similar analysis. These analyses used the cluster points and studied the five minute trade area for each point. Analysis output was presented in a web application with flex and hard copy maps.

Chapter 6 – Results and Analysis

This chapter focuses on the analysis results. Using the aggregated demographic variables for the trade areas, the regression model suggested that Hispanic populations significantly influence the *La Prensa* distribution, which met the client's expectation. Based on this variable, the Find Similar analysis compared the Hispanic population of all block groups to that of the trade area that has the highest distribution. Similar block groups were found and communicated to the client through a web interface. The web application allows the client to interact with different demographic maps and retrieve relevant information.

6.1 Relationship Between Neighborhood Characteristics and *La Prensa* Distribution

6.1.1 Trade Areas of Store Clusters

Thirty-two store clusters were produced after implementing the Find Multiple Mean Center iterations. This result was used as the input for the Business Analyst K-means Multiple Mean Center tool (Figure 6-1). There are slight differences between the two sets of clusters due to the different methods used. The major difference was in the areas that have fewer distribution stores. Using the multiple mean center iterations, a single store will be taken as a cluster by itself when it is apart from other stores for more than 2.5 miles. However, this criterion does not apply to the k-means clustering tool in BA. Therefore, in the areas that have a lower density of stores, a cluster can be produced with a group of stores that are distant from each other. Put differently, the cluster location (or the mean center location) is not necessarily close to the stores when the K-means clustering method is applied. The following analyses were conducted using both sets of clusters and the results are compared (Figures 6-1 and 6-2) .

Figure 6-1 La Prensa Store Clusters by Business Analyst and Find Mean Center Iterations

To find the relationship between the neighborhood characteristics and the newspaper distribution, it was necessary to first define the neighborhood. In this study, a five-minute driving trade area was chosen as the neighborhood for each cluster, based on the assumption that people are willing to travel five minutes to pick up the newspaper. Figure 6-2 shows the trade areas created for the BA's clusters. It can be seen that not all stores fall in the trade areas (highlighted by the red ellipses on the map). This is because some cluster locations are relatively far away from the comprising stores in some areas.

Figure 6-2: Trade Areas Based on Business Analyst Mean Center

Compared to the trade area coverage of BA clusters, the trade area coverage of the clusters calculated by the multiple mean center iterations was improved (Figure 6-3). Once these two sets of neighborhoods were defined, the related demographic variables were aggregated to the trade area from the block group level.

Figure 6-3: Trade Areas Based on Find Mean Center Iterations

6.1.2 Neighborhood Demographic Characteristics

The demographic characteristics were calculated for both sets of trade areas, and the results were very similar. For example, the percentage of the population that is Hispanic is between 12.6% and 79.8% for the BA's trade areas, with a mean of 49.6% and standard deviation of 16.8%. For the trade areas created by the custom algorithm, the percentage of the population that is Hispanic is between 12.6% and 69.5%, with a mean of 40.7% and standard deviation of 18.2%. Further, the Tapestry segments of 38 and 21 dominate both sets of trade areas. Tapestry Segment 38 is called Industrious Urban Fringe where 60% of the residents in this segment are Hispanic. The second dominant Tapestry Segment 21 is called Urban Villages where 62% of the residents in this segment are Hispanic.

The aggregated demographic values were then used as independent variables for the regression model. The dependent variable was the total number of distributions for each cluster. After multiple trials, the final model included two significant variables: the percentage of population who are Hispanic, and the number of stores associated with the clusters. The total Hispanic population and the Hispanic percentage variables were both significant in the model. However, since they were highly correlated, one of them needed to be dropped. Because the variable that is left in the model will be used to find the similar block groups, the Hispanic percentage is appropriate as it is a normalized variable and can be used for the analysis of different geographical scales. Table 5 summarizes the regression results, and analysis with both sets of trade areas yielded a similar result. With these two variables, the R-square statistic reaches 88%, indicating very good model fitness. First, the number of stores associated with each cluster significantly affects the newspaper distribution. This is reasonable as the distribution at each cluster is the sum of the distribution of associated stores. Therefore, a cluster that is composed of 15 stores is likely to have more distribution than a cluster of two stores. Second, the Hispanic population has a positive impact on the newspaper distribution, which meets the client's expectation as the newspaper is published in Spanish. Further, the Hispanic population should be taken as a compound factor to interpret the result, as a Hispanic culture indicates a certain type of lifestyle, reading preference, and a certain pattern of other behaviors, such as shopping. Although the other demographic variables considered (see Table 4 in Chapter 5) were not significant, it does not mean that these variables are irrelevant to the newspaper distribution. To examine this, individual data (customer information) is required.

Table 5. Linear Regression Model Result

<u>Business Analyst Mean Center Data</u>			
R=0.932		F = 96.36	
Adjust R-square = 0.860		Sig. = .000	
<u>Dependent</u> : DRAW, <i>La Prensa</i> distribution			
<u>Independent variable</u>	<u>Coefficient</u>	<u>t Test</u>	<u>Sig.</u>
Constant	-288.416	-2.407	0.023
2009 Hispanic Population Percentage	603.009	2.431	0.021
Stores Count	42.921	11.497	0.000
<u>Mean Center Iteration Data</u>			
R= 0.946		F = 124.198	
Adjust R-square = 0.888		Sig. = .000	
<u>Dependent</u> : DRAW, <i>La Prensa</i> distribution			
<u>Independent variable</u>	<u>Coefficient</u>	<u>t Test</u>	<u>Sig.</u>
Constant	-158.972	-1.713	0.097
2009 Hispanic Population Percentage	447.504	1.873	0.071
Stores Count	36.927	12.593	0.000

6.1.3 Recommendation for target neighborhoods

Since the regression analysis suggests that the percentage of the population who is Hispanic is the only significant demographic variable, the find similar analysis used this variable as the target variable to find the block groups similar to the master site. The trade area with the highest distribution was chosen to be the master site, and the percentage of the population that is Hispanic for this trade area is 79.8%. Considering the standard deviation of the variable distribution among the trade areas, 20% was used to create a range for the comparison. Therefore, the Find Similar analysis looked for the census block groups that have a Hispanic percentage ranging between 65.8% and 98.7%. The results are shown in Figures 6-4, 6-5, and 6-6 for Riverside, Los Angeles, and San Bernardino counties, respectively. These selected areas were recommended to the client for introducing home delivery of *La Prensa*. Appendices C, D, and E summarize the sample of recommended block groups.

Riverside, California

Targeted Census Block Groups

One hundred and thirty eight (138) census block groups out of over eight hundred are recommended to be targeted location for La Prensa newspaper based on different analyses applied using Esri census block groups 2009 and La Prensa stores locations.

Figure 6-4: Targeted Areas for *La Prensa* Distribution, Riverside County

Los Angeles, California

Targeted Census Block Groups

Two Thousand census block groups out of over six thousand are recommended to be targeted locations for La Prensa newspaper based on different analyses applied using Esri census block groups 2009 and La Prensa store locations.

Figure 6-5: Targeted Areas for *La Prensa* Distribution, Los Angeles County

San Bernardino, California
Targeted Census Block Groups

Two hundred and fifty six (256) census block groups out of over one thousand are recommended to be targeted locations for La Prensa newspaper based on different analyses applied using Esri census block groups 2009 and La Prensa store locations.

Figure 6-6: Targeted Areas for *La Prensa* Distribution, San Bernardino County

Besides the hard copies of the analysis results, these maps and other demographic maps were included in the web application for the client to view, explore, and analyze.

6.2 Web Application Interface

The final web application allows the user to display the different results using the functions discussed in Chapter 5. The user can select the function that he would like to use from the function toolbar by clicking on it. When the user clicks on the function a popup window will be displayed (Figure 6-7).

Figure 6-7: ITMSLP Web Application

For example, the user can switch between the different maps to view either the recommended block groups or different demographic maps, including the Hispanic population distribution, the Hispanic percentage distribution, adult male population distribution, adult female population distribution, heavy newspaper reader distribution, and medium household income distribution, each with the legend (Figure 6-8).

Figure 6-8: Table of Contents Tool and Legend

For better exploring the maps, the web application includes a search tool, and an identify tool (Figure 6-9). The search tool allows the user to select data using two different searches: search by ZIP code and search by county.

Figure 6-9: Search Tool

The Identify tool allows the user to retrieve information about two types of data: the business name of a *La Prensa* distribution store, and the block group information from the census block group data. The user can select the location from the map and the application will retrieve the data in a tool tip (Figure 6-10).

Figure 6-11: Navigation tools and Transparent Tool

6.3 Summary

This chapter discussed the results of the different analyses used to analyze the relationship between *La Prensa* distribution and neighborhoods, as well as the building of the web application. One hundred thirty eight block groups in Riverside County were recommended to be target locations for *La Prensa* distribution, 2,006 in Los Angeles County, and 256 in San Bernardino County. This recommendation was based on the results of the analyses. The final results were displayed in hardcopy maps and in the web application. The web application contained different functions to allow the user to interact with the different maps.

Chapter 7 – Conclusions and Future Work

The main contribution of this project is to identify the neighborhoods where there are Hispanic concentrations. Different analyses were used to estimate the potentials of acceptance of home delivery of the newspaper. Those analyses were adopted to provide the client with a series of analyses to show the trade areas of current newspaper distributors, and to predict the best marketing locations using the demographic data and Tapestry segments. This project also shows the analyses results on maps and allows users to interact with the data and see the final maps in good quality.

7.1 Find Target Location for *La Prensa* Distribution Conclusions

Working with store location points for *La Prensa* distribution did not contribute much to describing the demographic characteristics for *La Prensa* customers. This was due to several reasons: the newspaper is a free newspaper that is distributed in random stores with different categories, the customers who pick up *La Prensa* are not necessarily residents of the same neighborhood, and each store's reputation influences whether potential readers enter the store. However, the different analyses estimated the potential of acceptance of home delivery and, when combined with the existing data, this project shows the strongest demographic variable to define client customer profile and the best marketing locations in the Hispanic population. Block groups that contain high Hispanic concentration are the best target locations to introduce home delivery of *La Prensa*.

7.2 Future Work

Future research should propose variables that could better explain customer profiling for *La Prensa* and estimate the potential of acceptance of home delivery. The availability of customer data could give better results. This project hypothesizes that the customer will travel five minutes to pick up the newspaper. This could be more predictive if customer locations were provided along with store location data. Study of the land using characteristics, such as whether it is residential or industrial, is also likely to be more predictive for home delivery than the different demographics.

For the different maps produced, adding either aerial photos or land use data as a base map would help estimate the number of buildings in each block group. That would give better visualization and estimation of the home delivery and amount of newspapers to be distributed in each block group. In addition, adding one more function to the web application would allow the user to update the store data and add new distribution locations would keep the client updated with the distribution changes.

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Appendix A. Add MPI data

Market
Potential
Indexes table

Transpose

Attributes of MPI23_Read

OBJECTID	PRODCODE	PRODESC	BASE	COUNT_1	COUNT_2	COUNT_3	COUNT_4	COUNT_5	COUNT_6	COUNT_7	COUNT_8	COUNT_9	COUNT_10
27	23233	Light newspaper reader	A	182379	478534	353629	690448	308645	1168515	620994	223991	417521	642...
28	23234	Light-medium newspaper reader	A	1018396	3124495	215681	3920957	2318343	5370176	4422808	1156589	2125564	3246...
29	23235	Medium newspaper reader	A	836015	2645961	1803032	3238509	1929698	4201661	3901808	932696	1707017	2604...
30	23236	Medium-heavy newspaper reader	A	1471014	3823981	2996268	4403269	3102803	5683387	5364550	1732745	2556423	3733...
31	23237	Heavy newspaper reader	A	636329	1178020	1193236	1163558	1173905	1481728	1562736	800057	849406	1130...
32	23238	Read any daily newspaper	A	1127556	2588836	2191993	2545656	2107926	3442554	3653223	1246434	1629052	2373...
33	23239	Read one daily newspaper	A	724192	1685511	1435398	1987293	1480521	2747531	2894908	815745	1151006	1795...
34	23240	Read two or more daily newspapers	A	402034	600326	755342	557161	620751	695030	758315	432115	478647	579...
35	23241	Read any Sunday newspaper	A	1205259	3152517	2528258	3521853	2496652	4203967	4411531	1279236	1917317	2813...
36	23242	Read one Sunday newspaper	A	890598	2718174	1964889	3178489	1887487	3786182	3720854	946948	1543908	2234...
37	23243	Read two or more Sunday newspapers	A	315503	434347	563369	343423	582971	527785	689654	332287	373411	579...
38	23244	Read newspaper: business/finance section	A	769454	1790199	1457963	1823989	1267882	2205557	2188860	711638	1101766	1247...
39	23245	Read newspaper: classified section	A	277559	1165587	657472	1165922	735880	1902637	1763587	375071	677063	1060...
40	23246	Read newspaper: comics section	A	344398	1010203	931003	1144344	782368	1726881	1870159	484882	765285	1027...
41	23247	Read newspaper: editorial page section	A	577756	1490576	1239662	1284441	1132491	1947160	2207301	698002	963275	1052...
42	23248	Read newspaper: fashion section	A	384727	755526	557096	694050	656239	1027340	985807	313748	486255	596...
43	23249	Read newspaper: food/cooking section	A	488563	1341843	1053964	1263221	1013820	1877659	1954190	590416	835042	1146...
44	23250	Read newspaper: general news section	A	991769	2584525	1909682	2724573	1995214	3771066	3556898	1129492	1617769	2182...

Tapentary_Read.xlsx - Microsoft Excel

	PRODCODE	PRODESC	Heavy magazine reader	Read airline magazines	Read automotive magazines	Read baby magazines
3	PRODCODE	Medium-heavy magazine reader				
4	BASE					
5	COUNT_1		1533063.0000000000	547138.0000000000	304053.0000000000	206341.0000000000
6	COUNT_2		3887568.0000000000	1088562.0000000000	504401.0000000000	513023.0000000000
7	COUNT_3		2937298.0000000000	922219.0000000000	499379.0000000000	323464.0000000000
8	COUNT_4		4537753.0000000000	118775.0000000000	666436.0000000000	640015.0000000000
9	COUNT_5		3059799.0000000000	867289.0000000000	260424.0000000000	387849.0000000000
10	COUNT_6		5899537.0000000000	1559470.0000000000	1382129.0000000000	1411350.0000000000
11	COUNT_7		5157552.0000000000	1288107.0000000000	489527.0000000000	894849.0000000000
12	COUNT_8		1738449.0000000000	647462.0000000000	110895.0000000000	94124.0000000000
13	COUNT_9		2513389.0000000000	740644.0000000000	1382129.0000000000	1411350.0000000000
14	COUNT_10		3671114.0000000000	993008.0000000000	279419.0000000000	658564.0000000000
15	COUNT_11		1427733.0000000000	432118.0000000000	132812.0000000000	289455.0000000000
16	COUNT_12		6783139.0000000000	1770188.0000000000	536984.0000000000	1085484.0000000000
17	COUNT_13		4688395.0000000000	1277225.0000000000	445142.0000000000	584248.0000000000
18	COUNT_14		3646636.0000000000	935359.0000000000	349076.0000000000	365342.0000000000
19	COUNT_15		1789137.0000000000	460594.0000000000	133967.0000000000	225127.0000000000
20	COUNT_16		2937722.0000000000	845670.0000000000	291315.0000000000	369982.0000000000
21	COUNT_17		6178022.0000000000	1335759.0000000000	381242.0000000000	3027325.0000000000
22	COUNT_18		5693641.0000000000	1270998.0000000000	384399.0000000000	912429.0000000000
23	COUNT_19		3874256.0000000000	985950.0000000000	270772.0000000000	716208.0000000000
24	COUNT_20		1548478.0000000000	554583.0000000000	136128.0000000000	266887.0000000000
25	COUNT_21		1683777.0000000000	447466.0000000000	79782.0000000000	355739.0000000000
26	COUNT_22		2258279.0000000000	599662.0000000000	184700.0000000000	272127.0000000000
27	COUNT_23		1481342.0000000000	613410.0000000000	131081.0000000000	238965.0000000000
28	COUNT_24		4875828.0000000000	1176849.0000000000	288722.0000000000	847330.0000000000
29	COUNT_25		1176849.0000000000	1176849.0000000000	1176849.0000000000	1176849.0000000000

Indexes data

Index	Light newspaper reader index	Light-medium newspaper reader index	Medium newspaper reader index	Medium-heavy newspaper reader index	Heavy newspaper reader index	Read a...
1	34.450047140	76.556879600	84.575703880	111.701238480	231.752872040	
2	34.988296420	90.803208300	102.526397960	111.878993100	137.908754200	
3	52.198117100	80.474020210	90.340408420	112.398052000	179.398052000	
4	67.018018210	96.404091480	108.402494790	115.853020990	179.398052000	
5	50.021368090	81.000346000	92.885129870	110.899257000	189.344402570	
6	84.561768800	96.288057010	102.930912020	104.168979400	167.789748800	
7	51.291818750	92.394888140	108.304299480	112.831992730	131.340347000	
8	76.757027000	91.791702790	111.271778480	115.271778480	208.616760000	
9	80.420770820	83.797205400	96.002538890	107.011501370	141.951277300	
10	72.557640110	92.768991220	98.596818050	107.218113280	136.167577960	
11	109.330880000	108.101029800	108.102713080	97.899528670	76.104420180	
12	102.325099490	102.325099490	102.325099490	102.325099490	102.325099490	
13	84.401707860	97.720113790	103.676011300	104.769941800	109.871248800	
14	43.008347870	84.421896160	98.383202100	114.721799420	161.675305180	
15	80.332640760	91.345348870	95.441954030	105.2318051700	134.901296000	
16	59.973190000	101.140130910	102.340094300	100.2445129810	93.409396020	

Data Management Tools
Data Comparison
Database
Disconnected Editing
Distributed Geodatabases

Join Field

File Geodatabase
General
Generalization
Indexes
Joins
Add Join
Join Field
Remove Join
Layers and Table Views

Genshp_Length	Genshp_Area	DOMTAP	TAPSEGNAM
0.76379	0.014443	66	Unclassified
0.030268	0.000054	5	Wealthy Seaboard Suburbs
0.106197	0.000412	5	Wealthy Seaboard Suburbs
0.07202	0.000099	13	In Style
0.07421	0.014576	38	Industrial Urban Fringe
0.002963	0.000054	1	Top Rung
0.053461	0.000111	1	Top Rung
0.035833	0.000058	3	Connoisseurs
0.146482	0.000056	3	Connoisseurs
0.05324	0.000021	9	Urban Chic
0.078897	0.000077	3	Connoisseurs
0.014097	0.000069	3	Connoisseurs
0.055741	0.000059	1	Top Rung
0.040757	0.000005	3	Connoisseurs
0.066624	0.000039	3	Connoisseurs
0.046076	0.000056	1	Top Rung
0.08214	0.000053	1	Top Rung
0.044435	0.000031	3	Connoisseurs
0.005992	0.000000	1	Top Rung
0.033226	0.000049	8	Laptops and Lattes
0.023892	0.000021	3	Connoisseurs
0.022235	0.000024	9	Urban Chic
0.023002	0.000039	3	Connoisseurs
0.032441	0.000036	9	Urban Chic

Trade area
Polygon's
attributes table

Appendix B. Script codes “ Find Multiple Mean Center Iteration Python code and Delete Duplicate Python code “

```
# -----  
# Find Multiple Mean Center Iteration  
# Created on: Thu Oct 14 2010  
# Created By: Noor Yusuf  
# Usage: <LaPrensa_Stores_Buff> <LaPrensa_Stores>  
# -----  
# Import system modules  
import sys, string, os, arcgisscripting  
  
# Create the Geoprocessor object  
gp = arcgisscripting.create()  
  
# Script arguments...  
LaPrensa_Retails_Stores_Buff = sys.argv[1]  
if LaPrensa_Retails_Stores_Buff == '#':  
    LaPrensa_Retails_Stores_Buff = "LaPrensa_Retails_Stores_Buff" # provide a default  
value if unspecified  
LaPrensa_Retails_Stores = sys.argv[2]  
if LaPrensa_Retails_Stores == '#':  
    LaPrensa_Retails_Stores = "LaPrensa_Retails_Stores" # provide a default value if  
unspecified  
OutputName = sys.argv[3]  
if OutputName == '#':  
    OutputName = "Retails_Stores_NearWMeanCenter1" # provide a default value if  
unspecified  
  
# Local variables...  
Selected_Retail_Buffer = "LaPrensa_Retails_Stores_Buff"  
Selected_Retail_within_selected_buff = "LaPrensa_Retails_Stores"  
WightedMeanCenter_grouped = "in_memory\\Retails_Meant"  
Retails_Stores_NearWMeanCenter = "C:\\MIPData\\ITMSLP_Intermid_Temp.gdb\\" +  
OutputName  
LaPrensa_gdb = "C:\\MIPData\\ITMSLP_Intermid_Temp.gdb"  
Retails_Stores_NearWMeanCenter__2_ = "C:\\MIPData\\ITMSLP_Intermid_Temp.gdb\\" +  
OutputName  
Retailbuffer_rows = gp.SearchCursor(LaPrensa_Retails_Stores_Buff)  
Retailbuffer_row = Retailbuffer_rows.Next()  
LaPrensa_Retails_Stores_Stat = "in_memory\\LaPrensa_Retails_Stores_Stat"
```

```
DRAW_Sum = "C:\MIPData\ITMSLP_Intermid_Temp.gdb\DRAW_Sum"
```

Process: Create Feature Class...

```
gp.CreateFeatureclass_management(LaPrensa_gdb, OutputName, "POINT",  
"C:\MIPData\MIP.gdb\bg_SA_MeanCenter", "DISABLED", "DISABLED",  
"GEOGCS['GCS_WGS_1984',DATUM['D_WGS_1984',SPHEROID['WGS_1984',6378137.0,2  
98.257223563]],PRIMEM['Greenwich',0.0],UNIT['Degree',0.0174532925199433]];-400 -  
400 10000000000;#;#;8.98315284119521E-09;#;#;IsHighPrecision", "", "0", "0", "0")
```

Process: Create Table...

```
gp.CreateTable_management(LaPrensa_gdb, "DRAW_Sum",  
"C:\MIPData\ITMSLP.gdb\LaPrensa_Retails_Stores_Stat", "")  
while Retailbuffer_row:  
    objid = str (Retailbuffer_row.GetValue('OBJECTID'))
```

Process: Select Layer By Attribute...

```
gp.SelectLayerByAttribute_management(LaPrensa_Retails_Stores_Buff,  
"NEW_SELECTION", "\"OBJECTID\" = "+ objid + "")
```

Process: Select Layer By Location...

```
gp.SelectLayerByLocation_management(LaPrensa_Retails_Stores,  
"COMPLETELY_WITHIN", LaPrensa_Retails_Stores_Buff, "", "NEW_SELECTION")  
if gp.GetCount_management(LaPrensa_Retails_Stores) >= 1:
```

Process: Mean Center...

```
gp.MeanCenter_stats(LaPrensa_Retails_Stores, WightedMeanCenter_grouped,  
"SUM_SUM_SUM_SUM_SUM_DRAW_1", "", "")
```

Process: Summary Statistics...

```
gp.Statistics_analysis(LaPrensa_Retails_Stores, LaPrensa_Retails_Stores_Stat,  
"SUM_SUM_SUM_SUM_SUM_DRAW_1 SUM", "")
```

Process: Append...

```
gp.Append_management(LaPrensa_Retails_Stores_Stat, DRAW_Sum, "TEST", "", "")
```

Process: Append...

```
gp.Append_management(WightedMeanCenter_grouped,  
Retails_Stores_NearWMeanCenter, "TEST", "", "")  
Retails_Stores_NearWMeanCenter, "TEST", "", "")
```

```
Retailbuffer_row = Retailbuffer_rows.Next()
```

Process: Join Field...

```
gp.JoinField_management(Retails_Stores_NearWMeanCenter, "OBJECTID",
DRAW_Sum, "OBJECTID", "FREQUENCY;SUM_SUM_SUM_SUM_SUM_SUM_DRAW_1")
```

```
# -----
# Delete Duplicate
# Created on: Thu Oct 14 2010
# Created By: Noor Yusuf
# Usage: <LaPrensa_Stores> <LaPrensa_Stores_MeanCenter>
# -----
```

```
# Import system modules
import sys, string, os, arcgisscripting
```

```
# Create the Geoprocessor object
gp = arcgisscripting.create()
```

```
# Set the necessary product code
gp.SetProduct("ArcInfo")
```

```
# Local variables...
test = sys.argv[1]#"NearMeanCntr_1"
```

```
R_Rows = gp.SearchCursor(test)
R_Row = R_Rows.Next()
```

```
while R_Row:
    X = str (R_Row.GetValue('X'))
    Y = str (R_Row.GetValue('Y'))
    obj = str(R_Row.GetValue('OBJECTID'))
    gp.SelectLayerByAttribute_management(test, "NEW_SELECTION", "\"X\" =" + X +
"AND \"Y\" =" + Y +""")
    gp.SelectLayerByAttribute_management(test,
"REMOVE_FROM_SELECTION", "OBJECTID =" + obj+""")
```

```
# Process: Delete Features...
gp.DeleteFeatures_management(test)
```

```
R_Row = R_Rows.Next()
```


Appendix C. Riverside County Sample of Recommended Block Groups for *La Prensa* Distribution

ID	HISPANIC PERCENTAGE	BLOCK GROUP ID	BLOCK GROUP NAME	STATE NAME
1	66.3%	060650403012	060650403.012	California
2	66.6%	060650462001	060650462.001	California
3	66.7%	060650425052	060650425.052	California
4	66.8%	060650405021	060650405.021	California
5	66.8%	060650436004	060650436.004	California
6	66.9%	060650406062	060650406.062	California
7	67.1%	060650413001	060650413.001	California
8	67.2%	060650301003	060650301.003	California
9	67.4%	060650461021	060650461.021	California
10	67.4%	060650402011	060650402.011	California
11	67.6%	060650429032	060650429.032	California
12	67.7%	060650413003	060650413.003	California
13	67.7%	060650305013	060650305.013	California
14	67.9%	060650406061	060650406.061	California
15	68.0%	060650413002	060650413.002	California
16	68.0%	060650419091	060650419.091	California
17	68.1%	060650404033	060650404.033	California
18	68.2%	060650425151	060650425.151	California
19	68.2%	060650404031	060650404.031	California
20	68.3%	060650411005	060650411.005	California
21	68.4%	060650426031	060650426.031	California
22	68.5%	060650436002	060650436.002	California
23	68.6%	060650317011	060650317.011	California
24	68.7%	060650440002	060650440.002	California
25	68.7%	060650420093	060650420.093	California
26	68.8%	060650425081	060650425.081	California
27	69.2%	060650301001	060650301.001	California
28	69.2%	060650417031	060650417.031	California
29	69.4%	060650452072	060650452.072	California
30	69.9%	060650405022	060650405.022	California
31	70.5%	060650436001	060650436.001	California
32	70.6%	060650451113	060650451.113	California
33	70.6%	060650419062	060650419.062	California
34	70.7%	060650414092	060650414.092	California
35	70.9%	060650410011	060650410.011	California
36	71.3%	060650425041	060650425.041	California
37	71.4%	060650305012	060650305.012	California
38	71.5%	060650411004	060650411.004	California
39	71.5%	060650317041	060650317.041	California
40	71.6%	060650401003	060650401.003	California
41	71.7%	060650406052	060650406.052	California

ID	HISPANIC PERCINTAGE	BLOCK GROUP ID	BLOCK GROUP NAME	STATE NAME
42	72.1%	060650406051	060650406.051	California
43	72.1%	060650452061	060650452.061	California
92	85.5%	060650411002	060650411.002	California
93	85.5%	060650402031	060650402.031	California
94	85.6%	060650452091	060650452.091	California
95	85.9%	060650455022	060650455.022	California
96	86.1%	060650414112	060650414.112	California
97	86.8%	060650416001	060650416.001	California
98	86.9%	060650455012	060650455.012	California
99	87.3%	060650305021	060650305.021	California
100	87.4%	060650456034	060650456.034	California
101	87.6%	060650305032	060650305.032	California
102	88.1%	060650305031	060650305.031	California
103	88.2%	060650415002	060650415.002	California
104	88.7%	060650416004	060650416.004	California
105	88.8%	060650415001	060650415.001	California
106	89.4%	060650417042	060650417.042	California
107	89.4%	060650305022	060650305.022	California
108	89.5%	060650304005	060650304.005	California
109	89.9%	060650450004	060650450.004	California
110	90.3%	060650455011	060650455.011	California
111	90.6%	060650453021	060650453.021	California
112	91.1%	060650416003	060650416.003	California
113	91.2%	060650453011	060650453.011	California
114	91.3%	060650313001	060650313.001	California
115	91.8%	060650454002	060650454.002	California
116	92.2%	060650456051	060650456.051	California
117	92.3%	060650452071	060650452.071	California
118	92.4%	060650453022	060650453.022	California
119	93.0%	060650453023	060650453.023	California
120	93.2%	060650453012	060650453.012	California
121	94.0%	060650313003	060650313.003	California
122	94.7%	060650414101	060650414.101	California
123	95.2%	060650414102	060650414.102	California
124	95.6%	060650313002	060650313.002	California
125	95.7%	060650456052	060650456.052	California
126	96.0%	060650456042	060650456.042	California
127	96.1%	060650454001	060650454.001	California
128	96.3%	060650456031	060650456.031	California
129	96.4%	060650456032	060650456.032	California
130	96.9%	060650457022	060650457.022	California
131	97.1%	060650454003	060650454.003	California
132	97.2%	060650456041	060650456.041	California
133	97.7%	060650457023	060650457.023	California
134	97.8%	060650457062	060650457.062	California
135	98.0%	060650457041	060650457.041	California
136	98.1%	060650457021	060650457.021	California
137	98.2%	060650457031	060650457.031	California

Appendix D. Los Angeles County Sample of Recommended Block Groups for *La Prensa* Distribution

ID	HISPANIC PERCENTAGE	BLOCK GROUP ID	BLOCK GROUP NAME	STATE NAME
1	65.8%	060375515001	060375515.001	California
2	65.9%	060372226002	060372226.002	California
3	65.9%	060375755004	060375755.004	California
4	65.9%	060375551042	060375551.042	California
5	65.9%	060371253202	060371253.202	California
6	65.9%	060371096011	060371096.011	California
7	66.0%	060372413001	060372413.001	California
8	66.0%	060371912031	060371912.031	California
9	66.0%	060374331002	060374331.002	California
10	66.0%	060375406001	060375406.001	California
11	66.0%	060375541023	060375541.023	California
12	66.0%	060371973004	060371973.004	California
13	66.0%	060375300062	060375300.062	California
14	66.0%	060375425021	060375425.021	California
15	66.0%	060372405001	060372405.001	California
16	66.1%	060375519002	060375519.002	California
17	66.1%	060374311003	060374311.003	California
18	66.1%	060371909023	060371909.023	California
19	66.1%	060375033021	060375033.021	California
20	66.1%	060371834002	060371834.002	California
21	66.2%	060372182202	060372182.202	California
22	66.2%	060372696002	060372696.002	California
23	66.2%	060376041001	060376041.001	California
24	66.2%	060375425022	060375425.022	California
25	66.2%	060372181203	060372181.203	California
26	66.2%	060372408001	060372408.001	California
27	66.2%	060371273002	060371273.002	California
28	66.2%	060372313003	060372313.003	California
29	66.3%	060374326014	060374326.014	California
30	66.3%	060375422001	060375422.001	California
31	66.3%	060375035011	060375035.011	California
32	66.3%	060375521003	060375521.003	California
33	66.3%	060372188001	060372188.001	California
34	66.3%	060371234102	060371234.102	California
35	66.3%	060375514005	060375514.005	California
36	66.3%	060376039001	060376039.001	California
37	66.3%	060374811034	060374811.034	California
38	66.4%	060372414004	060372414.004	California
39	66.4%	060371219001	060371219.001	California
40	66.4%	060371218002	060371218.002	California
41	66.4%	060372911302	060372911.302	California
42	66.4%	060375753002	060375753.002	California
43	66.4%	060375032011	060375032.011	California

ID	HISPANIC PERCINTAGE	BLOCK GROUP ID	BLOCK GROUP NAME	STATE NAME
1963	98.3%	060375023012	060375023.012	California
1964	98.4%	060372047003	060372047.003	California
1965	98.4%	060372031002	060372031.002	California
1966	98.4%	060375313026	060375313.026	California
1967	98.4%	060372048201	060372048.201	California
1968	98.4%	060375315013	060375315.013	California
1969	98.4%	060375310006	060375310.006	California
1970	98.4%	060375311021	060375311.021	California
1971	98.4%	060375333002	060375333.002	California
1972	98.4%	060375312023	060375312.023	California
1973	98.4%	060372051101	060372051.101	California
1974	98.5%	060375310008	060375310.008	California
1975	98.5%	060375332011	060375332.011	California
1976	98.5%	060375316041	060375316.041	California
1977	98.5%	060372041103	060372041.103	California
1978	98.5%	060372048102	060372048.102	California
1979	98.5%	060375331041	060375331.041	California
1980	98.5%	060375311022	060375311.022	California
1981	98.5%	060375337021	060375337.021	California
1982	98.5%	060375305001	060375305.001	California
1983	98.5%	060375311012	060375311.012	California
1984	98.5%	060375315012	060375315.012	California
1985	98.5%	060375331031	060375331.031	California
1986	98.5%	060375331032	060375331.032	California
1987	98.5%	060372036003	060372036.003	California
1988	98.5%	060375316023	060375316.023	California
1989	98.5%	060372032002	060372032.002	California
1990	98.6%	060375313024	060375313.024	California
1991	98.6%	060375327001	060375327.001	California
1992	98.6%	060375305003	060375305.003	California
1993	98.6%	060375316022	060375316.022	California
1994	98.6%	060375307002	060375307.002	California
1995	98.6%	060372037202	060372037.202	California
1996	98.6%	060372242001	060372242.001	California
1997	98.6%	060375313025	060375313.025	California
1998	98.6%	060375316032	060375316.032	California
1999	98.6%	060375309011	060375309.011	California
2000	98.7%	060375323024	060375323.024	California
2001	98.7%	060375332012	060375332.012	California
2002	98.7%	060375334013	060375334.013	California
2003	98.7%	060375327002	060375327.002	California
2004	98.7%	060375313027	060375313.027	California
2005	98.7%	060375315017	060375315.017	California
2006	98.8%	060375313012	060375313.012	California

Appendix E. San Bernardino County Sample of Recommended Block Groups for *La Prensa* Distribution

ID	HISPANIC PERCINTAGE	BLOCK GROUP ID	BLOCK GROUP NAME	STATE NAME
1	66.0%	060710036021	060710036.021	California
2	66.0%	060710018021	060710018.021	California
3	66.3%	060710036011	060710036.011	California
4	66.3%	060710003012	060710003.012	California
5	66.5%	060710037002	060710037.002	California
6	66.5%	060710030002	060710030.002	California
7	66.5%	060710036014	060710036.014	California
8	66.6%	060710033007	060710033.007	California
9	66.8%	060710003033	060710003.033	California
10	66.9%	060710035016	060710035.016	California
11	66.9%	060710002026	060710002.026	California
12	67.1%	060710033008	060710033.008	California
13	67.2%	060710032002	060710032.002	California
14	67.3%	060710080011	060710080.011	California
15	67.3%	060710058001	060710058.001	California
16	67.4%	060710034026	060710034.026	California
17	67.4%	060710072002	060710072.002	California
18	67.4%	060710022041	060710022.041	California
19	67.5%	060710044012	060710044.012	California
20	67.5%	060710001125	060710001.125	California
21	67.6%	060710036023	060710036.023	California
22	67.6%	060710035011	060710035.011	California
23	67.7%	060710044022	060710044.022	California
24	67.7%	060710094002	060710094.002	California
25	67.7%	060710023011	060710023.011	California
26	67.9%	060710026012	060710026.012	California
27	68.1%	060710026032	060710026.032	California
28	68.2%	060710034014	060710034.014	California
29	68.3%	060710034032	060710034.032	California
30	68.4%	060710033001	060710033.001	California
31	68.4%	060710002027	060710002.027	California
32	68.5%	060710023014	060710023.014	California
33	68.5%	060710080024	060710080.024	California
34	68.6%	060710003013	060710003.013	California
35	68.7%	060710055001	060710055.001	California
36	68.7%	060710035026	060710035.026	California
37	68.8%	060710056003	060710056.003	California
38	68.8%	060710015001	060710015.001	California
39	68.9%	060710013011	060710013.011	California
40	68.9%	060710026031	060710026.031	California
41	69.0%	060710018015	060710018.015	California
42	69.1%	060710002013	060710002.013	California
43	69.3%	060710002024	060710002.024	California

ID	HISPANIC PERCINTAGE	BLOCK GROUP ID	BLOCK GROUP NAME	STATE NAME
236	91.3%	060710016006	060710016.006	California
237	91.4%	060710067001	060710067.001	California
238	91.7%	060710006021	060710006.021	California
239	92.0%	060710016002	060710016.002	California
240	92.1%	060710018014	060710018.014	California
241	92.5%	060710059002	060710059.002	California
242	92.7%	060710067002	060710067.002	California
243	92.8%	060710005007	060710005.007	California
244	93.6%	060710015002	060710015.002	California
245	94.6%	060710016005	060710016.005	California
246	94.7%	060710016003	060710016.003	California
247	94.7%	060710049005	060710049.005	California
248	94.7%	060710069004	060710069.004	California
249	95.0%	060710021006	060710021.006	California
250	95.2%	060710069005	060710069.005	California
251	95.2%	060710069001	060710069.001	California
252	95.5%	060710069003	060710069.003	California
253	95.9%	060710018016	060710018.016	California
254	95.9%	060710016004	060710016.004	California
255	96.4%	060710048004	060710048.004	California
256	96.6%	060710048003	060710048.003	California