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University of Redlands

**Developing a Web Application to Identify Industrial Specialization 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

by

Sara Goose

Fang Ren, Ph.D., Committee Chair

Douglas Flewelling, Ph.D.

August 2011

**Developing a Web Application to Identify Industrial Specialization in
Southern California**

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by

Sara Goose

The report of Sara Ann Goose is approved.

Douglas Flewelling, Ph.D.

Fang Ren, Ph.D., Committee Chair

August 2011

Acknowledgements

I would first like to thank all of my family and friends for their support and encouragement throughout this process. I would also like to thank my daughter Jordan; she is now and has always been my inspiration. To my advisor Dr. Fang Ren, this journey would not have been the same without your dedication and support. To Dr. Doug Flewelling, I have very much enjoyed our conversations. I am most certain however, that I will always need a UML cheat sheet. I would like to recognize Stephen Daugherty for his technical advice and support on this project as well. To Debra Riley, you are the heart and soul of the operation and I have found in you a lifelong friend. Lastly, to Ruben Ortiz for preventing my laptop from melting and for the wonderful conversations we've shared, thank-you.

Abstract

Developing a Web Application to Identify Industrial Specialization in
Southern California

by

Sara Ann Goose

Economic and community planning professionals consistently look for ways to measure the strengths and opportunities of their locale. In an effort to restrain from participating in bubble and burst economic cycles, these professionals have turned toward models of economic sustainability. Industry cluster identification has become a popular starting point to develop policies aimed at these long term objectives. The presence of clusters indicates an opportunity to support industries considered to be specialized for a region, through workforce development and building collaborative ventures among public and private enterprises. However, the presence of clusters have traditionally been identified by analyzing data in tabular and spreadsheet form. These methods ignores a fundamental aspect and benefit of using clusters as the basis for development; location. Storing this data in a Geographic Information System (GIS) and presenting the information in a more digestible manner would allow planners to visualize the presence of clusters. This report documents the development of a GIS based web application that gives economic developers the opportunity to identify industry clusters in a new way.

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List of Acronyms and Definitions

GIS	Geographic information system
LQ	Location quotient
NAICS	North American Industrial Classification System
CBP	County Business Patterns
BLS	Bureau of Labor Statistics

Chapter 1 – Introduction

The way that economic strength is measured and evaluated can result in dramatic changes to public policy decisions. There are many common indicators used by economic development professionals when making these assessments. For example, employment statistics, workforce characteristics, and per capita income are commonly used variables in economic analysis. Recently, the identification of industry clusters as a measurement of economic strength has become popular. The presence of an industry cluster indicates that an area has a particular specialization in that industry. For policy makers, this provides an opportunity to support specialized industries through workforce and other development programs.

The use of location quotients as a means to identify clusters has become standard. However, the viability of this type of economic analysis has been limited by the scope and use of tables for assessment. Using a GIS as the format for analysis would give economic policy makers a spatial view of data conventionally processed as tables and charts. The following document will review industry cluster identification as an economic model through prior research, the methods used to identify industry clusters with emphasis on location quotients, and how a GIS can be used to aggregate economic data into a spatial format that can serve the purposes of analysis in a more productive manner. In particular, this project focuses on the development of a GIS web application to display regional clusters.

1.1 Client

The client for this project was Jon Harrison of Esri in Redlands, California. He is a project manager for Local Government Solutions at Esri and also serves as a council member for the City of Redlands. Mr. Harrison is involved in a number of local economic development and environmental conservation committees; including the Southern California Association of Government, the League of California Cities, and the Environmental Quality Policy Committee. Mr. Harrison is interested in using GIS as a platform for developing an industry cluster-based economic sustainability model.

1.2 Problem Statement

Economic developers have recently turned to cluster analysis as a model for economic sustainability. The benefit of identifying clusters lies in recognizing areas of economic strengths and opportunities for the promotion of policies that make the best use of limited resources. There were three problems addressed by this project. The first involves how location quotients (LQ) are used to measure the presence of industry clusters within a region. LQ values are typically calculated by comparing employment per industry at the county level to industry employment at the national level. However, there are other measures of economic activity that could be used in this calculation. Second, cluster studies have commonly focused on only one or several industries at a time. This limits

the ability of economic planners to gauge the performance of a wider range of industries. The North American Industrial Classification System (NAICS) “is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy” (U.S. Census, 2011a). The NAICS organizes industries by using a series of numbered codes. The codes range from a two digit industry Sector down to a six digit detailed industry description. The third problem addressed by this project deal with format and presentation of data associated with identifying clusters and evaluating information useful to economic development professionals. Data on industry employment is most often viewed and evaluated in tabular form, a spreadsheet or database program. This method excludes the possibility of visually identifying the spatial relationships among the administrative units for which the data are collected. Additionally, where GIS has been used for mapping clusters, the resulting product has been static or printed maps.

1.3 Proposed Solution

The proposed solution was to create a general use application to identify industry clusters. To accomplish this task, the variable and comparison level used in calculating LQs was expanded first. Then, the number of industries included in the application was extended to all NAICS codes through the fourth digit. Third, LQ values and industry descriptions were displayed in a Web application as a choropleth map. The map would identify counties that were considered non-specialized, emerging, or having a low or high specialization in an industry. The presentation of the LQ values in this fashion makes it easier to evaluate an area in comparison with its neighbors. Finally, important data used in cluster analysis were included as well with the intention of building analytical tools into the application over time for these layers.

1.3.1 Goals and Objectives

The goal of this project was to develop a demonstrative Web application for industry cluster identification, as well as, to provide the client with a geodatabase that could be built upon over time with the intention of eventually integrating different layers into the Web application for a complete cluster analysis platform. There were several objectives outlined for this project. One was to calculate LQ values for all NAICS industries through the industry group definition. This included two different levels of comparison and two variables. Second was to transfer LQ data from spreadsheet form to a geodatabase. Third was to make available layers that provided more local data on industry employment, educational attainment, and the locations of educational facilities. The last objective was to develop a Web application using the ArcGIS Javascript API to make the presentation of data more meaningful.

1.3.2 Scope

The original scope of the project included all 58 California counties. However, the scope of the project was reduced to five counties: Los Angeles, Orange, Riverside, San Bernardino, and San Diego. The reduction in scope came about as more was learned about the data suppression issues associated with the primary data source. The

employment data from the CBP datasets contains a large amount of flagged data cells that must be estimated.

Several layers were incorporated into the final geodatabase for the purpose of building analytical functions into the Web application over time. These layers were included as supporting data for industry cluster analysis and recommended in cluster literature. Mainly, this information included more localized information about industry employment, workforce characteristics, and locations of training and educational facilities.

1.3.3 Methods

Prior to planning the development of a Web application for cluster identification, research was conducted to gain an understanding of the use of industry clusters as a means for economic development, in order to evaluate the utility of the project. Research was also conducted to identify the methods used in identifying clusters. The use of the location quotient was found to be the most prevalent way to identify clusters and was selected for use in this project.

In line with researched cluster studies that have utilized the location quotient, the primary data source for these calculations was the 2008 County Business Patterns. The data were retrieved and downloaded from the American Fact Finder website as Excel files. These data included employment and establishment data for the selected California counties, the state of California, and for the US. Once compiled into a single spreadsheet, a data estimation method was developed to overcome data suppression issues associated with the employment counts. ArcGIS Business Analyst provided the remaining layers included in the geodatabase.

ArcGIS 10 (ArcInfo license) was selected as the primary software for storage and display. The client had access to Arc suite of software products and could maintain the associated geodatabase on a single desktop. Also, ArcSDE and ArcGIS were used to develop and publish the Web application.

Once the LQ values were calculated, spatial joins were performed to create 16 county-based layers containing all values. These feature layers were stored in ArcSDE and published through ArcGIS Server. The remaining feature classes were also published separately. The ArcGIS JavaScript API was used to create the Web application functions.. Additionally, summary tables of LQ values were created and included in the Web application. Finally, a user scenario was developed to demonstrate how the Web application should be used by community planners.

1.4 Audience

The audience for this report are economic and community planners that are interested in industry clusters as a measure of economic strength and opportunity. It is also intended for those who may have very little experience with GIS. Interested parties may include economic and community planners as well a public policy makers. Some terminology used in this report may be technical in nature and not understood by laypersons. However, considerations were made in explaining unfamiliar language.

1.5 Overview of the Rest of this Report

There are six additional chapters included in the remainder of this report. Chapter Two covers a literature review that explores industry clusters, methods used to identify cluster, and how these methods have been used in GIS analysis. An overview of the system design, including functional and non-functional requirements, is discussed in Chapter Three. Chapter Four concerns the database design, as well as data scrubbing and loading methods. This chapter also explains the data estimation method used in determining employment numbers for the LQ values. The implementation of the project is reviewed in Chapter Five, and includes steps taken to prepare the layers for publication and web application development. A user scenario and results are discussed in Chapter Six. Conclusions and future work are discussed in Chapter Seven.

Chapter 2 – Background and Literature Review

Economic development policies are moving away from the concept that prosperity is linked solely to the production and consumption of goods. Given the lessons imbedded in the recent recession, policy makers and industry leaders are now looking toward more sustainable economic strategies rooted in applied knowledge and innovation. A growing interest in cluster analysis has provided a new paradigm for looking at public policy and local economies in a more holistic manner. A cluster analysis involves identifying the economic strengths and weaknesses of a region based on a combination of quantitative and qualitative methods. In essence, it can be considered “a general mode of inquiry” designed to address “particular policy concerns” (vom Hofe, 2006, p. 20).

Traditionally, local industry investment has been driven in part by access to inexpensive labor, low tax rates, and other variables. An applied knowledge economy requires looking at a different set of factors in determining how public policy decisions can support the sustainability of industry. Porter (1998) describes cluster analysis as “a new way of thinking about location, challenging much of the conventional wisdom about how companies should be configured, how institutions such as universities can contribute to competitive success, and how governments can promote economic development and prosperity” (p.78). For example, regional and local planners might consider the educational attainment of local residents, unemployment data, and access to research facilities when making decisions regarding the allocation of resources. Access to major transportation routes, community and entertainment centers, or public parks are also factors that can affect where industry leaders invest. The following sections will review the definition of a cluster, what criteria are used to identify industry clusters, and how geographic information systems play a role in analysis and visualization.

2.1 What is an industry cluster?

Porter (2000) defines the term “cluster” as “geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g., universities, standards agencies, trade associations) in a particular field that compete but also cooperate” (p.16).

The cluster approach to developing sustainable economic policy requires more than identifying where individual and interconnected businesses are located. The underlying concept of a cluster approach for economic development is that companies gain a competitive advantage by accessing local resources like infrastructure, an educated workforce, nearby educational and research facilities, and lateral innovation cooperatives. In other words, industry leaders are more likely to view particular locations as favorable to investment if there is an established reputation for an industry. Malmberg (1996) describes two convergent observations concerning the link between location and industry success:

The first is that economic, entrepreneurial and technological activities tend to agglomerate at certain places, leading to patterns of national and regional specialization. The second is that the performance and development of a firm to a

considerable extent seems to be determined by the conditions that prevail in its environment, and that the conditions in the immediate proximity – in the local milieu – seem to be particularly important. (p. 85)

A region where a particular industry specialization has been identified is an indication that the industry has access to the supporting structure that allows it to sustain and prosper in that region. For those involved in economic development, the benefits of identifying industry specialization for investment include taking advantage of the “economic efficiencies that reduce costs (of information, of specialized inputs and infrastructure, and of skilled labor) for firms in the cluster, reduced risk to investment in start-up companies in the cluster, and the generation of visibility and identity for a region” (Kelton, 2006, p.4).

A distinction should be made here between a cluster analysis based on the geographic dispersion of related businesses and industrial clusters that focus on regional specialization. These two distinctions are necessary because they utilize different sets of data. For a business cluster analysis, proprietary information regarding how distinct enterprises and supporting organizations are related is required. A business cluster analysis is based on an understanding of how individual businesses within an industry are organized in a value chain. The spatial distribution of businesses are also considered. This method is qualitative in nature and may draw upon the use of surveys and expert opinion (Nolan, 2006; Feser, 2001). However, analysts often begin by using quantitative methods to identify industry cluster or regions that are considered specialized in an industry. This initial investigation is typically based on public data sources like the Census Bureau’s County Business Patterns (CBP), the *Bureau of Labor Statistics* (BLS) and the *Quarterly Census of Employment and Wages* (QCEW). The following section will discuss the ways in which industry clusters are identified.

2.2 Identifying an industry cluster

Quantitative methods of identifying industry clusters include shift-share analysis, input-output tables, and location quotients (Nolan, 2006; Nacker, 2004; Frizado 2007). One method is not preferred over others and some of these methods are used in combination. Ultimately, the method of choice is dependent on the question being asked. Location quotients are used to identify the presence of clusters by industrial specialization. Input-output models show the purchasing patterns between businesses. And a shift-share analysis looks at changes in employment based on national, regional, and industry dependent factors. The remaining sections will look at location-quotients in more detail as well as its use in GIS applications.

2.2.1 Location-quotients

Location quotients (LQ) are used frequently in the identification of industry specialization. Data for industry employment and number of establishments are publicly available and provide the information necessary to calculate these values. Fleming (2008) used LQ values derived from the Census Bureau’s CBP data to identify transportation and warehousing specialization in San Bernardino and Riverside counties

(California). Bose (2002) also used the CBP data to calculate LQ values for identifying ‘Internal Combustion Engines’ clusters in Illinois. Kelton (2006) made use of the same data set and method to identify several industry clusters across the US.

A location-quotient measures the industry strength of a given study area against the industry strength of a given reference area. A common approach is to compare employment at the county level (study area) against employment at the national level (reference area) for a particular industry. However, establishment or other economic indicators may be used (Nolan, 2006). The following equation represents the standard method for calculating location-quotients:

$$LQ = \frac{n_1/n}{N_1/N}$$

Where: n_1 = industry employment for the study area
 n = total employment for the study area
 N_1 = industry employment for the reference area
 N = total employment for the reference area

According to the *Bureau of Labor Statistics* website (<http://www.bls.gov/help/def/lq.htm>, 2011), “if an LQ is equal to 1, then the industry has the same share of its area employment as it does in the reference area. An LQ greater than 1 indicates an industry with a greater share of the local area employment than is the case in the reference area.” The assumption is that higher LQ values indicate an export industry due to specialization. Nacker (2004) designates the interpretation of LQ values as follows:

<u>Location Quotient</u>	<u>Export/Import Status</u>
≤ 0.75	Import Industry
$0.76 \leq LQ \leq 1.24$	Self-Sufficient Industry
≥ 1.25	Export Industry

The CBP datasets are commonly used for LQ analysis because it provides the number of employees and establishments for a given industry based on the North American Industrial Classification System (NAICS). Some of the employment data however, has been suppressed to preserve confidentiality. In an effort to overcome this problem, researchers have had to adjust their methods for determining location-quotient values. In a comprehensive study on industry clusters, the research team from Indiana and Purdue Universities (*Unlocking Rural Competitiveness: The Role of Regional Clusters*, 2007, p.20) “revised cluster definitions to use three-digit NAICS sectors wherever possible for the nationwide county analysis, minimizing reliance upon more-

detailed NAICS levels as much as possible”. Bose (2002) used an estimation method based on mid-point values for both employment and establishment data in his study on the ‘Internal Combustion Engines’ industry for Illinois. Once LQ values are derived, GIS technology then becomes a significant medium for further analysis and visualization.

2.2.2 Location-quotients and GIS

Efforts to identify regions of industrial specialization using LQ values and GIS have produced a range of analytical and visual techniques. Some studies have focused on specific industries while others are more comprehensive in nature. Industry specific analyses have used GIS to map business clusters in relation to supporting infrastructure or institutions. For example, Bose (2002) calculated LQ values in a database and performed a query to select out the values for supplier and market industries based on particular NAICS codes. This selected data was then joined to a shapefile representing one major city within each county in Illinois. A GIS was then used to visualize major cities with an industry specialization in relation to major transportation routes and technology centers. Sarkar (2009) performed a similar analysis for the transportation and warehousing industry at the zip code level for southern California.

Spatial statistics offer an alternate analysis method for exploiting location quotient values in a meaningful way. Frizado (2007) calculated LQ values for the ‘transportation equipment’ industry at the county level for the U.S. He then used Moran’s I and Getis-Ord G_i^* analysis to delineate cluster regions across areal boundaries by comparing like-sized counties as well as dissimilar county groups. The study yielded similar results regardless of the choice of spatial weights matrix. Reid (2007) also used LQ values and measures of local spatial autocorrelation (Getis-Ord G_i^*) to identify regions of specialization in Ohio. Regions that showed LQ values greater than one in combination with a high G_i^* values were defined as potential cluster regions.

Several techniques have been used to visualize regions of specialization. For example, county level data are often represented by polygon features in a choropleth display. Alternately, Nolan (2006) used point and graduated-symbols to display LQ values for specified industries across the US using county centroids.

2.3 Summary

This chapter examined what defines an industry cluster as well as methods used to identify an industry cluster. Particular emphasis was placed on the location quotient as a common method for identification. A literature review of location quotients used in GIS analysis closes this chapter. The following chapter discusses the systems analysis, including functional and non-functional requirements.

Chapter 3 – Systems Analysis and Design

The goal of this project was to develop a general application to enable economic and community planners a way to identify industry clusters. Its intended use as a platform for economic development professionals was emphasized by the client and was the primary consideration during development. This chapter briefly outlines the problem statement, followed by a more detailed discussion of both functional and non-functional requirements. Both the initial project plan and changes made as the project progressed are examined.

3.1 Problem Statement

Cluster analysis has become an influential platform used by economic developers and planners to assess local industry specialization. Location-quotients (LQ) are commonly used to identify these industries, particularly at the county level. However, the current approach to examining the LQ values of various industries is through tabular data. To assist economic professionals, the client needed a tool that can allow users to visualize the spatial distribution of LQ values of various industries.

3.2 Requirements Analysis

The primary deliverables for this project included: calculating location-quotients based on four levels of comparison for all NAICS codes through the Industry Group classification for display in a Web application. Additionally, users should be able to assess industry employment by zip code and educational attainment by census tract delineations. A requirements analysis was conducted to ensure that the project would meet the client's needs. This section addresses both functional and non-functional requirements.

3.2.1 Functional Requirements

Table 3-1 summarizes the functional requirement for the location-quotient (LQ) calculations. These requirements included the methods for data acquisition and formatting to allow for a table join to the respective spatial component. County Business Patterns (CBP) data is compiled every five years. Based on the assumption that this platform will be used to track industrial specialization over time, it is necessary for the user to duplicate the process when new datasets are available.

Table 3-1 Functional Requirements for LQ calculation

Requirement	Description
Select County Business Patterns data from <i>American Fact Finder</i> website and download.	To provide users with an expanded level of comparison for analysis both employment and establishment data were collected.
Select and merge data for the study area.	To aid in LQ calculations, employment and establishment data for all NAICS codes through the fourth digit were merged into a single excel table.
Develop method to overcome data suppression issues for employment.	To allow users to duplicate estimation for future data sets.

Table 3-2 identifies the functional requirements for the Web application using the ArcGIS API for JavaScript. These requirements were determined based on potential use cases. The application initiates with options that allow users to choose between a level of comparison (county/state or county/nation) and a comparison variable (employment or establishments) using radio buttons. Additionally, the user must select a NAICS code to display. To allow for a more localized analysis once industry specialization has been identified, the user will be able to scale down to the zip code level to inspect employment by industry data. Also, level of educational attainment for local communities will be accessible at census tract delineations, as well as the location of educational and training institutions.

Table 3-2 Functional Requirements for Web Application

Requirement	Description
Select options to display location-quotient values.	To allow visualization of LQ values for study area.
Select zip-code or census tract.	To allow users to assess more localized workforce characteristics.
Identify local educational facilities	To allow users to identify community access to educational and training facilities.
Display attributes values in a list.	To provide an easy to read format.

3.2.2 Non-functional Requirements

The non-functional requirements for this project are comprised of technical, operational, and transitional considerations based on potential use cases. ArcGIS Desktop 10 supported the minimal technical requirements for compiling data for the application and ArcGIS Server 10 was used to publish the resulting map document. Microsoft Visual Studio 10 was used to compile and customize the web application. Table 3-3 summarizes these requirements.

Table 3-3 Non-Functional Requirements for Industry Cluster Identification Application

Requirement	Description
<i>Technical</i>	
Microsoft Excel 10	County Business Patterns data is downloadable in excel format. Location-quotients were calculated and formatted for use in ArcMap with Excel.
ArcGIS Desktop 10	Industry cluster data was compiled and displayed using ArcGIS Desktop 10.
ArcGIS Server 10	The web application was published using ArcGIS Server 10.
Microsoft Visual Studio 10	Microsoft Visual Studio was used to compile and customize the web application.
<i>Operational</i>	
Comprehensive display of industry specialization for study area.	Location-quotients were calculated for all available NAICS codes through the fourth digit and for four levels of comparison.
Viable platform for analyzing regions of economic strengths and opportunities.	In addition to identifying industry specialization, workforce and demographic data are included for more local assessment.
<i>Transitional</i>	
Demonstration	A demonstration on how to utilize the Web application.

In addition to the technical requirements, operational and transitional requirements were determined by way of potential use cases. For example, it is important that the user has clear options for selecting a level of comparison from the four given. Also, the options for display include selecting a single county or comparing different counties based on the user's selection of a NAICS code. Furthermore, as a platform for cluster analysis, the user should be able to scale down from the county level to examine local employment data. A demonstration of how to best utilize the components and features of the application was required and provided for the client.

3.3 System Design

The system design was determined based on the client's request and the requirements analysis. The geodatabase includes four fundamental layers of information. The first is a composite of sixteen layers consisting of identical spatial boundaries (county) representing the four comparison types of LQ values. The comparison types include: county/state employment, county/nation employment, county/state establishment, and county/nation establishment. With the various levels of comparisons of LQ, economic planners and specialists can perform a series of analyses for the full spectrum of industry sectors and supporting industries.

The remaining three layers include: industry employment layer, educational attainment layer, and educational institutions layer. Interested parties can use the Web application platform to narrow down areas of potential economic development based on the given data. The intention was to provide a tool for policy makers to assess industry strengths and weaknesses and to evaluate local trends in employment and educational opportunities. Figure 3-1 shows the system design as four major components.

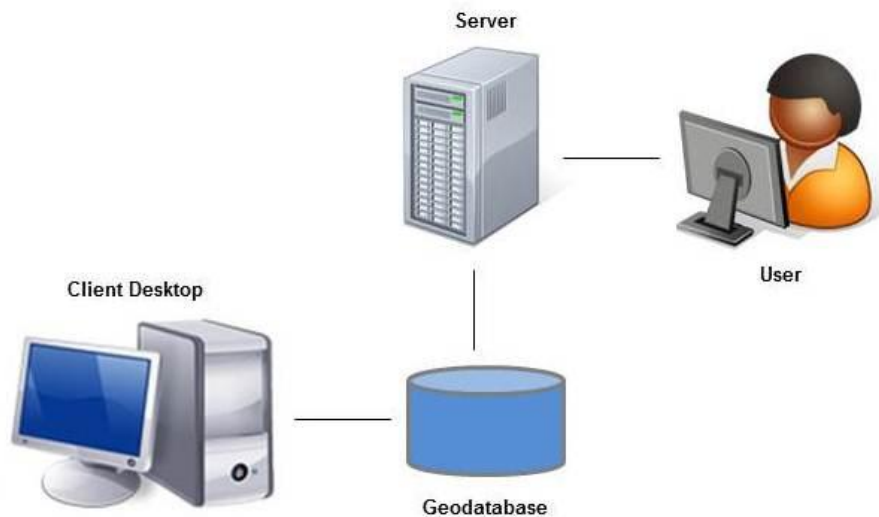


Figure 3-1: System Design

The geodatabase can be accessed and maintained on the client's desktop unit. Additionally, the client's organization is the proprietor of the ArcGIS suite of products including ArcGIS server. This ensured access to the technical requirements needed to maintain the system and update as necessary.

3.4 Project Plan

To complete the project in the given time frame and to fulfill the major components of the client's proposal, the project plan initially included five phases of development:

- Phase 1: Requirements Analysis

A review of cluster literature was conducted to understand the use of location-quotients' in identifying industry specialization. The use of LQ data as the basis for GIS analysis

was also identified in several studies, however Web applications were not found to be available. The primary display of LQ values using GIS for cluster analysis was given as static maps and tabular data.

- Phase 2: Data Acquisition

Phase two required data acquisition from the Census Bureau's County Business Patterns (CBP) datasets as well as relevant information acquired from Business Analyst datasets.

- Phase 3: LQ Calculation and Spatial Joins

Industry employment and establishment data were downloaded in Excel format for all California counties. The resulting LQ calculations were based on four levels of comparison and then spatially joined to county shapefiles in ArcMap.

- Phase 4: Geodatabase Development

In an effort to include elements recommended by the cluster analysis literature, several data layers were added to provide localized information on employment and education.

- Phase 5: Web-application Development

The Web application was developed using the Javascript API. The primary function is an interface that allows users to select an industry and comparison level to display county-level LQ values as a class-breaks rendered graphic.

Several adjustments were made throughout the course of implementing the project. Originally, the project was intended to cover a much larger geographic area. However, once it was determined that data suppression issues would present significant difficulties for calculating the necessary values, the study area was reduced from including all fifty-eight California counties to five. An estimation methodology was utilized to overcome the problem with data suppression. Also, due to limitations on table joins in ArcMap, the LQ layers were increased from an intended four layers to sixteen. Each of the initial four layers would have included the full spectrum of NAICS codes (and the associated LQ values) for each of the comparison levels. The resulting sixteen layers were divided by comparison level and by NAICS code. Finally, the ArcGIS API for Flex was initially targeted as the development framework for the application, was then changed to the Javascript API.

3.5 Summary

The initial project plan and system design were based on the requirements analysis. This chapter focused on both functional and non-functional requirements for project completion. Considerations for the analysis included technical, operational, and transitional requirements. The development of this framework was crucial to the implementation process. As project development progressed, modifications to the initial plan were necessary. Several of these changes were discussed here.

Chapter 4 – Database Design

The database design for this project included four major components: the conceptual design, the logical design, data collection, and data preparation. First, the conceptual models presented here show the associated entities of the project. Derived from the conceptual model is the logical data model. Next, the data sources used in this project are discussed. Finally, the methods used to prepare and load the data in the geodatabase are introduced.

4.1 Conceptual Data Model

An industry cluster analysis often involves identifying regions of specialization and examining factors that support continued specialization within a region. Supporting factors may include access to transportation and research or training facilities. The initial analysis is highly dependent on pre-defined administrative units because most of the publically available data used in cluster identification (specifically the calculation of location quotients) are collected and organized based on these administrative units. Industry groupings used in cluster studies are based on a hierarchical coding system under the North American Industrial Classification System (NAICS). This section presents two conceptual models for the design of cluster related data. A conceptual model is a generalization of real world relationships and assists both designers and end-users of the system, as well as aiding in the development of the logical design (Worboys, p. 69, 1997). The conceptual models presented here provide the structure of related entities involved in this project. The first conceptual model describes the relationship among the selected administrative units as well as their relation to industries (Figure 4-1).

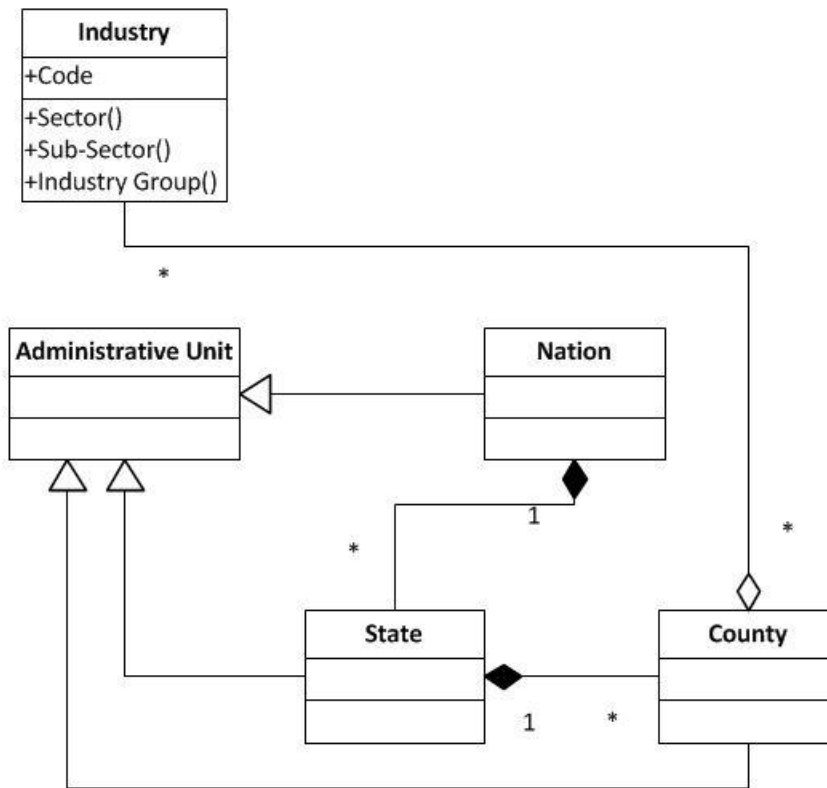


Figure 4-1: Administrative Unit Conceptual Model

The industry class provides the basis for the Industry Specialization Identification Web application. The Industry class is applicable to all administrative units and represents the hierarchical coding structure of the NAICS. Employment and establishment data for industry types are grouped by this classification system. The attributes of the industry class include sector, sub-sector, and industry group. Each industry is identified by a two, three, or four digit code respectively. The sector is the most generalized of the classification schemes. The sub-sector, or three-digit code provides a more detailed industry function within the sector and this process is continued with the industry group. The Administrative Units class contains three classes: nation, state, and county. The state and county classes show a one-to-many relationship.

The second conceptual model represents important entities used in cluster analysis (Figure 4-2). Zip code, census tract, and educational facilities classes are included in the second conceptual model.

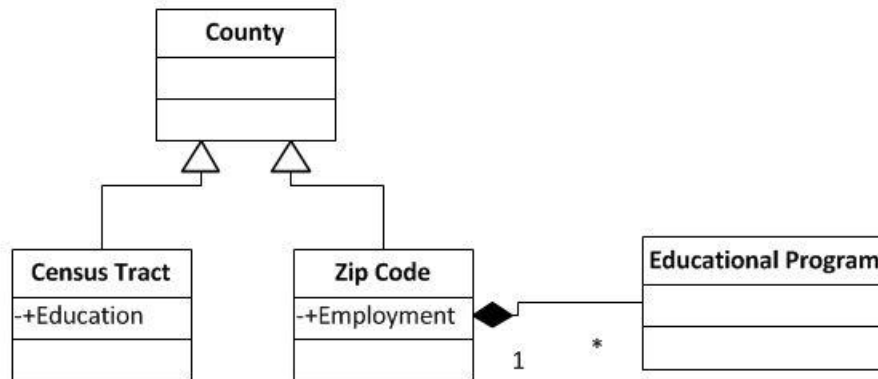


Figure 4-2: Supporting Data Conceptual Model

The Zip Code and Census Tract classes carry the attributes of employment and education, respectively. These classes are governed by the way the attribute data is collected and are not unique to cluster evaluation. However, these entities do represent smaller units of geographic space and may have important policy implications. For example, the Zip Code class’s attribute data gives interested parties a more localized view of distinguishable industry employment and can answer the degree to which the entity participates in a cluster. The Census Tract class provides information important to economic planners and policy makers in terms of evaluating local workforce characteristics. The education attribute constitutes the educational attainment of a local workforce and can give policy makers insight as to how a specialized industry can be sustained in the future.

Access to educational facilities and publicly funded educational programs also affect the long-term ability for knowledge- based industries to draw upon a local workforce. As the economy shifts further away from the manufacturing of goods to one that is knowledge and service based, particular importance will be placed on local access to higher education. This is because “college and graduate degree attainment ties in with occupation. The assumption made here is that significant levels of correlation exist between knowledge, innovation and educational attainment” (Galloway, 2008, p.5). It is important to policy makers and businesses alike to consider the capacity of a labor pool to meet the future needs of an industry. Limited resources can then be focused more directly to support or create educational and training programs designed to meet the needs of industry clusters.

The conceptual models presented here demonstrate the associations among the major entities used for visualizing industry specialization and conducting cluster analysis. For community planners, the ability to shape public policy and support programs that sustain recognized industry clusters, ensure long term economic viability. These professionals also recognize that all industries are dependent on particular workforce characteristics. A knowledge based industry for example, is dependent on a highly educated and trained

labor supply. Policy makers can have a significant impact on the type of funding needed to support higher education as well as access to learning facilities. The Census Tract and Educational Facilities entities symbolize this information. The following section will describe how these conceptual models were translated into the logical models.

4.2 Logical Data Model

A logical data model provides the basis for the physical implementation of the system and is described here in two parts. All feature classes portrayed here are stored in an ArcGIS file geodatabase. First, the Location Quotients (LQ) polygon feature classes are shown grouped together (Figure 4-3). This is because they contain the same data structure and are spatially coincident. These polygon feature classes represent the selected southern California counties: Los Angeles, Orange, San Bernardino, Riverside, and San Diego. Four levels of LQ comparison were generated for these feature classes: County/State Employment, County/Nation Employment, County/State Establishment, and County/Nation Establishment. The industry code attributes are selected by the user for display in the Web application.

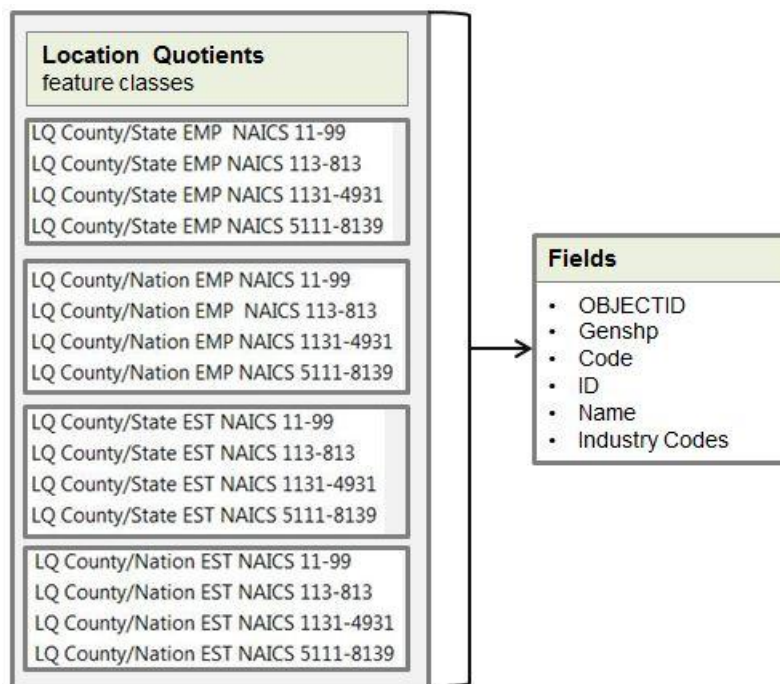


Figure 4-3: Location Quotient Database Layers

The second logical data model describes the remaining feature classes for this project and their associated attributes (Figure 4-4). The IndustryEmploymentZipCode feature class is a polygon class that contains data about the industry employment for zip codes throughout the study area. Next, the EducationalandTrainingFacilities point feature class provides the location of educational institutions throughout the study area. The

EducationalAttainmentCensusTract feature class is a polygon feature class containing information about the educational attainment of local residents at the census tract unit boundaries. All feature classes and their respective attributes are accessible through the application.

IndustryEmploymentZipCode feature class	EducationalandTrainingFacilities feature class	EducationalAttainmentCensusTract feature class
<p>Fields</p> <ul style="list-style-type: none"> • OBJECTID • Shape • Zip Code • Name • County ID • County Name • Total Population • Employed Civilian Population • Agriculture • Mining • Construction • Manufacturing • Wholesale Trade • Retail Trade • Transportation • Utilities • Information • Finance/Insurance • Real Estate • Professional Services • Management • Admin/Waste Services • Education • Health Care • Arts and Entertainment • Accommodation/Food Services • Other Services • Public Administration 	<p>Fields</p> <ul style="list-style-type: none"> • OBJECTID • Shape • Name • City • Zip Code • NAICS Code 	<p>Fields</p> <ul style="list-style-type: none"> • OBJECTID • Shape • TractID • Base Population • Less than 9th Grade • 9th-12th Grade • High School Graduate • Some College • Associate Degree • Bachelor's Degree • Grad/Professional Degree

Figure 4-4: Supporting Database Layers

4.3 Data Sources

The data for this project was obtained from two sources. First, the data used to calculate the LQs (and used in the LocationQuotients feature classes) was derived from the Census Bureau’s County Business Patterns (CBP) 2008 datasets. This dataset was released in July 2010. The CBP data “are used to benchmark public and private sector business statistical series, surveys and databases between economic census years. Federal agencies also use the data to determine employee concentrations and trends by industry” (U.S. Census, 2011b). The CBP data was accessed and downloaded as Excel files from the American Fact Finder website. Industry data for the US, California, and California counties were downloaded as separate files and merged into a single Excel table. The industry data included employment and establishment numbers for all 2, 3, and 4 digit NAICS codes. First-quarter and annual payroll data were eliminated from the compiled data. Finally, industry data for Los Angeles, Orange, San Bernardino, Riverside, and Orange counties were selected from the compiled table.

Esri’s Business Analyst Desktop 2008 datasets (including business data provided by InfoUSA) were used for the remaining feature classes: IndustryEmploymentZipCode,

EducationalandTraninigFacilities, and EducationalAttainmentCensusTract. Business Analyst provides “more than 1,600 variables about employee population, population by occupation/industry, disposable income, and consumer expenditures all at the United States, state, county, ZIP Code, census tract, block group, core-based statistical area, and designated market area geography levels” (Esri, 2011). Access to the Business Analyst datasets was provided by the University of Redlands MS GIS program.

County, zip code, and census tract polygon feature classes were exported from the Business Analyst datasets into the file geodatabase used in this project. Also taken from the Business Analyst datasets was a point feature class containing business locations (InfoUSA). All data was given in the GCS_WGS_1984 coordinate system.

4.4 Data Scrubbing and Loading

The CBP and subsequent LQ data required to meet this project’s objectives had to be prepared for use in ArcMap. This data needed to be joined to the county feature class provided by Business Analyst. However, due to the data confidentiality of individual businesses, many industry sections and groups only contain coded values for the number of employees. To replace these letter codes with numerical values for LQ calculation, an estimation method was applied. This method will be discussed in detail in Chapter 5. The following section will describe briefly the process of reducing the Business Analyst dataset used in this project.

4.4.1 Business Analyst Data

In addition to the county feature classes, Zip Code, Census Tract, and Educational Facilities feature classes were acquired from Business Analyst’s 2008 datasets. The zip code and census tract feature classes were processed in a similar manner. The Select by Location tool was used with both feature classes to reduce the geographic coverage from including all of the US down to the project study area. Because administrative boundaries are not coincident, however, there are a few instances of overlap in the zip code feature class, as compared to the county study area. The data provided by Business Analyst includes over 1600 aggregated demographic attributes for each of the administrative units provided. However, for the purposes of this project only a handful of these attributes were needed. Therefore, the Delete Field tool was used with both the zip code and census tract feature layers. All attribute fields outside those mentioned in section 4.2 were eliminated

The Educational Features class was derived from the infousa point feature class that is available with Business Analyst. This feature class contained 12,354,421 business locations across the US. The Select by Location tool was used first to reduce the feature class to the study area, leaving 78, 6076 business locations (saved as businesses). These businesses are organized in part by the attribute field NAICS_EXT which gives an 8-digit code to each facility. For this project, only the first four digits were necessary to be able to select those associated with education and training. So, a new field was added and named NAICS_4. Using the field calculator, the string function Left ([businesses], 4) extracted the necessary characters and populated the new field. Finally, the Select by Attribute tool was used to acquire all businesses location within the study area that were

identified by a 6112, 6113, 6114, and 6115 NAICS code. This resulting feature class was named NAICS_611.

4.5 Summary

This chapter detailed four major components of the database design process. The conceptual and logical data models illustrate the primary entities and association used in the project. Before the data could be loaded into ArcMap and subsequently used in the Web application, significant preparation was needed. An estimation method was developed to overcome data suppression issues associated with the CBP employment datasets. Business Analyst data sources needed to be tailored to meet the project objectives.

Chapter 5 – Implementation

Chapter 5 discusses the project execution, which includes estimating missing data for location quotient calculation and displaying the location quotient feature classes on the web. The web application was created using a map template provided by Esri, which was further customized using the ArcGIS Javascript API development framework.

5.1 Missing Value Estimation

The Industry Specialization Identification Web Application’s primary function of the Web application is to display LQ values for selected industries and levels of comparison. In order to provide this information, the employment data from the County Business patterns (CBP) needed to be reformatted and calculated. Figure 5-1 shows an example of the compiled Excel file containing the selected county, state, and US data mentioned in Section 4.3.

D	E	F	H	I	K	L	P	Q	S	T	Y	Z	AB	AC
Geographic Area Name	NAICS	Meaning of 2007 NAICS code	EST	EMP	County_tEST	County_tEMP	CA_EST	CA_EMP	CA_tEST	CA_tEMP	US_EST	US_EMP	US_tEST	US_tEMP
Los Angeles County, CA	212	Mining (except oil and gas)	28	642	250,255	3,910,429	303	6,638	879,025	13,742,925	6,935	205,652	7,601,169	120,903,551
Los Angeles County, CA	213	Support activities for mining	37	f	250,255	3,910,429	338	10,976	879,025	13,742,925	12,512	316,519	7,601,169	120,903,551
Los Angeles County, CA	221	Utilities	240	j	250,255	3,910,429	1,103	l	879,025	13,742,925	16,960	639,403	7,601,169	120,903,551

Figure 5-1: Combined County Business Patterns Data

Some of the employment data provided by the CBP is suppressed to “avoid disclosure of information about individual employers” (U.S. Census Bureau, 2011b). For example, the column “EMP” in Figure 5-1 represents the number of employees working in each industry group. However, some of the cells only contain letter codes such as *f* and *j* (referred to as flagged data), instead of specific numerical values. Therefore, an estimation method was used (where necessary) to convert flagged data cells into employment numbers.

As described in Section 4.1, the sector, sub-sector, and industry group delineations are represented by a two, three, or four digit code, respectively. The two digit code branches into several three digit codes and so on. Due to the hierarchical structure of the NAICS codes, some flagged data cells (letter codes) can be replaced by the missing value in an industry set. This is the case when only one letter code is assigned for an industry set. For example, Figure 5-2 below shows the sub-sector industry set 711-713. The letter code *c* has been assigned to sub-sector 712. When added together, this sub-sector industry set should equal its parent sector code 71. Therefore, to find the missing value the given values for sub-sector codes 711 and 713 were added together, then subtracted from the given value for sector code 71. The letter code *c* for sub-sector 712 can then be replaced with the remainder, 202.

		Sector	EST	EMP
71	Arts, entertainment, and recreation		334	12,058
Sub-Sector				
711	Performing arts, spectator sports, and related industries		106	1,320
712	Museums, historical sites, and similar institutions		11	c
713	Amusement, gambling, and recreation industries		217	10,536
Industry Group				
7111	Performing arts companies		18	f
7112	Spectator sports		14	200
7113	Promoters of performing arts, sports, and similar events		20	e
7114	Agents and managers for public figures		6	b
7115	Independent artists, writers, and performers		48	197

Figure 5-2: NAICS Coding Structure

When there are more than one letter codes in an industry set, the missing values were estimated based on the mid-range value for each letter code. This is the most common approach and is recommended by the Census Bureau (Zhang, p.7, 2006). For example, Figure 5-2 above, shows flagged data cells for industry groups 7111, 7113, and 7114. Table 5-1 shows the letter codes along with the range and mid-range values for these industry groups.

Table 5-1: Flagged Data Example

Letter Code	Range	Mid-range
b	20-99	60
e	250-499	375
f	500-999	750

The parent class for this industry group is sub-sector 71. If the given values for this industry group are summed, then subtracted from the total of the parent class, a difference of 923 is determined ($1320 - 200 - 197 = 923$). This value is the expected sum of the three missing values and therefore it is then proportionally distributed among the industry groups based on the mid-range values of their corresponding letter codes. For example, the estimated value for letter code *b* of industry 7114 equals to the mid-range value of

letter b (60) divided by the sum of the mid-range values of all three letter codes (60+375+750 = 1185) and then multiplied with the expected sum of 923 (60/1185*923 = 47). This process is summarized in Table 5-2.

Table 5-2: Summary of Data Estimation Method

Data Estimation Method	Example
1. Identify a letter code range	f, e, b
2. Determine if it's a member of a 2, 3, or 4, digit set	4 digit
3. Determine the hierarchical position and add all numeric codes in the same set.	7111 - 7115
4. Determine parent class and it's given value	711; 1320
5. Add given values from the same set and subtract from parent class value	1320 – 397 = 923
6. If only a single value is missing the replace the letter code with the remainder	For example, in the 711-713 set, 712 has a letter code of c. When the set is added together then subtracted from the parent class value (12,058-11856 =202) the remainder of 202 replaces the letter code c.
7. If there is more than one letter code in a set, determine the mid-range value for each and sum them together.	f = 750 e = 375 b = 60 } = 1185
8. Disperse the remainder proportionally among the mid-range values by adding or subtracting (round appropriately).	f - 750/1185 x 923 = 584 e- 375/1185 x 923 = 292 b- 60/1185 x 923 = 47

In cases where a valid estimation could not be produced, a value of -9999 was used to substitute the letter code. This value was also used in cases where the county did not provide data for a particular industry.

The compiled Excel table, now containing all LQ values, was broken down into sixteen separate tables based on level of comparison and NAICS code. This was done, in part, because there is a 255 character limit when performing table joins from an Excel file into ArcMap. Characters beyond the 255 limit are converted to a binary large object (BLOB) type and cannot be read (<http://help.arcgis.com>, 2011b). Once joined to the sixteen separate county feature classes, all demographic data were eliminated using the Delete Field tool.

5.2 Web Map Application

The main objective of this project was to develop a Web application, which involved two primary functions. One is to display the user- selected location quotient (LQ) values as a choropleth class-breaks rendered graphic. This function displays the LQ values of each county according to industry specialization. The second function is to allow the user to select a county and have all the LQ values for that county display in the application using an identify function. Initial consideration was given to the ArcGIS API for Flex as the development framework. However, in order to provide the user with an interface that allowed for selection among the various LQ values through radio buttons and drop down menus, it was determined that the JavaScript API would most appropriately fit the project requirements. In addition, the JavaScript API supports the use of panels, which is the most appropriate format for the identify function to display the LQ values of each layer. The remaining feature classes, including IndustryEmploymentZipCode, EducaionalandTrainingfacilities, and EducationalAttainmentCensusTract, were also included in the application for visualization purposes. Analytical functions of performing a cluster analysis to be built upon over time. Data from these layers are viewable through the identify function and are displayed in a panel on the Web application.

5.2.1 Preparing map documents for publication

Steps to prepare the map documents for publication included: changing the map coordinate system, changing field alias, modifying LQ values, and setting the map scales. The first step was to set the coordinate system of all feature classes to WGS 1984 Web Mercator (Auxiliary Sphere). This was done because the world imagery with labels basemap that was added from ArcGIS Online is based on this coordinate system. The field alias names for all 1600 industry codes were then changed to provide more useful descriptions for the identity function. Figure 5.3 shows an example of the field alias change.

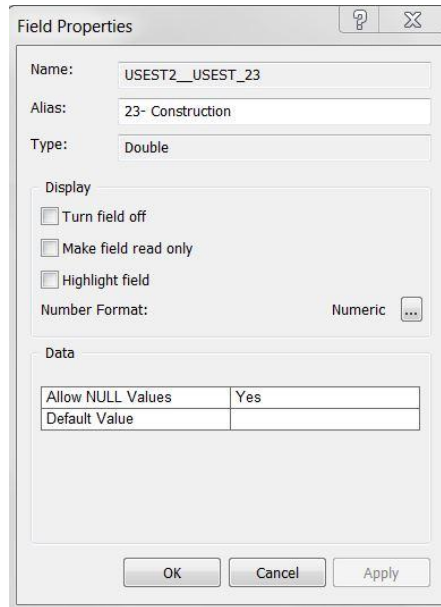


Figure 5-3: Field Alias Change

Next, all LQ values were changed to display values with two decimal places instead of six, as LQ values are traditionally provided with no more than two decimal places. The first two decimal places determine the type of classification value assigned to the industry in the Web application. For example, the class-breaks rendered graphic identifies any value greater than 1.25 and less than 2.0 as being associated with a pre-selected color, and displays that color on the map. The map scale schema was changed to match the scale set used by ArcGIS. Finally, the data for the sixteen feature classes containing the LQ values were saved to ArcSDE, since these feature classes were used as feature services in the class breaks renderer. It was not necessary to repeat this process for the remaining layers because they were published as map services.

5.2.2 Publication

Before publication, several map documents were created in ArcMap. One document was created for all sixteen location quotient feature classes and saved as LocationQuotients.mxd (Figure 5.4).

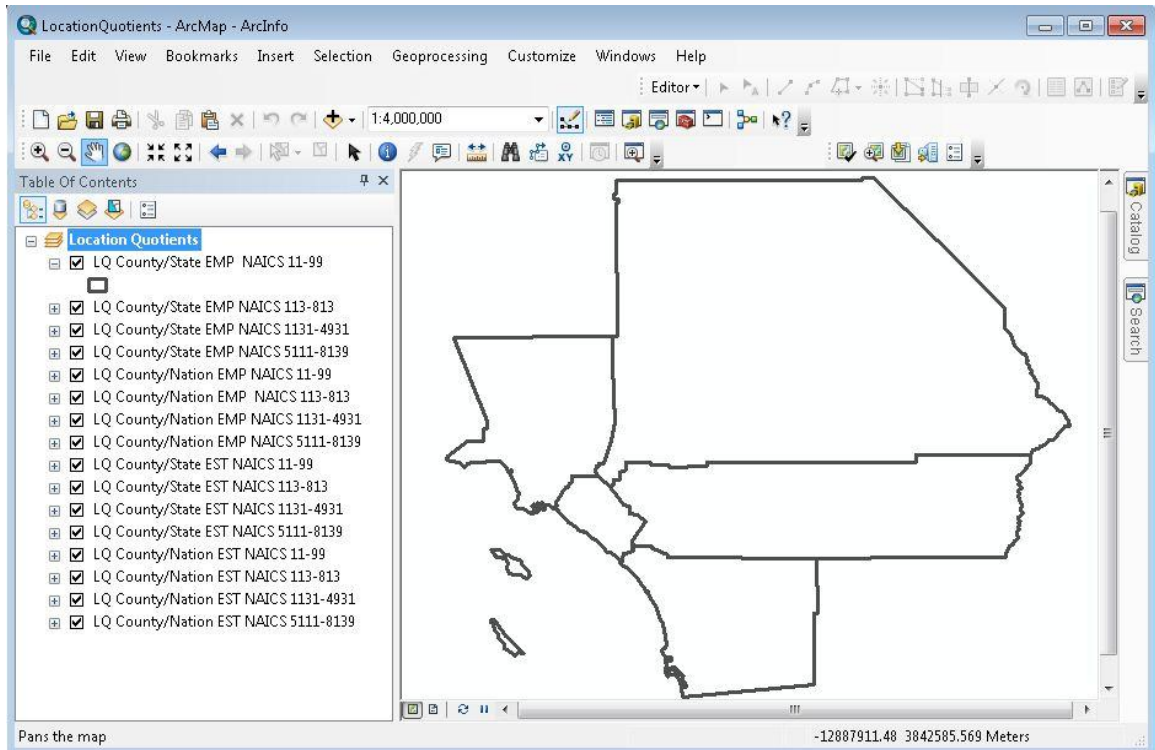


Figure 5-4: LocationQuotients ArcMap Document

Map documents for each remaining feature class (IndustryEmploymentZipCode, EducationalandTraningFacilities, and EducationalAttainmentCensusTract) were created separately so that the identify function would group the results logically. All map documents were published to the ArcGIS Server through ArcCatalog and added to a list in the ArcGIS Services Directory (Figure 5-5).



Figure 5-5: Service Directory

The LocationQuotients feature service was assigned sixteen unique IDs, ranging from 0 to 15. All layers were added to an ArcGIS Web application, saved as Industry Cluster Identification (Figure 5-4), and assigned the unique ID of ac72baee6bed4957bd6519c11c5e3b00. This application was made public so that its contents could be referenced in any customized application.

Industry Cluster Identification



Figure 5-6: Sharing ArcGIS Web Application

Once publically shared, ArcGIS offers several web application templates that can be used for customization. For this project, the Chrome Identify template was selected.

This template had three panels available: one to display descriptive content, one to hold the map application, and one to display the identify results. This template was downloaded as a zip file and was saved locally. The unmodified template is shown in Figure 5-7.

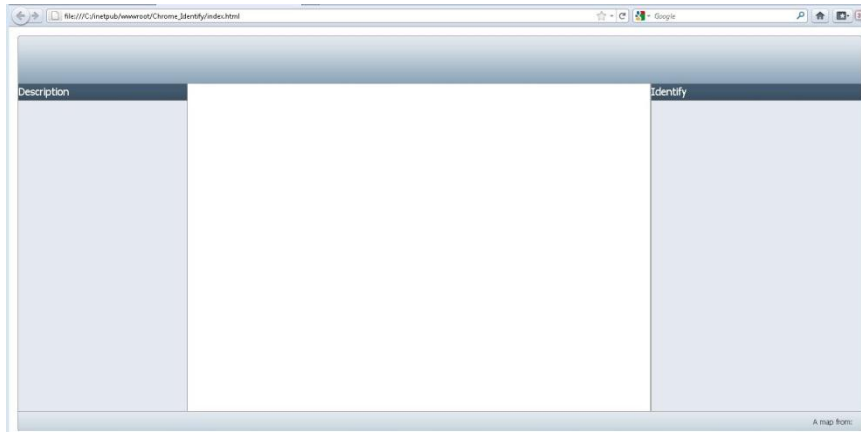


Figure 5-7: ArcGIS Chrome Identify Template

5.2.3 Application Development and Customization

Microsoft Visual Studio 2010 was used to customize and compile the Web application. The application file folder was named icd (industry cluster data) and contains two distinct pages both of which will be discussed here. The first page was developed as the primary user interface. Written in HTML (Hypertext Markup Language), this page presents the user with the selection options for the LQ values (Figure 5-8).

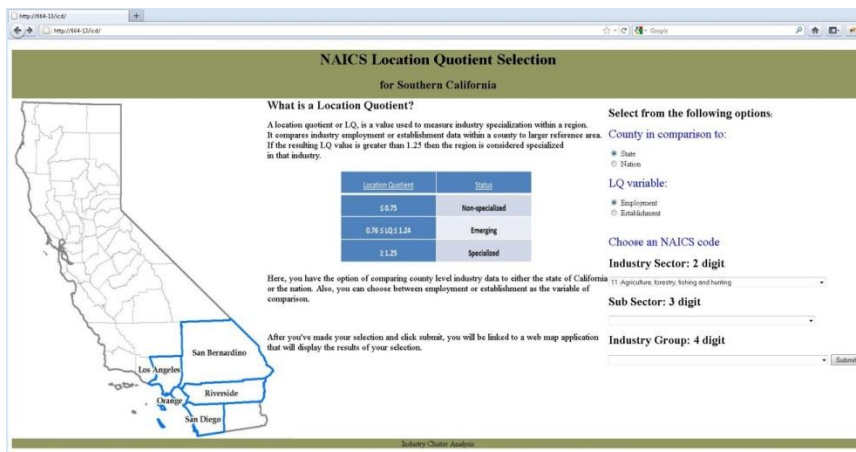


Figure 5-8: Application Page One

The radio button and drop-down list options are called forms and are “used to pass data to the server” (w3schools.com, 2011). This is the page the user sees when first accessing the Web application (Default.aspx). This opening page provides a brief explanation of industry clusters and how to interpret LQ values. It also shows a locator map that identifies the counties in the study area. Here, the user can make selections using radio buttons on the LQ level of comparison (state or nation) and variable (employment or establishment). Then, the user can decide on the NAICS code of interest by selecting from a choice of three drop-down lists: Industry Sector, Sub-Sector, or Industry Group (figure 5-10). When the user clicks on the *submit* button they are redirected to the mapping application and the second page of the website.

This second page displays the results of the inquiry as a choropleth class-breaks rendered graphic. The values and colors were set as follows:

- 0.0 -0.75, Non-Specialized, Light Blue
- 0.76-1.24, Emerging, Light Green
- 1.25-2.0, Low Specialization, Orange
- 2.01>, Highly Specialized, Red

Figure 5-9 shows an example of the second page. This example is for county/nation employment, industry group 3152, cut and sew apparel manufacturing.

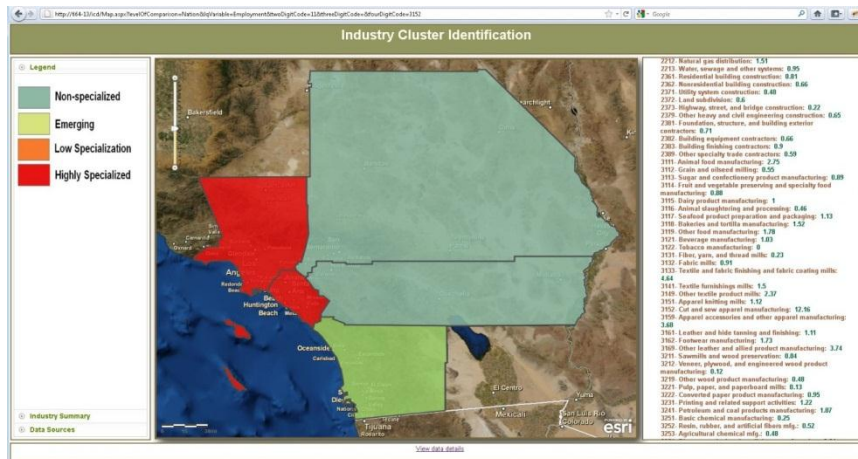


Figure 5-9: Application Page Two

Additionally, three tab containers were customized in the JavaScript file (layout.js) to hold the map legend, industry summary reports (see Appendix), and data source information. Users can access the contents of these tabs by clicking on the tab descriptions. These containers replaced the original left panel of the Chrome Identify template. The class breaks renderer function was also added to the layout.js file and displays in the center panel. Figure 5-10 shows the tab containers and the rendered graphic as well as the identity panel which will be discussed next.

Chapter 6 – Results and Analysis

The first step toward implementing a cluster driven economic strategy is to identify and target a particular industry or industries within a predefined geographic region (Reid, 2007; Henton, 2007). This initial analysis is necessary for economic developers to direct limited resources to support industry clusters through workforce and other development programs. For example, “cluster information can be used to design a new community college or training program” (Henton, 2007, p.29). Targeting particular industry clusters can also allow community developers to build local collaborative and partnerships between private companies, industry associations and research facilities. This chapter will outline a fictional scenario in which the Industry Specialization Identification Web application would be useful in this initial analysis.

San Bernardino County has an expansive network of community colleges and training centers. Assume there is a need to develop a new program for the community, which will focus on industry cluster workforce development. One industry cluster of interest is healthcare, as San Bernardino County is regarded as specialized in healthcare, specifically hospitals. First, the existence of a hospital industry cluster needs to be verified. A horizontal investigation will be performed using the two levels of comparison and the two given variables: county/state employment, county/nation employment, county/state establishment, and county/nation establishment, which adds up to four comparisons. Second, a vertical analysis is required to identify specialized industries within the cluster by looking into more detailed industry descriptions.

6.1 Analyzing Specialization of an Industry Sub-Sector

Figure 6-1 shows the first interface that the user will see when launching the web application, where the NAICS code for the healthcare industry is 62 from the drop-down menu (highlighted in red box).

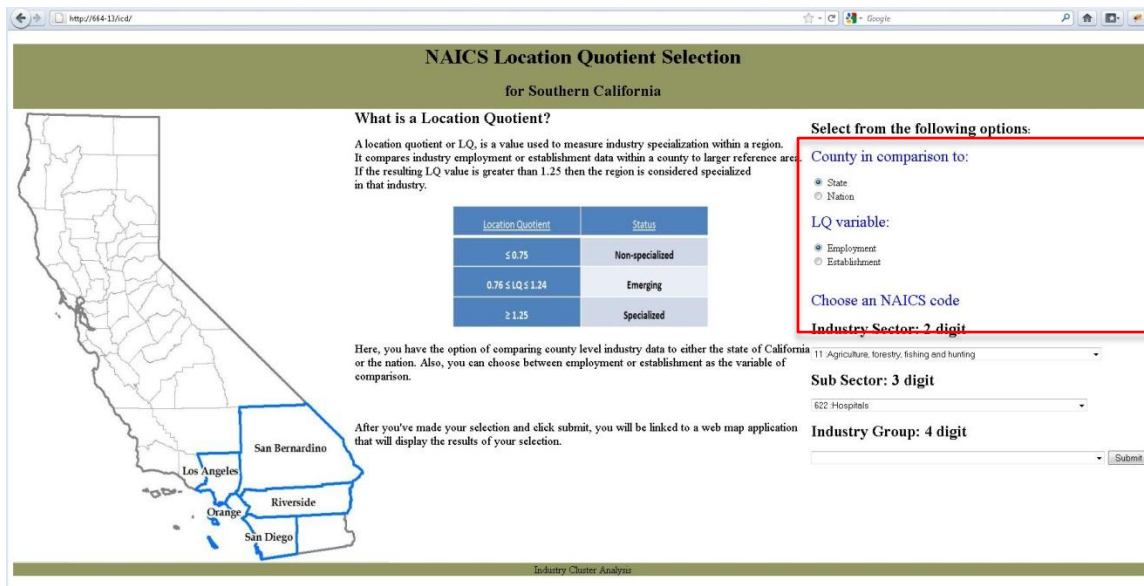


Figure 6-1: Defining Queries

Since the sub-sector of hospitals is of interest, the user can further evaluate the drop-down menu and the NAICS code for hospitals is 622. Once this selection is made, the process is repeated for the remaining combinations. Figures (6-2, 6-3, 6-4, and 6-5) show the results of the inquiries.

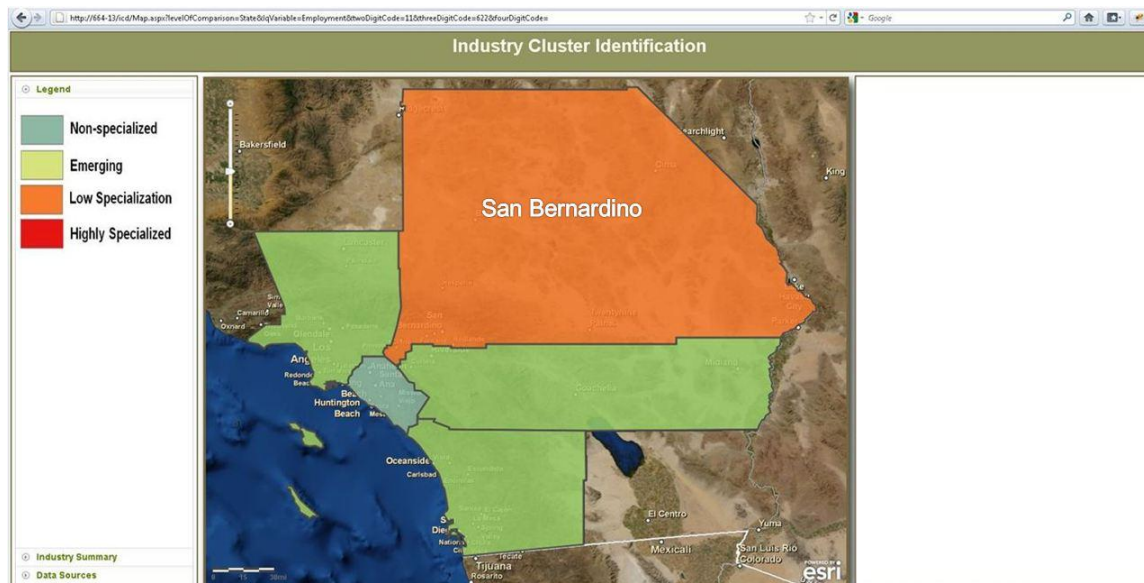


Figure 6-2: County/State Employment, NAICS 622- Hospitals

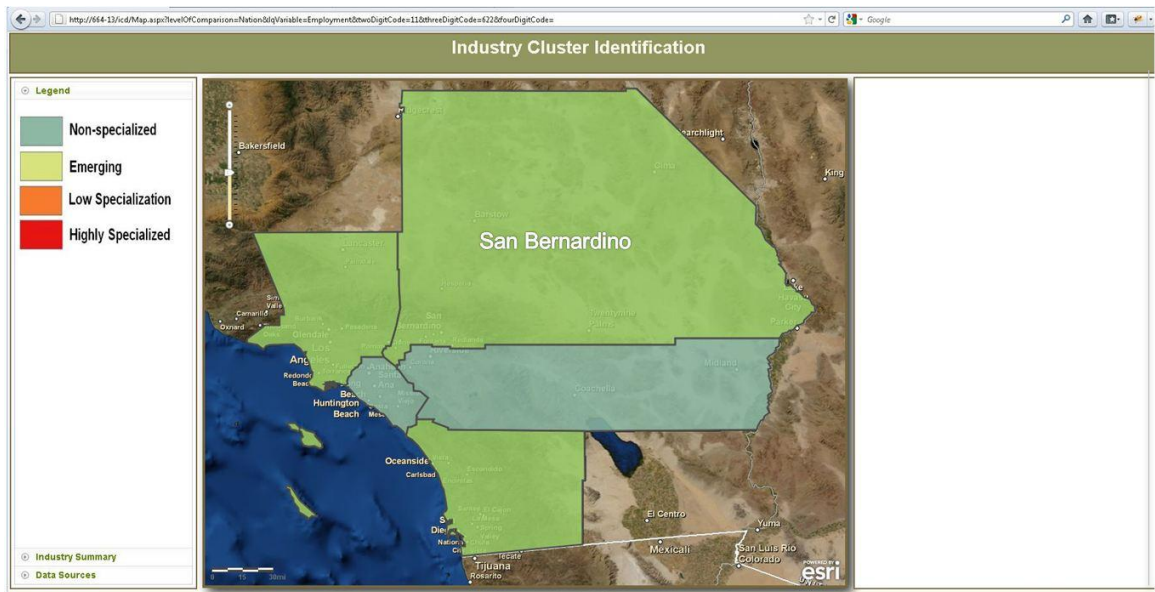


Figure 6-3: County/Nation Employment, NAICS 622- Hospitals

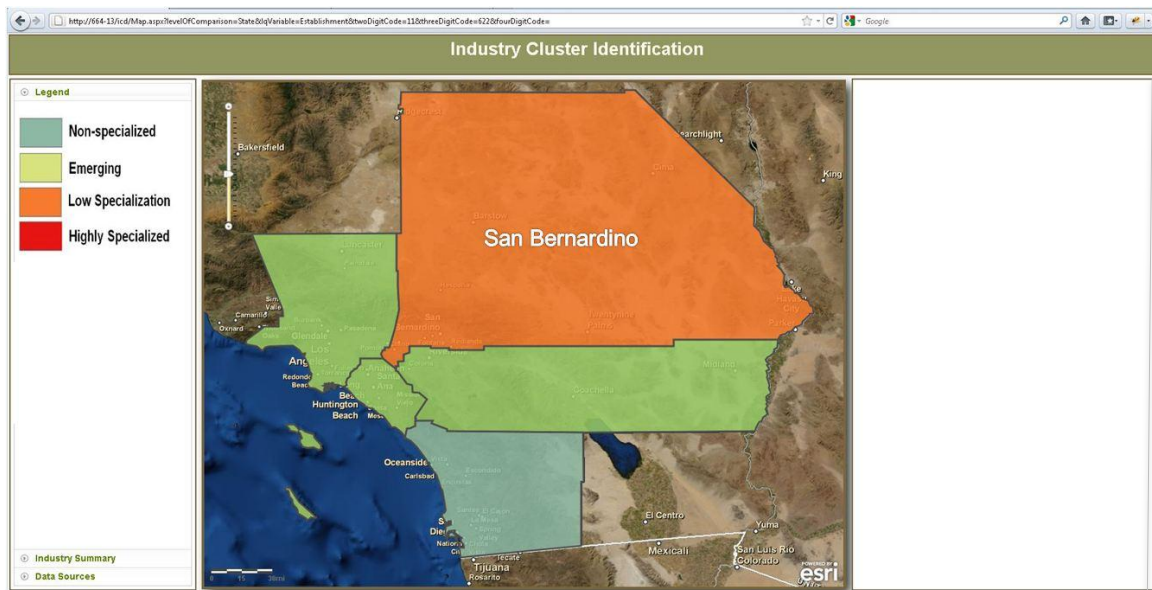


Figure 6-4: County/State Establishment, NAICS 622- Hospitals

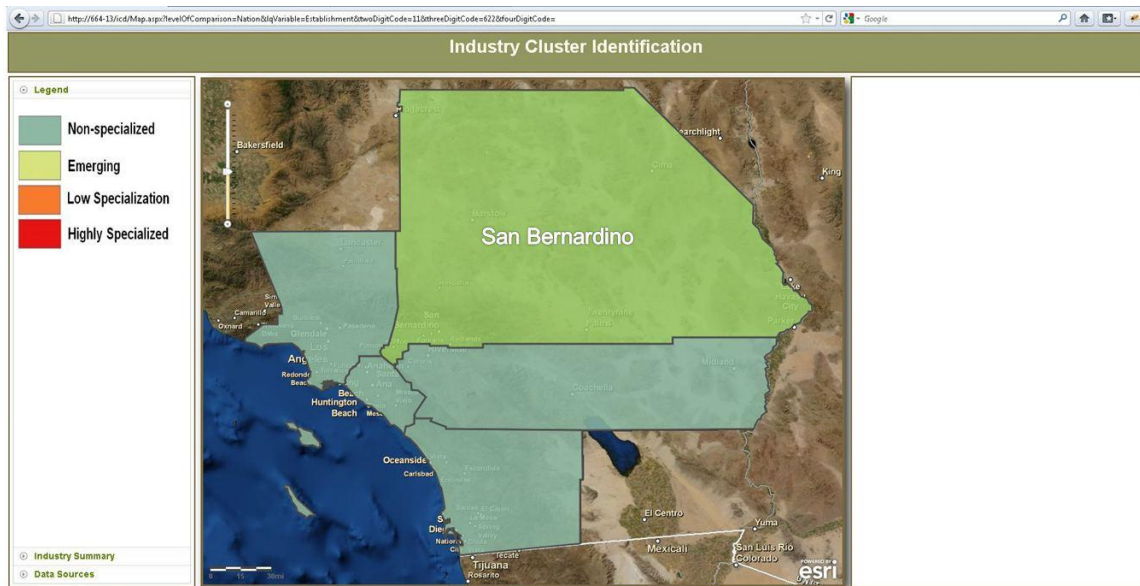


Figure 6-5: County/Nation Establishment, NAICS 622- Hospitals

Based on the comparison at the state and nation levels, an industry cluster for hospitals is confirmed to be present for San Bernardino County. The results of the first inquiry two inquiries (Figure 6-2 and 6-3) reveal that the specialization applies to both hospital employment and number of establishments when comparing the county to the state (of California), while there is not an evident industry specialization in hospitals when comparing the county to the nation (Figure 6-4 and 6-5). Further, all four comparisons indicate that San Bernardino most specialized this industry when compared to other nearby counties in the study area. The benefit of viewing industry specialization in a map as opposed to a spreadsheet is being able to evaluate a county with those that are nearby. Because the data used to calculate the location quotients is collected at the county level, the results seem to show the entire county of San Bernardino is specialized in hospitals. However, this is not the fact. San Bernardino County covers more than 20,000 square miles, but most economic activity takes place in the south west corner of the county. This is attributable to the physical geography and residential patterns within the county. Using the IndustryEmploymentZipCode layer contained in the Web application the user can examine a simple choropleth map that shows the spatial distribution of the population. Figure 6-6 shows the volume of population for the county residing near the southwest boundary.

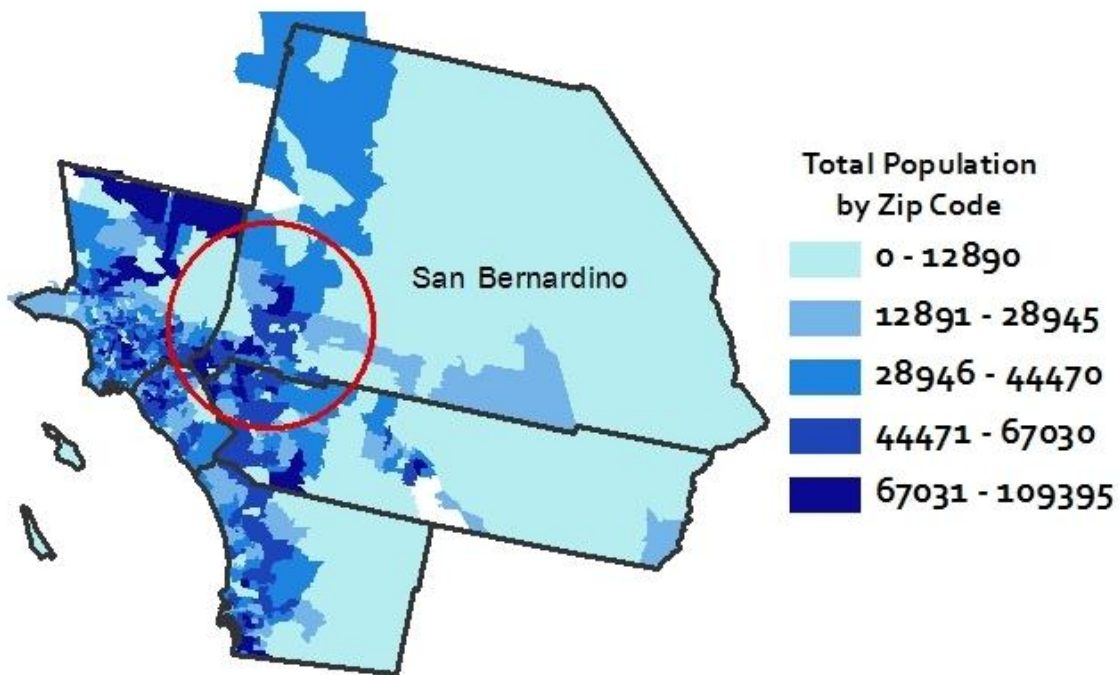


Figure 6-6: Population Distribution by Zip Code

The IndustryEmploymentZipCode layer can also be used to evaluate reported industry employment by residence but not by place of business. This discrepancy is important to be noted because it differs from the way the NAICS values on employment are collected. In other words, the LQ data is reported as employment by place of business and collected at the county level. Industry employment by zip code is reported by residence and only by NAICS two-digit sector. Thus, the data of industry employment by zip code are less detailed in assessing which particular industries people are employed in. However, the information is still useful for making decisions on how and where to best support identified industry clusters. For example, the number of people reporting employment (by zip code) in the healthcare industry for San Bernardino County is shown in figure 6-7. This result can be used to analyze how workforce availability affects the location of the planned programs.

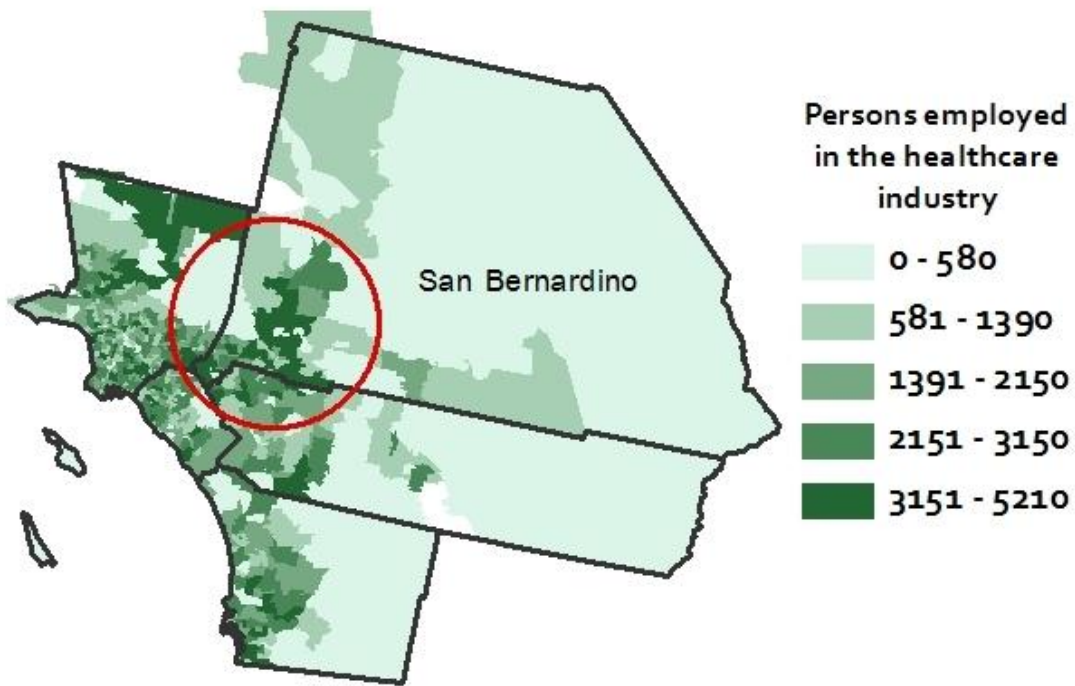


Figure 6-7: Employment by Zip Code, Healthcare Industry

6.2 Analyzing Industry Groups within an Industry Cluster

Once the existence of a hospital industry cluster for San Bernardino County has been verified (meaning the LQ value is large enough to indicate specialization and therefore the presence of a cluster), the industry groups within this cluster need to be examined further to identify the specific types of hospitals that make up the cluster. In this analysis, the focus will be only on employment as the variable. Employment is the standard variable and this inquiry will be used to direct resources toward workforce development, so variable reduction to employment is fitting. From the drop-down menu for industry group, three sub-sectors are listed: 6221-General medical and surgical hospitals, 6222-Psychiatric and substance abuse hospitals, and 6223-Speciality hospitals. Figures 6-8 and 6-9 show the state and national LQ values of employment of general medical and surgical hospitals (NAICS 6221). It is obvious that San Bernardino has a low specialization in general medical and surgical hospitals in comparison to the state, but not when compared to the nation.

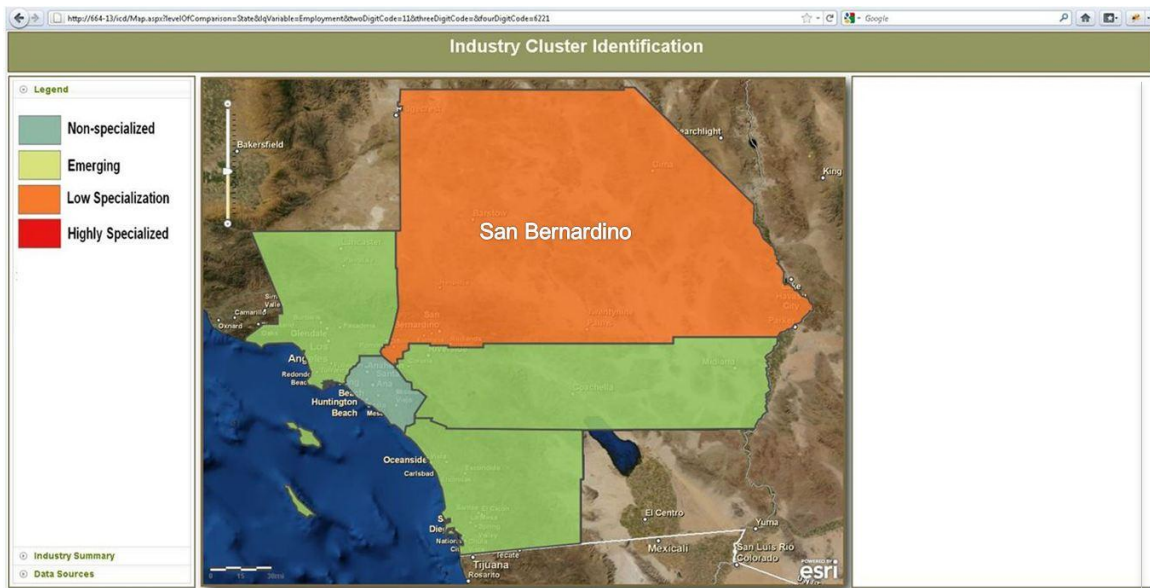


Figure 6-8: County/State Employment, NAICS 6221- General Medical and Surgical Hospitals

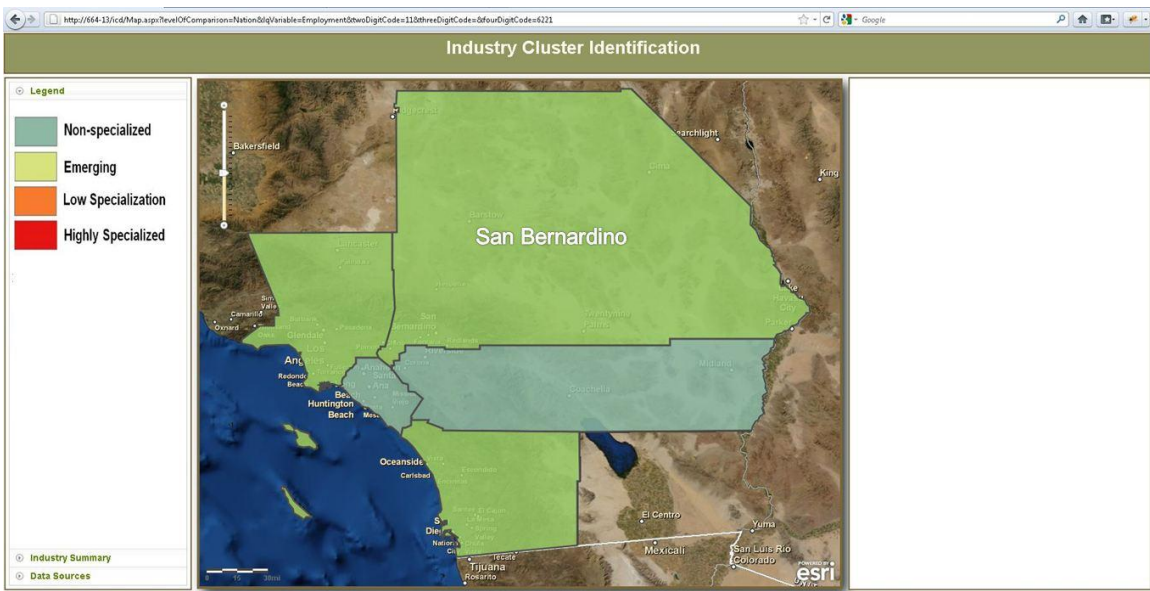


Figure 6-9: County/Nation Employment, NAICS 6221- General Medical and Surgical Hospitals

Figures 6-10 and 6-11 show the results of the second industry group – psychiatric and substance abuse hospitals (NAICS 6222). Both the state and national LQ values suggest a high specialization for this industry for San Bernardino County. However, this

specialization does not extend to the other counties in the study area. The remaining counties are classified either into non-specialized or emerging categories.

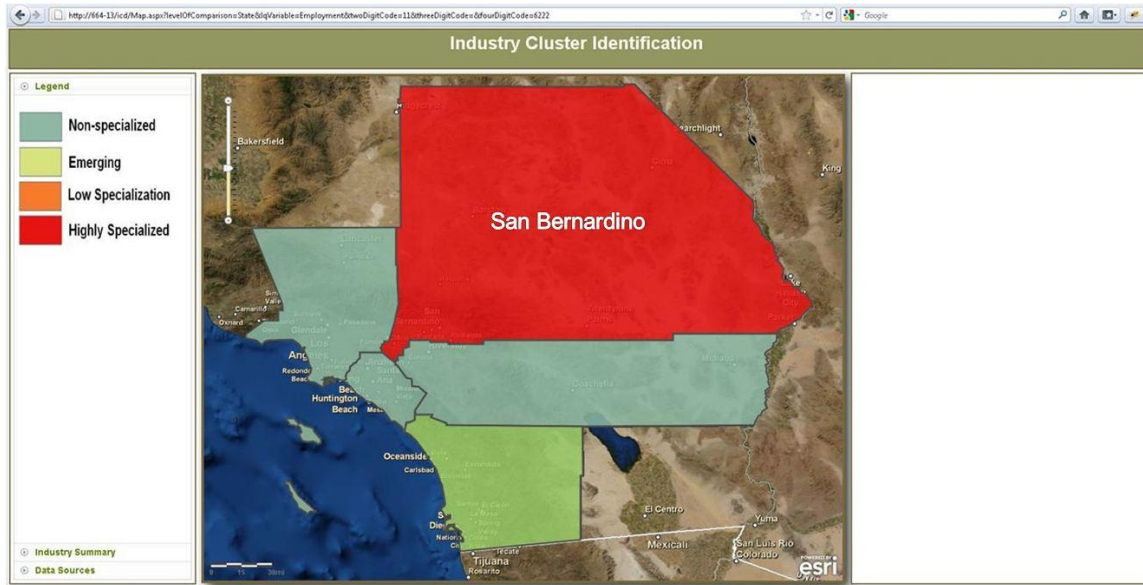


Figure 6-10: County/State Employment, NAICS 6222- Psychiatric and Substance Abuse Hospitals

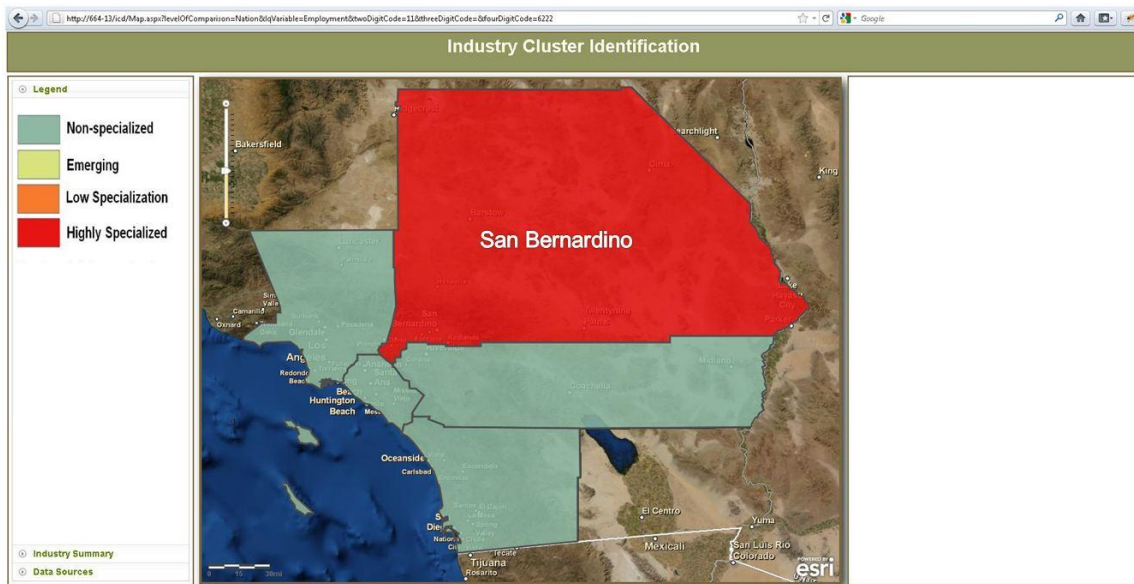


Figure 6-11: County/Nation Employment, NAICS 6222- Psychiatric and Substance Abuse Hospitals

Although the choropleth maps in both figures can provide a user with a general level of specialization of a specific industry sector/sub-sector/group, the numerical value of the LQ is sometimes required for the user to understand the degree of specialization. To find this information, the identify function can be used show all the industries and LQ values for each county. For example, the user can click on San Bernardino in the Web application and scroll through the right panel to find the value associated with NAICS code 6222 (Figure 6-12).

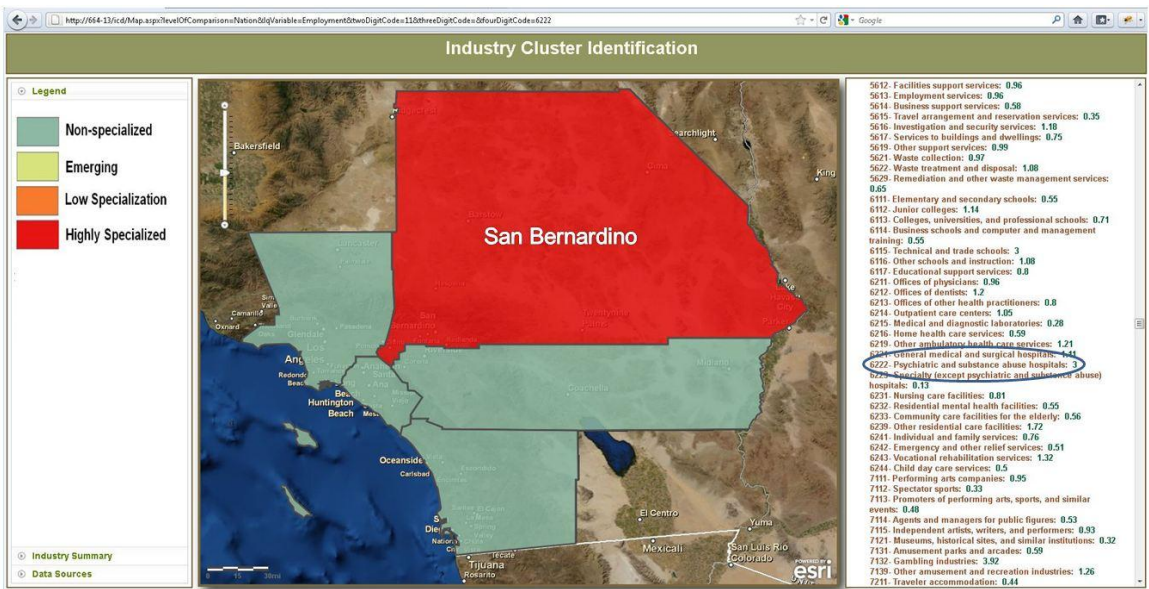


Figure 6-12: County/Nation Employment, NAICS 6222, Identify

The national LQ value is 3 for psychiatric and substance abuse hospitals, which indicates that this industry is three times more specialized than the nation in this region. Some caution should be taken when evaluating LQ values. The absolute employment values can be deceptive to industry specialization. For example, there may be occasions when the employment numbers used in the LQ calculation are low despite the indication the industry is specialized for the area. The determination that an industry is specialized based on LQ values can make sense for large employment groups but not necessarily for small employment groups and may not be an indication of growth potential. Also, because of the aggregation of industries a high LQ value for a four digit industry group may not necessarily translate to a high LQ value for a two digit industry sector. Figures 6-13 and 6-14 show the results for the third and last industry group – specialty hospitals (NAICS 6223). There is no specialization for San Bernardino County for this industry group for either comparison. Furthermore, only one of the surrounding counties shows low specialization on the county/state LQ value.

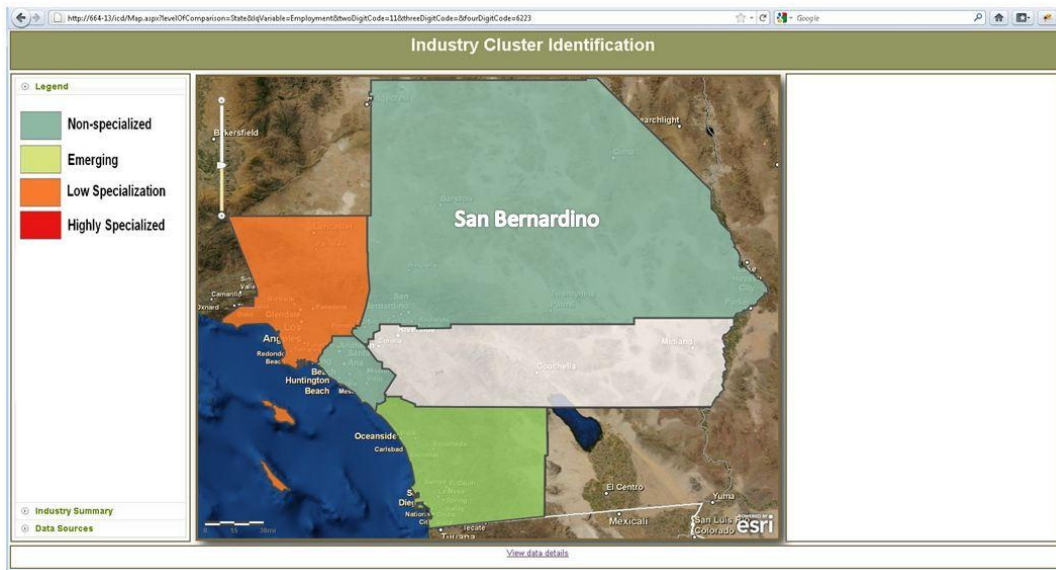


Figure 6-13: County/State Employment, NAICS 6223- Specialty Hospitals

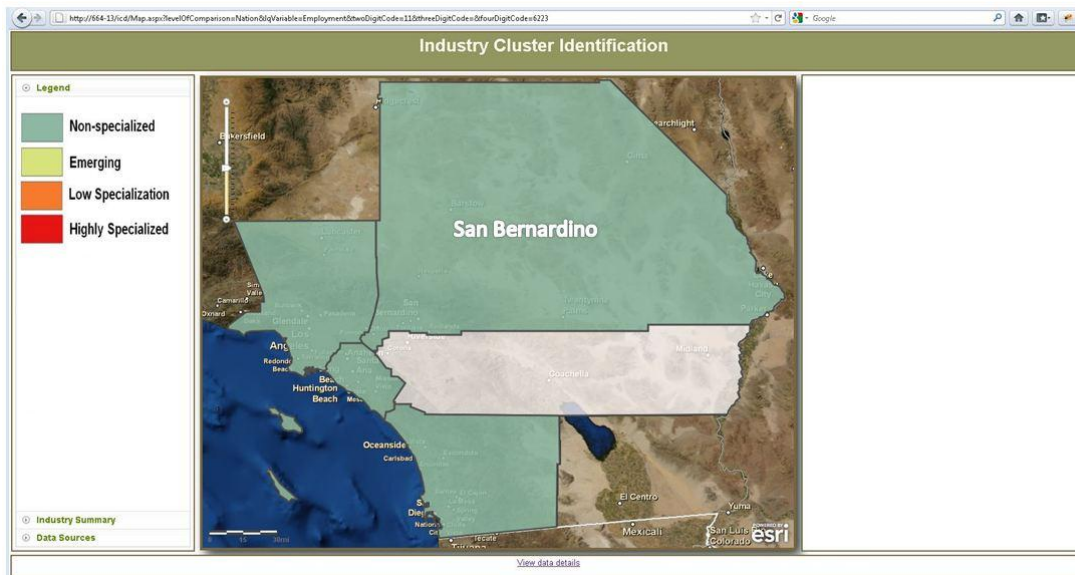


Figure 6-14: County/Nation Employment, NAICS 6223- Specialty Hospitals

Based on these results, a new training program aimed at supporting the hospital industry cluster seems appropriate for San Bernardino County. Because there is a high specialization for psychiatric and substance abuse hospitals attention should be given to this specific industry. To generate a list of potential schools that could implement a new program, a selection model was used on the IndustryEmploymentZipCode and EducationalFacilities layers available in the Web application. Figure 6-15 shows the model implemented in ArcGIS desktop 10.1.

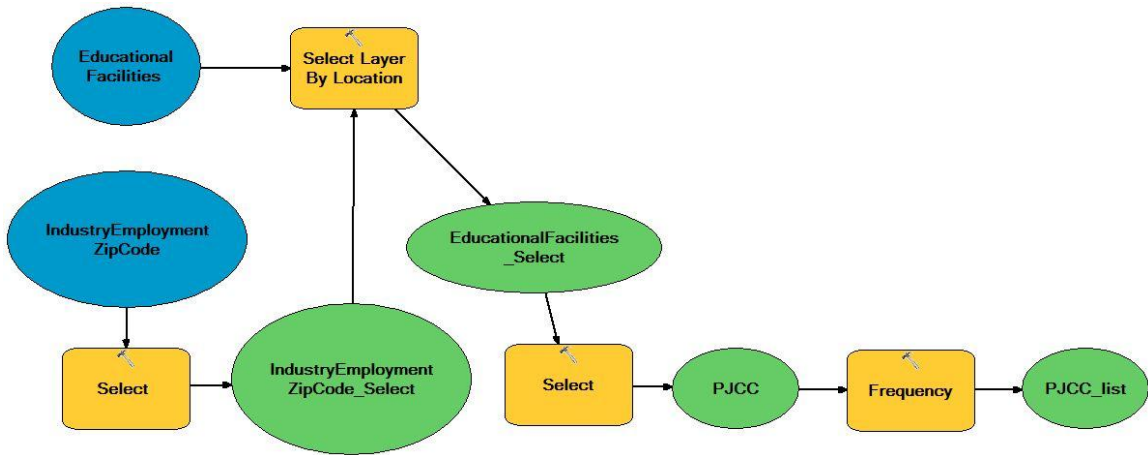


Figure 6-15: Model to select potential educational facilities

First, to support the hospital cluster (psychiatric and substance abuse hospitals in particular), programs should be made available to populations that make up the volume of the workforce for the industry. This number used was based on a median value of employees working in the healthcare industry. Second, the select layer by location tool was used to identify educational facilities within these areas. The select analysis tool was again utilized to find facilities with NAICS codes of 6112 and 6113 (junior colleges and colleges/universities, respectively). The output feature class, PJCC, was added to the display. Point features in this layer may include multiple facilities associated with a particular institution. Therefore, the final process of this analysis used the frequency tool to eliminate redundancy in the output table, PJCC_list. Figure 6-16 shows the results of the inquiry.

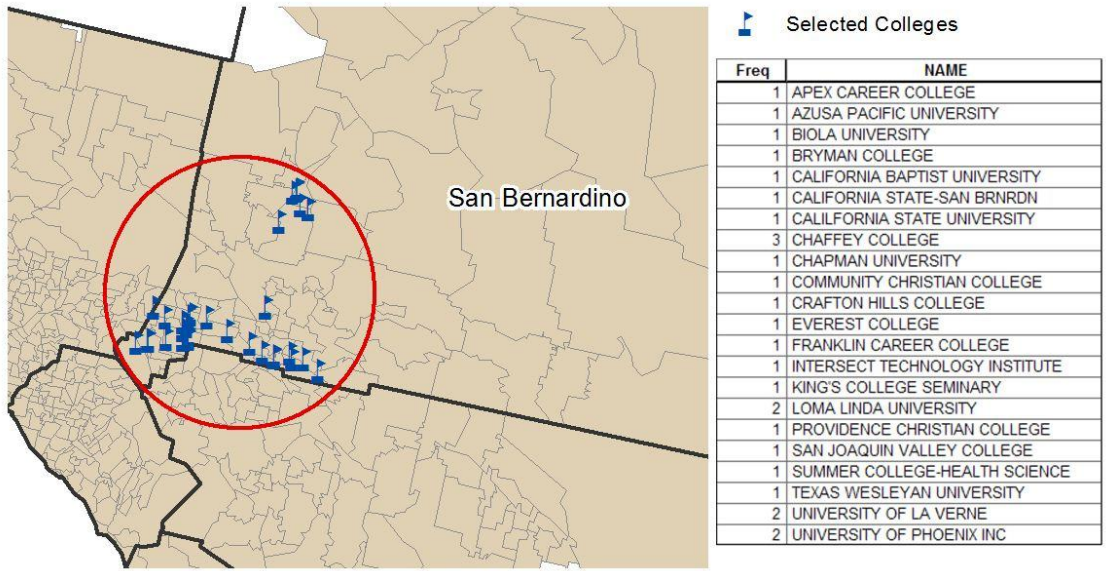


Figure 6-16: Selected Colleges

From this list, Chaffey College, Crafton Hills College, and San Joaquin Valley College seem to be appropriate schools for the new program, because none of these campuses currently offer programs that would support the psychiatric and substance abuse hospital cluster for San Bernardino County.

6.3 Summary:

Identifying specialized industries is the first step toward developing policies that aim to support clusters within an area. This chapter illustrates how the Industry Specialization Identification Web Application may be used to guide such policies. The development of an educational program intended to support the hospital industry cluster (psychiatric and substance abuse hospitals, in particular) for San Bernardino County was the main focus of this chapter. In addition to the Web application, additional analysis using the accompanying data layers provided the user with a list of potential facilities that could implement the new program. The following chapter will discuss the conclusions of the project and future work.

Chapter 7 – Conclusions and Future Work

The demonstration model developed for this project to identify industry clusters using a Web application was achieved. In contrast to cluster studies which focused on a single or few industries at a time, this mode expanded the ability of economic planners to evaluate a wide range of industries. The traditional use of employment and comparison of county/nation was also increased to include establishment data and a county/state comparison. The client's requirement to develop a Web application was satisfied by using ArcGIS Javascript API to display location quotient (LQ) values in a meaningful way. This display diverges from the tabular form from which LQ values are usually assessed.

The main objective when considering the future development of this project would be expanding the geographic area of interest to include LQ data for the more than 3,000 US counties. A general application of this magnitude would provide a standardized way to evaluate clusters for a wide-spectrum of public and private entities. The disadvantage is that it could not provide detailed information on linkages within and between clusters. This type of analysis may be outside the scope of any general Web application because it would most likely require proprietary data on individual business and the elicitation of local economic experts.

The geodatabase provided to the client contains additional layers of interest for community and economic planners and also serves as the basis for future development. For those interested in industry cluster analysis, a smaller geographic unit of measurement would be important to local development. For example, incorporating industry employment at the zip code level into the Web application and providing a zip-code look-up tool or city search tool would allow planners to evaluate how their area participates in a cluster. Pop-up reports and other diagrams could be included here.

For workforce development, measuring the local level of educational attainment and proximity to training facilities would give policy makers the opportunity to direct limited resources toward programs that support clusters. Drive-time analytical tools would be useful here as well as data collection on currently offered programs.

Tracking cluster changes over time would be the most beneficial development for this project. The data used here is based on the 2008 calendar year. Most however, are aware significant changes to the economy have taken place since this time. While economists and others use past information and trends to try and determine the direction of things to come, but singular years of economic data do not constitute trends. They are merely snapshots of what has already occurred. Though the public data used in this project (County Business Patterns) is only made available every five years, it would be valuable to incorporate new sets of data as they become available.

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Appendix A. Industry Summary Tables

Table A-1: Top Five Location Quotient Values for each County and Variable

Top 5 Location Quotient Values for each County and Variable

STEST = county/state establishment

USEST = county/nation establishment

STEMP = county/state employment

USEMP = county/nation employment

Los Angeles County		NAICS code	Description	STEST
Sector		71	Arts, entertainment, and recreation	2.01
		31	Manufacturing	1.7
		51	Information	1.52
		42	Wholesale trade	1.37
		48	Transportation and warehousing	1.09
Sub-Sector		315	Apparel manufacturing	2.79
		711	Performing arts, spectator sports, and related industries	2.71
		512	Motion picture and sound recording industries	2.7
		313	Textile mills	2.43
		314	Textile product mills	1.87
Industry Group		7115	Independent artists, writers, and performers	3.03
		7114	Agents and managers for public figures	2.84
		3152	Cut and sew apparel manufacturing	2.82
		5121	Motion picture and video industries	2.72
		3132	Fabric mills	2.61

Los Angeles County		NAICS code	Description	USEST
Sector		31	Manufacturing	2.88
		71	Arts, entertainment, and recreation	2.8
		51	Information	1.96
		42	Wholesale trade	1.67
		33	Manufacturing	1.19
Sub-Sector		315	Apparel manufacturing	10.2
		512	Motion picture and sound recording industries	7.05
		711	Performing arts, spectator sports, and related industries	6.86
		313	Textile mills	2.87
		314	Textile product mills	2.64
Industry Group		3152	Cut and sew apparel manufacturing	11.5
		7115	Independent artists, writers, and performers	11.27
		7114	Agents and managers for public figures	7.57
		5121	Motion picture and video industries	7.36
		4243	Apparel, piece goods, and notions merchant wholesalers	6.61

Los Angeles County		NAICS code	Description	STEMP
Sector		31	Manufacturing	1.53
		51	Information	1.44
		48	Transportation and warehousing	1.37
		61	Educational services	1.3
		42	Wholesale trade	1.11
Sub-Sector		512	Motion picture and sound recording industries	2.97
		315	Apparel manufacturing	2.86
		313	Textile mills	2.73
		316	Leather and allied product manufacturing	2.24
		314	Textile product mills	2.2
Industry Group		7114	Agents and managers for public figures	3.12
		5152	Cable and other subscription programming	3.03
		5121	Motion picture and video industries	2.97
		5122	Sound recording industries	2.96
		3132	Fabric mills	2.92

Los Angeles County		NAICS code	Description	USEMP
Sector		51	Information	2.05
		31	Manufacturing	1.88
		42	Wholesale trade	1.41
		54	Professional, scientific, and technical services	1.41
		71	Arts, entertainment, and recreation	1.28
Sub-Sector		512	Motion picture and sound recording industries	11.73
		315	Apparel manufacturing	10.18
		711	Performing arts, spectator sports, and related industries	2.64
		316	Leather and allied product manufacturing	2.57
		488	Support activities for transportation	2.55
Industry Group		3152	Cut and sew apparel manufacturing	12.16
		5121	Motion picture and video industries	12.04
		7114	Agents and managers for public figures	10.56
		7115	Independent artists, writers, and performers	8.83
		5122	Sound recording industries	7.47

Orange County		NAICS code	Description	STEST
Sector		55	Management of companies and enterprises	1.38
		52	Finance and insurance	1.25
		42	Wholesale trade	1.23
		54	Professional, scientific, and technical services	1.23
		32	Manufacturing	1.2
Sub-Sector		525	Funds, trusts, and other financial vehicles	2.02
		533	Lessors of nonfinancial intangible assets	1.75
		425	Wholesale electronic markets and agents and brokers	1.7
		336	Transportation equipment manufacturing	1.65
		334	Computer and electronic product manufacturing	1.51
Industry Group		3122	Tobacco manufacturing	4.91
		5259	Other investment pools and funds	2.02
		3364	Aerospace product and parts manufacturing	1.95
		3322	Cutlery and handtool manufacturing	1.84
		3363	Motor vehicle parts manufacturing	1.8

Orange County		NAICS code	Description	USEST
Sector		42	Wholesale trade	1.51
		54	Professional, scientific, and technical services	1.41
		31	Manufacturing	1.28
		53	Real estate and rental and leasing	1.19
		55	Management of companies and enterprises	1.14
Sub-Sector		525	Funds, trusts, and other financial vehicles	4.01
		334	Computer and electronic product manufacturing	3.05
		315	Apparel manufacturing	2.63
		314	Textile product mills	1.89
		335	Electrical equipment, appliance, and component manufacturing	1.81
Industry Group		3344	Semiconductor and other electronic component manufacturing	4.19
		5259	Other investment pools and funds	4.01
		3341	Computer and peripheral equipment manufacturing	3.91
		3369	Other transportation equipment manufacturing	3.41
		3364	Aerospace product and parts manufacturing	3.02

Orange County		NAICS code	Description	STEMP
Sector		52	Finance and insurance	1.36
		53	Real estate and rental and leasing	1.31
		42	Wholesale trade	1.26
		55	Management of companies and enterprises	1.26
		53	Real estate and rental and leasing	1.25
Sub-Sector		339	Miscellaneous manufacturing	2.31
		525	Funds, trusts, and other financial vehicles	2.3
		425	Wholesale electronic markets and agents and brokers	2.15
		335	Electrical equipment, appliance, and component manufacturing	1.76
		533	Lessors of nonfinancial intangible assets	1.67
Industry Group		3122	Tobacco manufacturing	7.6
		7131	Amusement parks and arcades	4.79
		2372	Land subdivision	3.75
		4862	Pipeline transportation of natural gas	3.02
		3391	Medical equipment and supplies manufacturing	2.91

Orange County		NAICS code	Description	USEMP
	Sector	53	Real estate and rental and leasing	1.6
		42	Wholesale trade	1.59
		71	Arts, entertainment, and recreation	1.49
		23	Construction	1.29
		54	Professional, scientific, and technical services	1.25
	Sub-Sector	525	Funds, trusts, and other financial vehicles	4.71
		339	Miscellaneous manufacturing	3.06
		334	Computer and electronic product manufacturing	2.73
		315	Apparel manufacturing	2.65
		425	Wholesale electronic markets and agents and brokers	2.39
	Industry Group	7131	Amusement parks and arcades	10.97
		3342	Communications equipment manufacturing	6.62
		2372	Land subdivision	6.03
		5259	Other investment pools and funds	4.71
		3391	Medical equipment and supplies manufacturing	4.57

Riverside		NAICS code	Description	STEST
	Sector	23	Construction	1.46
		48	Transportation and warehousing	1.24
		22	Utilities	1.22
		44	Retail trade	1.2
		56	Administrative and Support and Waste Mang and Remediation Srvs	1.19
	Sub-sector	237	Heavy and civil engineering construction	1.89
		336	Transportation equipment manufacturing	1.76
		212	Mining (except oil and gas)	1.73
		238	Specialty trade contractors	1.62
		321	Wood product manufacturing	1.55
	Industry Group	2121	Coal mining	12.50
		3362	Motor vehicle body and trailer manufacturing	3.38
		3325	Hardware manufacturing	2.86
		2379	Other heavy and civil engineering construction	2.59
		3212	Veneer, plywood, and engineered wood product manufacturing	2.41

Riverside		NAICS code	Description	USEST
	Sector	23	Construction	1.27
		53	Real estate and rental and leasing	1.2
		56	Administrative and Support and Waste Mang and Remediation Srvs	1.13
		72	Accommodation and food services	1.13
		62	Health care and social assistance	1.05
	Sub-sector	336	Transportation equipment manufacturing	1.84
		525	Funds, trusts, and other financial vehicles	1.55
		237	Heavy and civil engineering construction	1.4
		115	Support activities for agriculture and forestry	1.38
		238	Specialty trade contractors	1.37
	Industry Group	3369	Other transportation equipment manufacturing	4.74
		3325	Hardware manufacturing	3.51
		3362	Motor vehicle body and trailer manufacturing	2.81
		4884	Support activities for road transportation	2.44
		6239	Other residential care facilities	2.15

Riverside		NAICS code	Description	STEMP
	Sector	23	Construction	1.9
		71	Arts, entertainment, and recreation	1.43
		32	Manufacturing	1.41
		72	Accommodation and food services	1.37
		44	Retail trade	1.35
	Sub-sector	493	Warehousing and storage	3.05
		321	Wood product manufacturing	2.61
		237	Heavy and civil engineering construction	2.5
		721	Accommodation	2.13
		326	Plastics and rubber products manufacturing	2.1
	Industry Group	3362	Motor vehicle body and trailer manufacturing	10.28
		2121	Coal mining	8.64
		4882	Support activities for rail transportation	4.18
		3271	Clay product and refractory manufacturing	3.92
		3379	Other furniture related product manufacturing	3.78

Riverside		NAICS code	Description	USEMP
	Sector	23	Construction	2
		71	Arts, entertainment, and recreation	1.85
		72	Accommodation and food services	1.43
		44	Retail trade	1.3
		53	Real estate and rental and leasing	1.28
	Sub-sector	493	Warehousing and storage	2.99
		339	Miscellaneous manufacturing	2.53
		713	Amusement, gambling, and recreation industries	2.35
		721	Accommodation	2.29
		238	Specialty trade contractors	2.23
	Industry Group	7132	Gambling industries	6.24
		3362	Motor vehicle body and trailer manufacturing	6.11
		3379	Other furniture related product manufacturing	4.7
		4884	Support activities for road transportation	4.43
		2212	Natural gas distribution	4.31

San Bernardino		NAICS code	Description	STEST
	Sector	22	Utilities	2.05
		48	Transportation and warehousing	1.7
		32	Manufacturing	1.55
		23	Construction	1.26
		44	Retail trade	1.21
	Sub-sector	493	Warehousing and storage	3.78
		486	Pipeline transportation	3.09
		326	Plastics and rubber products manufacturing	2.65
		331	Primary metal manufacturing	2.46
		484	Truck transportation	2.1
	Industry Group	2122	Metal ore mining	6.25
		4869	Other pipeline transportation	5.32
		3361	Motor vehicle manufacturing	4.98
		3311	Iron and steel mills and ferroalloy manufacturing	4.57
		3313	Alumina and aluminum production and processing	4.29

San Bernardino		NAICS code	Description	USEST
	Sector	48	Transportation and warehousing	1.43
		32	Manufacturing	1.41
		42	Wholesale trade	1.36
		22	Utilities	1.15
		72	Accommodation and food services	1.12
	Sub-sector	493	Warehousing and storage	3.97
		326	Plastics and rubber products manufacturing	2.52
		336	Transportation equipment manufacturing	2.32
		331	Primary metal manufacturing	2.09
		332	Fabricated metal product manufacturing	1.65
	Industry Group	3361	Motor vehicle manufacturing	5.49
		3369	Other transportation equipment manufacturing	5.32
		4931	Warehousing and storage	3.97
		3313	Alumina and aluminum production and processing	3.87
		3311	Iron and steel mills and ferroalloy manufacturing	3.62

San Bernardino		NAICS code	Description	STEMP
	Sector	48	Transportation and warehousing	1.92
		32	Manufacturing	1.64
		22	Utilities	1.57
		44	Retail trade	1.22
		49	Transportation and warehousing	1.2
	Sub-sector	493	Warehousing and storage	4.67
		331	Primary metal manufacturing	3.89
		484	Truck transportation	3.68
		212	Mining (except oil and gas)	3.12
		327	Nonmetallic mineral product manufacturing	3.05
	Industry Group	3311	Iron and steel mills and ferroalloy manufacturing	14.02
		2122	Metal ore mining	5.86
		3273	Cement and concrete product manufacturing	5.17
		3313	Alumina and aluminum production and processing	5.07
		4931	Warehousing and storage	4.67

San Bernardino		NAICS code	Description	USEMP
Sector		48	Transportation and warehousing	1.69
		42	Wholesale trade	1.3
		22	Utilities	1.26
		71	Arts, entertainment, and recreation	1.24
		23	Construction	1.23
Sub-sector		493	Warehousing and storage	4.59
		492	Couriers and messengers	2.92
		484	Truck transportation	2.61
		327	Nonmetallic mineral product manufacturing	2.59
		337	Furniture and related product manufacturing	2.28
Industry Group		3351	Electric lighting equipment manufacturing	4.74
		3273	Cement and concrete product manufacturing	4.63
		4931	Warehousing and storage	4.59
		7132	Gambling industries	3.92
		3346	Manufacturing and reproducing magnetic and optical media	3.92

San Diego County		NAICS code	Description	STEST
Sector		53	Real estate and rental and leasing	1.24
		54	Professional, scientific, and technical services	1.21
		56	Administrative and Support and Waste Mang and Remediation Svcs	1.11
		52	Finance and insurance	1.07
		23	Construction	1.05
Sub-sector		487	Scenic and sightseeing transportation	2.51
		114	Fishing, hunting and trapping	2.18
		483	Water transportation	1.48
		531	Real estate	1.28
		316	Leather and allied product manufacturing	1.27
Industry Group		4872	Scenic and sightseeing transportation, water	3.13
		3366	Ship and boat building	2.98
		4879	Scenic and sightseeing transportation, other	2.81
		1141	Fishing	2.52
		5417	Scientific research and development services	2.32

San Diego County		NAICS code	Description	USEST
Sector		53	Real estate and rental and leasing	1.41
		54	Professional, scientific, and technical services	1.39
		61	Educational services	1.18
		56	Administrative and Support and Waste Mang and Remediation Svcs	1.06
		42	Wholesale trade	1.02
Sub-sector		334	Computer and electronic product manufacturing	2.51
		487	Scenic and sightseeing transportation	2.25
		316	Leather and allied product manufacturing	1.55
		531	Real estate	1.52
		525	Funds, trusts, and other financial vehicles	1.5
Industry Group		5417	Scientific research and development services	4
		4879	Scenic and sightseeing transportation, other	3.42
		3254	Pharmaceutical and medicine manufacturing	3.18
		3369	Other transportation equipment manufacturing	3.08
		3343	Audio and video equipment manufacturing	2.99

San Diego County		NAICS code	Description	STEMP
Sector		71	Arts, entertainment, and recreation	1.27
		72	Accommodation and food services	1.22
		54	Professional, scientific, and technical services	1.19
		23	Construction	1.13
		22	Utilities	1.12
Sub-sector		712	Museums, historical sites, and similar institutions	2.88
		487	Scenic and sightseeing transportation	2.77
		721	Accommodation	1.81
		336	Transportation equipment manufacturing	1.64
		114	Fishing, hunting and trapping	1.6
Industry Group		3366	Ship and boat building	9.02
		3336	Engine, turbine, and power transmission equipment manufacturing	5.62
		4872	Scenic and sightseeing transportation, water	3.64
		4862	Pipeline transportation of natural gas	3.57
		7121	Museums, historical sites, and similar institutions	2.88

<i>San Diego County</i>		NAICS code	Description	USEMP
	Sector	71	Arts, entertainment, and recreation	1.65
		54	Professional, scientific, and technical services	1.55
		53	Real estate and rental and leasing	1.53
		72	Accommodation and food services	1.27
		23	Construction	1.19
	Sub-sector	487	Scenic and sightseeing transportation	3
		712	Museums, historical sites, and similar institutions	2.87
		721	Accommodation	1.95
		339	Miscellaneous manufacturing	1.87
		334	Computer and electronic product manufacturing	1.87
	Industry Group	3366	Ship and boat building	5.86
		4872	Scenic and sightseeing transportation, water	5.57
		3336	Engine, turbine, and power transmission equipment manufacturing	4.13
		7132	Gambling industries	4.01
		7131	Amusement parks and arcades	3.74

Table A-2: All Specialized Industries by County

Los Angeles County

STEMP	2007 NAICS code	Description
3.12	7114	Agents and managers for public figures
3.03	5152	Cable and other subscription programming
2.97	5121	Motion picture and video industries
2.97	512	Motion picture and sound recording industries
2.96	5122	Sound recording industries
2.92	3132	Fabric mills
2.89	3152	Cut and sew apparel manufacturing
2.86	315	Apparel manufacturing
2.80	4883	Support activities for water transportation
2.79	3162	Footwear manufacturing
2.74	3133	Textile and fabric finishing and fabric coating mills
2.73	313	Textile mills
2.72	7115	Independent artists, writers, and performers
		Soap, cleaning compound, and toilet preparation
2.47	3256	manufacturing
2.37	3325	Hardware manufacturing
2.35	3111	Animal food manufacturing
2.35	3159	Apparel accessories and other apparel manufacturing
2.30	4243	Apparel, piece goods, and notions merchant wholesalers
2.26	3151	Apparel knitting mills
2.24	316	Leather and allied product manufacturing
2.24	3149	Other textile product mills
2.21	3352	Household appliance manufacturing
2.20	314	Textile product mills
2.18	3161	Leather and hide tanning and finishing
2.14	3141	Textile furnishings mills
2.11	3117	Seafood product preparation and packaging

2.08	3169	Other leather and allied product manufacturing
2.06	3312	Steel product manufacturing from purchased steel
		Nonferrous metal (except aluminum) production and processing
2.01	3314	
1.99	4831	Deep sea, coastal, and great lakes water transportation
1.98	4882	Support activities for rail transportation
1.94	515	Broadcasting (except Internet)
1.89	4885	Freight transportation arrangement
1.89	483	Water transportation
1.88	488	Support activities for transportation
1.84	711	Performing arts, spectator sports, and related industries
1.82	3315	Foundries
1.78	6223	Specialty (except psychiatric and substance abuse) hospitals
1.75	3131	Fiber, yarn, and thread mills
1.74	3259	Other chemical product and preparation manufacturing
1.73	8129	Other personal services
1.72	5151	Radio and television broadcasting
1.70	533	Lessors of nonfinancial intangible assets
1.70	5331	Lessors of nonfinancial intangible assets
		Accounting, tax preparation, bookkeeping, and payroll services
1.68	5412	
1.65	3321	Forging and stamping
1.63	3364	Aerospace product and parts manufacturing
1.62	4232	Furniture and home furnishing merchant wholesalers
1.60	324	Petroleum and coal products manufacturing
1.60	3241	Petroleum and coal products manufacturing
1.60	331	Primary metal manufacturing
1.59	4811	Scheduled air transportation
1.58	3351	Electric lighting equipment manufacturing
1.58	5616	Investigation and security services
1.57	481	Air transportation
1.55	4235	Metal and mineral (except petroleum) merchant wholesalers
1.53	31	Manufacturing
1.53	3328	Coating, engraving, heat treating, and allied activities
1.53	3343	Audio and video equipment manufacturing
1.53	4881	Support activities for air transportation
1.52	5321	Automotive equipment rental and leasing
1.51	6113	Colleges, universities, and professional schools
1.51	3255	Paint, coating, and adhesive manufacturing
1.51	4239	Miscellaneous durable goods merchant wholesalers
1.50	3371	Household and institutional furniture mfg.
1.50	3313	Alumina and aluminum production and processing
1.49	5418	Advertising, public relations, and related services
1.48	4922	Local messengers and local delivery
1.47	3326	Spring and wire product manufacturing

1.46	337	Furniture and related product manufacturing
1.44	51	Information
1.43	4812	Nonscheduled air transportation
1.43	7112	Spectator sports
1.42	7113	Promoters of performing arts, sports, and similar events
1.41	3372	Office furniture (including fixtures) manufacturing
1.41	3363	Motor vehicle parts manufacturing
1.40	4246	Chemical and allied products merchant wholesalers
1.40	4859	Other transit and ground passenger transportation
1.39	323	Printing and related support activities
1.39	3231	Printing and related support activities
1.39	4852	Interurban and rural bus transportation
1.39	3222	Converted paper product manufacturing
1.39	424	Merchant wholesalers, nondurable goods
1.37	48	Transportation and warehousing
1.36	3379	Other furniture related product manufacturing
1.35	4244	Grocery and related product merchant wholesalers
1.34	3262	Rubber product manufacturing
1.34	322	Paper manufacturing
1.34	4241	Paper and paper product merchant wholesalers
1.32	5414	Specialized design services
1.30	61	Educational services
1.30	611	Educational services
1.30	3252	Resin, rubber, and artificial fibers mfg.
1.29	812	Personal and laundry services
1.28	4851	Urban transit systems
1.27	7111	Performing arts companies
1.27	4231	Motor vehicle and parts merchant wholesalers
1.27	4853	Taxi and limousine service
1.27	485	Transit and ground passenger transportation
1.26	3329	Other fabricated metal product manufacturing
1.25	4854	School and employee bus transportation
1.25	335	Electrical equipment, appliance, and component manufacturing
1.25	3118	Bakeries and tortilla manufacturing

2007 NAICS

USEMP	code	Description
12.16	3152	Cut and sew apparel manufacturing
12.04	5121	Motion picture and video industries
11.73	512	Motion picture and sound recording industries
10.56	7114	Agents and managers for public figures
10.18	315	Apparel manufacturing
8.83	7115	Independent artists, writers, and performers

7.47	5122	Sound recording industries
6.31	4883	Support activities for water transportation
5.18	4243	Apparel, piece goods, and notions merchant wholesalers
4.64	3133	Textile and fabric finishing and fabric coating mills
3.86	5152	Cable and other subscription programming
3.74	3169	Other leather and allied product manufacturing
3.68	3159	Apparel accessories and other apparel manufacturing
3.41	3342	Communications equipment manufacturing
		Accounting, tax preparation, bookkeeping, and payroll services
2.93	5412	
2.75	3111	Animal food manufacturing
2.73	8129	Other personal services
2.70	3343	Audio and video equipment manufacturing
2.69	4922	Local messengers and local delivery
2.64	711	Performing arts, spectator sports, and related industries
2.59	4851	Urban transit systems
2.57	316	Leather and allied product manufacturing
2.55	488	Support activities for transportation
2.54	3364	Aerospace product and parts manufacturing
2.53	4232	Furniture and home furnishing merchant wholesalers
2.49	4885	Freight transportation arrangement
2.44	3351	Electric lighting equipment manufacturing
2.37	3149	Other textile product mills
2.33	5418	Advertising, public relations, and related services
2.30	5616	Investigation and security services
2.23	4239	Miscellaneous durable goods merchant wholesalers
		Soap, cleaning compound, and toilet preparation manufacturing
2.17	3256	
2.14	515	Broadcasting (except Internet)
2.05	51	Information
1.98	5414	Specialized design services
1.95	314	Textile product mills
1.95	533	Lessors of nonfinancial intangible assets
1.95	5331	Lessors of nonfinancial intangible assets
1.89	4831	Deep sea, coastal, and great lakes water transportation
1.88	31	Manufacturing
1.87	324	Petroleum and coal products manufacturing
1.87	3241	Petroleum and coal products manufacturing
1.86	519	Other information services
1.86	5191	Other information services
1.85	5151	Radio and television broadcasting
1.80	7132	Gambling industries
1.78	3119	Other food manufacturing
1.78	313	Textile mills
1.77	3328	Coating, engraving, heat treating, and allied activities

1.77	3346	Manufacturing and reproducing magnetic and optical media
1.74	4244	Grocery and related product merchant wholesalers
1.73	3162	Footwear manufacturing
1.72	3325	Hardware manufacturing
1.70	3379	Other furniture related product manufacturing
1.69	424	Merchant wholesalers, nondurable goods
1.66	7111	Performing arts companies
1.59	5321	Automotive equipment rental and leasing
1.59	4884	Support activities for road transportation
1.55	3345	Electronic instrument manufacturing
1.55	5324	Machinery and equipment rental and leasing
1.53	6116	Other schools and instruction
1.53	334	Computer and electronic product manufacturing
1.53	4882	Support activities for rail transportation
1.53	5179	Other telecommunications
1.52	3118	Bakeries and tortilla manufacturing
1.51	2212	Natural gas distribution
1.50	3141	Textile furnishings mills
1.49	4881	Support activities for air transportation
1.49	7112	Spectator sports
1.47	7131	Amusement parks and arcades
1.47	7113	Promoters of performing arts, sports, and similar events
1.41	42	Wholesale trade
1.41	4231	Motor vehicle and parts merchant wholesalers
1.41	54	Professional, scientific, and technical services
1.41	541	Professional, scientific, and technical services
1.40	6117	Educational support services
1.39	4235	Metal and mineral (except petroleum) merchant wholesalers
1.39	4241	Paper and paper product merchant wholesalers
1.38	483	Water transportation
1.37	4811	Scheduled air transportation
1.35	3327	Machine shops and threaded product mfg.
1.35	481	Air transportation
1.35	5313	Activities related to real estate
1.33	4859	Other transit and ground passenger transportation
1.31	812	Personal and laundry services
1.30	3371	Household and institutional furniture mfg.
1.28	71	Arts, entertainment, and recreation
1.28	337	Furniture and related product manufacturing
1.28	5416	Management, scientific, and technical consulting services
1.28	532	Rental and leasing services
1.27	5411	Legal services
1.27	4246	Chemical and allied products merchant wholesalers
1.26	8132	Grantmaking and giving services
1.26	423	Merchant wholesalers, durable goods

1.26	3399	Other miscellaneous manufacturing
1.25	53	Real estate and rental and leasing
1.25	5615	Travel arrangement and reservation services
1.25	492	Couriers and messengers

2007 NAICS

STEST	code	Description
3.03	7115	Independent artists, writers, and performers
2.84	7114	Agents and managers for public figures
2.82	3152	Cut and sew apparel manufacturing
2.79	315	Apparel manufacturing
2.72	5121	Motion picture and video industries
2.71	711	Performing arts, spectator sports, and related industries
2.70	512	Motion picture and sound recording industries
2.61	3132	Fabric mills
2.61	4243	Apparel, piece goods, and notions merchant wholesalers
2.54	5122	Sound recording industries
2.47	3162	Footwear manufacturing
2.43	313	Textile mills
2.40	3133	Textile and fabric finishing and fabric coating mills
2.36	3151	Apparel knitting mills
2.17	3159	Apparel accessories and other apparel manufacturing
2.17	5152	Cable and other subscription programming
2.06	3161	Leather and hide tanning and finishing
2.01	71	Arts, entertainment, and recreation
2.01	3149	Other textile product mills
2.00	7111	Performing arts companies
1.96	3131	Fiber, yarn, and thread mills
1.95	3117	Seafood product preparation and packaging
1.87	314	Textile product mills
1.79	4239	Miscellaneous durable goods merchant wholesalers
1.76	4885	Freight transportation arrangement
1.76	521	Monetary authorities- central bank
1.76	3122	Tobacco manufacturing
1.76	5211	Monetary authorities- central bank
1.70	31	Manufacturing
1.68	3315	Foundries
1.61	424	Merchant wholesalers, nondurable goods
1.61	316	Leather and allied product manufacturing
1.59	4232	Furniture and home furnishing merchant wholesalers
1.56	3312	Steel product manufacturing from purchased steel
1.53	4811	Scheduled air transportation
1.52	51	Information
1.52	3256	Soap, cleaning compound, and toilet preparation manufacturing

1.51	8129	Other personal services
1.51	3364	Aerospace product and parts manufacturing
1.50	4883	Support activities for water transportation
1.47	331	Primary metal manufacturing
1.47	4831	Deep sea, coastal, and great lakes water transportation
1.45	3328	Coating, engraving, heat treating, and allied activities
1.45	3321	Forging and stamping
1.44	3351	Electric lighting equipment manufacturing
1.42	5174	Satellite telecommunications
1.42	3379	Other furniture related product manufacturing
1.42	4249	Miscellaneous nondurable goods merchant wholesalers
1.42	4242	Drugs and druggists' sundries merchant wholesalers
1.42	3313	Alumina and aluminum production and processing
1.41	4889	Other support activities for transportation
1.41	7113	Promoters of performing arts, sports, and similar events
1.39	4231	Motor vehicle and parts merchant wholesalers
1.39	488	Support activities for transportation
1.38	3141	Textile furnishings mills
1.37	42	Wholesale trade
1.37	3335	Metalworking machinery manufacturing
1.36	5414	Specialized design services
1.35	4244	Grocery and related product merchant wholesalers
1.35	3336	Engine, turbine, and power transmission equipment manufacturing
1.35	3116	Animal slaughtering and processing
1.34	3325	Hardware manufacturing
1.32	4241	Paper and paper product merchant wholesalers
1.30	2212	Natural gas distribution
1.30	483	Water transportation
1.29	3255	Paint, coating, and adhesive manufacturing
1.28	481	Air transportation
1.28	4235	Metal and mineral (except petroleum) merchant wholesalers
1.27	3222	Converted paper product manufacturing
1.27	5615	Travel arrangement and reservation services
1.27	322	Paper manufacturing
1.26	3262	Rubber product manufacturing
1.26	423	Merchant wholesalers, durable goods
1.26	4922	Local messengers and local delivery
1.25	3399	Other miscellaneous manufacturing
1.25	5418	Advertising, public relations, and related services
1.25	3118	Bakeries and tortilla manufacturing
1.25	3326	Spring and wire product manufacturing
1.25	3372	Office furniture (including fixtures) manufacturing
1.25	3274	Lime and gypsum product manufacturing
1.25	4855	Charter bus industry

USEST	2007 NAICS code	Description
11.50	3152	Cut and sew apparel manufacturing
11.27	7115	Independent artists, writers, and performers
10.20	315	Apparel manufacturing
7.57	7114	Agents and managers for public figures
7.36	5121	Motion picture and video industries
7.05	512	Motion picture and sound recording industries
6.86	711	Performing arts, spectator sports, and related industries
6.61	4243	Apparel, piece goods, and notions merchant wholesalers
5.38	5122	Sound recording industries
3.86	3133	Textile and fabric finishing and fabric coating mills
3.74	3162	Footwear manufacturing
3.23	3151	Apparel knitting mills
3.22	3149	Other textile product mills
3.09	5152	Cable and other subscription programming
2.90	7111	Performing arts companies
2.88	31	Manufacturing
2.87	313	Textile mills
2.81	3159	Apparel accessories and other apparel manufacturing
2.80	71	Arts, entertainment, and recreation
2.72	4239	Miscellaneous durable goods merchant wholesalers
2.69	3346	Manufacturing and reproducing magnetic and optical media
2.64	314	Textile product mills
2.59	3351	Electric lighting equipment manufacturing
2.49	3343	Audio and video equipment manufacturing
2.45	4232	Furniture and home furnishing merchant wholesalers
2.36	3132	Fabric mills
2.34	3364	Aerospace product and parts manufacturing
2.25	424	Merchant wholesalers, nondurable goods
2.21	3161	Leather and hide tanning and finishing
2.20	4885	Freight transportation arrangement
2.18	525	Funds, trusts, and other financial vehicles
2.18	5259	Other investment pools and funds
2.18	4242	Drugs and druggists' sundries merchant wholesalers Soap, cleaning compound, and toilet preparation manufacturing
2.08	3256	Manufacturing
2.05	4249	Miscellaneous nondurable goods merchant wholesalers
2.00	8129	Other personal services
1.96	316	Leather and allied product manufacturing
1.96	51	Information
1.91	3379	Other furniture related product manufacturing
1.91	4244	Grocery and related product merchant wholesalers
1.84	3328	Coating, engraving, heat treating, and allied activities
1.84	5174	Satellite telecommunications

1.81	5414	Specialized design services
1.74	4851	Urban transit systems
1.73	3118	Bakeries and tortilla manufacturing
1.69	3119	Other food manufacturing
1.67	42	Wholesale trade
1.67	4236	Electrical and electronic goods merchant wholesalers
1.64	3325	Hardware manufacturing
1.63	488	Support activities for transportation
1.59	5615	Travel arrangement and reservation services
1.57	4231	Motor vehicle and parts merchant wholesalers
1.57	4541	Electronic shopping and mail-order houses
1.53	3399	Other miscellaneous manufacturing
1.53	7113	Promoters of performing arts, sports, and similar events
1.53	4241	Paper and paper product merchant wholesalers
1.52	4811	Scheduled air transportation
1.50	3315	Foundries
1.47	423	Merchant wholesalers, durable goods
1.46	4889	Other support activities for transportation
1.44	335	Electrical equipment, appliance, and component manufacturing
1.44	3321	Forging and stamping
1.42	4922	Local messengers and local delivery
1.42	5418	Advertising, public relations, and related services
1.41	3131	Fiber, yarn, and thread mills
1.41	7112	Spectator sports
1.41	5611	Office administrative services
1.40	3274	Lime and gypsum product manufacturing
1.40	3141	Textile furnishings mills
1.40	6211	Offices of physicians
1.40	3344	Semiconductor and other electronic component manufacturing
1.39	4855	Charter bus industry
1.38	3322	Cutlery and handtool manufacturing
1.38	5223	Activities related to credit intermediation
1.38	519	Other information services
1.38	5191	Other information services
1.36	5179	Other telecommunications
1.36	3333	Commercial and service industry machinery manufacturing
1.36	3169	Other leather and allied product manufacturing
1.35	339	Miscellaneous manufacturing
1.35	3272	Glass and glass product manufacturing
1.35	3255	Paint, coating, and adhesive manufacturing
1.35	334	Computer and electronic product manufacturing
1.34	323	Printing and related support activities
1.34	3231	Printing and related support activities

1.33	3369	Other transportation equipment manufacturing
1.33	3359	Other electrical equipment and component manufacturing
1.33	5313	Activities related to real estate
1.33	337	Furniture and related product manufacturing
1.32	4234	Commercial equip. merchant wholesalers
1.32	3372	Office furniture (including fixtures) manufacturing
1.30	311	Food manufacturing
1.30	5324	Machinery and equipment rental and leasing
1.29	6212	Offices of dentists
1.29	5616	Investigation and security services
1.29	3371	Household and institutional furniture mfg.
1.28	481	Air transportation
1.28	3313	Alumina and aluminum production and processing
1.28	4235	Metal and mineral (except petroleum) merchant wholesalers
1.26	6111	Elementary and secondary schools
1.25	3341	Computer and peripheral equipment manufacturing
1.25	331	Primary metal manufacturing

Orange County

	2007 NAICS	
STEMP	code	Description
7.60	3122	Tobacco manufacturing
4.79	7131	Amusement parks and arcades
3.75	2372	Land subdivision
3.02	4862	Pipeline transportation of natural gas
2.91	3391	Medical equipment and supplies manufacturing
2.78	5619	Other support services
2.35	5222	Nondepository credit intermediation
2.31	339	Miscellaneous manufacturing
2.30	525	Funds, trusts, and other financial vehicles
2.30	5259	Other investment pools and funds
2.20	3342	Communications equipment manufacturing
2.15	425	Wholesale electronic markets and agents and brokers
2.15	4251	Wholesale electronic markets and agents and brokers
2.14	3353	Electrical equipment manufacturing
2.09	3328	Coating, engraving, heat treating, and allied activities
2.01	3322	Cutlery and handtool manufacturing
2.00	4242	Drugs and druggists' sundries merchant wholesalers
1.92	3343	Audio and video equipment manufacturing
1.91	3333	Commercial and service industry machinery manufacturing
1.90	5313	Activities related to real estate
1.89	5615	Travel arrangement and reservation services
1.86	3334	HVAC and commercial refrigeration equipment

1.85	5172	Wireless telecommunications carriers (except satellite)
1.84	6215	Medical and diagnostic laboratories
1.83	3327	Machine shops and threaded product mfg.
1.83	3141	Textile furnishings mills
1.79	4832	Inland water transportation
1.76	3221	Pulp, paper, and paperboard mills
1.76	335	Electrical equipment, appliance, and component manufacturing
1.73	3162	Footwear manufacturing
1.73	3321	Forging and stamping
1.69	3344	Semiconductor and other electronic component manufacturing
1.69	4234	Commercial equip. merchant wholesalers
1.67	533	Lessors of nonfinancial intangible assets
1.67	5331	Lessors of nonfinancial intangible assets
1.65	3339	Other general purpose machinery manufacturing
1.63	3341	Computer and peripheral equipment manufacturing
1.63	3359	Other electrical equipment and component manufacturing
1.62	3351	Electric lighting equipment manufacturing
1.62	4872	Scenic and sightseeing transportation, water
1.61	3335	Metalworking machinery manufacturing
1.58	4237	Hardware and plumbing merchant wholesalers
1.56	3313	Alumina and aluminum production and processing
1.56	5241	Insurance carriers
1.55	1142	Hunting and trapping
1.53	3133	Textile and fabric finishing and fabric coating mills
1.53	3399	Other miscellaneous manufacturing
1.52	332	Fabricated metal product manufacturing
1.51	3329	Other fabricated metal product manufacturing
1.51	323	Printing and related support activities
1.51	3231	Printing and related support activities
1.50	531	Real estate
1.49	4231	Motor vehicle and parts merchant wholesalers
1.47	334	Computer and electronic product manufacturing
1.45	3262	Rubber product manufacturing
1.44	4246	Chemical and allied products merchant wholesalers
1.44	3331	Agriculture, construction, and mining machinery manufacturing
1.44	3363	Motor vehicle parts manufacturing
1.43	314	Textile product mills
1.42	5223	Activities related to credit intermediation
1.41	524	Insurance carriers and related activities
1.41	5614	Business support services
1.40	5416	Management, scientific, and technical consulting services
1.39	2383	Building finishing contractors
1.39	4243	Apparel, piece goods, and notions merchant wholesalers
1.39	522	Credit intermediation and related activities
1.38	5111	Newspaper, periodical, book, and directory publishers

1.38	6219	Other ambulatory health care services
1.38	326	Plastics and rubber products manufacturing
1.37	3352	Household appliance manufacturing
1.37	2362	Nonresidential building construction
1.37	4241	Paper and paper product merchant wholesalers
1.37	3261	Plastics product manufacturing
1.37	237	Heavy and civil engineering construction
1.36	52	Finance and insurance
1.36	6213	Offices of other health practitioners
1.36	713	Amusement, gambling, and recreation industries
1.36	4238	Machinery, equipment, and supplies merchant wholesalers
1.35	333	Machinery manufacturing
1.35	3372	Office furniture (including fixtures) manufacturing
1.35	423	Merchant wholesalers, durable goods
1.31	5413	Architectural, engineering, and related services
1.31	53	Real estate and rental and leasing
1.30	5617	Services to buildings and dwellings
1.28	3255	Paint, coating, and adhesive manufacturing
1.27	5239	Other financial investment activities
1.26	313	Textile mills
1.26	42	Wholesale trade
1.26	55	Management of companies and enterprises
1.26	551	Management of companies and enterprises
1.26	5511	Management of companies and enterprises
1.25	3274	Lime and gypsum product manufacturing

2007 NAICS

USEMP	code	Description
10.97	7131	Amusement parks and arcades
6.62	3342	Communications equipment manufacturing
6.03	2372	Land subdivision
4.71	525	Funds, trusts, and other financial vehicles
4.71	5259	Other investment pools and funds
4.57	3391	Medical equipment and supplies manufacturing
3.41	3343	Audio and video equipment manufacturing
3.22	3344	Semiconductor and other electronic component manufacturing
3.18	3152	Cut and sew apparel manufacturing
3.14	4243	Apparel, piece goods, and notions merchant wholesalers
3.06	339	Miscellaneous manufacturing
2.98	5619	Other support services
2.73	334	Computer and electronic product manufacturing
2.65	315	Apparel manufacturing
2.65	5313	Activities related to real estate
2.59	3133	Textile and fabric finishing and fabric coating mills

2.53	4234	Commercial equip. merchant wholesalers
2.52	4236	Electrical and electronic goods merchant wholesalers
2.50	3351	Electric lighting equipment manufacturing
2.48	3341	Computer and peripheral equipment manufacturing
2.48	5222	Nondepository credit intermediation
2.47	4872	Scenic and sightseeing transportation, water
2.41	3328	Coating, engraving, heat treating, and allied activities
2.39	425	Wholesale electronic markets and agents and brokers
2.39	4251	Wholesale electronic markets and agents and brokers
2.22	4242	Drugs and druggists' sundries merchant wholesalers
2.08	3346	Manufacturing and reproducing magnetic and optical media
2.05	5615	Travel arrangement and reservation services
2.01	2383	Building finishing contractors
2.01	3327	Machine shops and threaded product mfg.
1.95	4237	Hardware and plumbing merchant wholesalers
1.93	531	Real estate
1.91	3333	Commercial and service industry machinery manufacturing
1.90	533	Lessors of nonfinancial intangible assets
1.90	5331	Lessors of nonfinancial intangible assets
1.89	6215	Medical and diagnostic laboratories
1.88	5418	Advertising, public relations, and related services
1.83	3254	Pharmaceutical and medicine manufacturing
1.77	4922	Local messengers and local delivery
1.76	423	Merchant wholesalers, durable goods
1.74	713	Amusement, gambling, and recreation industries
1.68	5414	Specialized design services
1.68	3399	Other miscellaneous manufacturing
1.67	5223	Activities related to credit intermediation
1.66	4231	Motor vehicle and parts merchant wholesalers
1.63	7115	Independent artists, writers, and performers
1.62	5416	Management, scientific, and technical consulting services
1.60	6116	Other schools and instruction
1.60	53	Real estate and rental and leasing
1.59	42	Wholesale trade
1.58	8112	Electronic and precision equipment repair and maintenance
1.55	2381	Foundation, structure, and building exterior contractors
1.55	4239	Miscellaneous durable goods merchant wholesalers
1.51	5172	Wireless telecommunications carriers (except satellite)
1.51	3369	Other transportation equipment manufacturing
1.49	4232	Furniture and home furnishing merchant wholesalers
1.49	71	Arts, entertainment, and recreation
1.46	5179	Other telecommunications
1.46	5413	Architectural, engineering, and related services
1.46	3359	Other electrical equipment and component manufacturing
1.45	3379	Other furniture related product manufacturing

1.42	5312	Offices of real estate agents and brokers
1.42	4241	Paper and paper product merchant wholesalers
1.40	3169	Other leather and allied product manufacturing
1.39	8129	Other personal services
1.39	5311	Lessors of real estate
1.37	5617	Services to buildings and dwellings
1.35	238	Specialty trade contractors
1.35	335	Electrical equipment, appliance, and component manufacturing
1.33	5239	Other financial investment activities
1.32	2362	Nonresidential building construction
1.32	323	Printing and related support activities
1.32	3231	Printing and related support activities
1.31	4851	Urban transit systems
1.31	4246	Chemical and allied products merchant wholesalers
1.31	522	Credit intermediation and related activities
1.29	23	Construction
1.29	3141	Textile furnishings mills
1.29	332	Fabricated metal product manufacturing
1.28	4884	Support activities for road transportation
1.28	4481	Clothing stores
1.27	236	Construction of buildings
1.27	3322	Cutlery and handtool manufacturing
1.27	3353	Electrical equipment manufacturing
1.27	5112	Software publishers
1.27	314	Textile product mills
1.26	6213	Offices of other health practitioners
1.26	4541	Electronic shopping and mail-order houses
1.26	4521	Department stores
1.26	3345	Electronic instrument manufacturing
1.25	54	Professional, scientific, and technical services
1.25	541	Professional, scientific, and technical services
1.25	3149	Other textile product mills

2007 NAICS

STEST	code	Description
4.91	3122	Tobacco manufacturing
2.05	3361	Motor vehicle manufacturing
2.02	525	Funds, trusts, and other financial vehicles
2.02	5259	Other investment pools and funds
1.95	3364	Aerospace product and parts manufacturing
1.84	3322	Cutlery and handtool manufacturing
1.80	3363	Motor vehicle parts manufacturing
1.78	3333	Commercial and service industry machinery manufacturing
1.77	3344	Semiconductor and other electronic component manufacturing

1.75	533	Lessors of nonfinancial intangible assets
1.75	5331	Lessors of nonfinancial intangible assets
1.74	3314	Nonferrous metal (except aluminum) production and processing
1.70	425	Wholesale electronic markets and agents and brokers
1.70	4251	Wholesale electronic markets and agents and brokers
1.70	3369	Other transportation equipment manufacturing
1.69	3252	Resin, rubber, and artificial fibers mfg.
1.67	3341	Computer and peripheral equipment manufacturing
1.66	3141	Textile furnishings mills
1.65	336	Transportation equipment manufacturing
1.65	3335	Metalworking machinery manufacturing
1.63	3254	Pharmaceutical and medicine manufacturing
1.63	3328	Coating, engraving, heat treating, and allied activities
1.62	4236	Electrical and electronic goods merchant wholesalers
1.60	4234	Commercial equip. merchant wholesalers
1.58	5222	Nondepository credit intermediation
1.57	3359	Other electrical equipment and component manufacturing
1.56	3321	Forging and stamping
1.56	4246	Chemical and allied products merchant wholesalers
1.54	4242	Drugs and druggists' sundries merchant wholesalers
1.53	4241	Paper and paper product merchant wholesalers
1.52	3351	Electric lighting equipment manufacturing
1.51	334	Computer and electronic product manufacturing
1.48	335	Electrical equipment, appliance, and component manufacturing
1.48	3327	Machine shops and threaded product mfg.
1.46	3391	Medical equipment and supplies manufacturing
1.44	3261	Plastics product manufacturing
1.43	3313	Alumina and aluminum production and processing
1.42	2372	Land subdivision
1.41	6215	Medical and diagnostic laboratories
1.40	6223	Specialty (except psychiatric and substance abuse) hospitals
1.40	333	Machinery manufacturing
1.40	5223	Activities related to credit intermediation
1.40	323	Printing and related support activities
1.40	3231	Printing and related support activities
1.40	3353	Electrical equipment manufacturing
1.39	4872	Scenic and sightseeing transportation, water
1.38	55	Management of companies and enterprises
1.38	551	Management of companies and enterprises
1.38	5511	Management of companies and enterprises
1.38	3255	Paint, coating, and adhesive manufacturing
1.38	5416	Management, scientific, and technical consulting services
1.38	326	Plastics and rubber products manufacturing
1.37	332	Fabricated metal product manufacturing
1.36	339	Miscellaneous manufacturing

1.36	3339	Other general purpose machinery manufacturing
1.36	7131	Amusement parks and arcades
1.35	3326	Spring and wire product manufacturing
1.34	3162	Footwear manufacturing
1.34	4238	Machinery, equipment, and supplies merchant wholesalers
1.33	314	Textile product mills
1.33	3345	Electronic instrument manufacturing
1.33	5611	Office administrative services
1.33	5241	Insurance carriers
1.33	3222	Converted paper product manufacturing
1.32	5619	Other support services
1.32	5418	Advertising, public relations, and related services
1.32	423	Merchant wholesalers, durable goods
1.31	3274	Lime and gypsum product manufacturing
1.31	4235	Metal and mineral (except petroleum) merchant wholesalers
1.31	4541	Electronic shopping and mail-order houses
1.31	5313	Activities related to real estate
1.30	8112	Electronic and precision equipment repair and maintenance
1.30	3399	Other miscellaneous manufacturing
1.29	322	Paper manufacturing
1.29	5413	Architectural, engineering, and related services
1.29	5415	Computer systems design and related services
1.29	524	Insurance carriers and related activities
1.29	3332	Industrial machinery manufacturing
1.28	2362	Nonresidential building construction
1.28	5242	Agencies, brokerages, and other insurance related activities
1.27	4832	Inland water transportation
1.26	5414	Specialized design services
1.26	3372	Office furniture (including fixtures) manufacturing
1.25	5613	Employment services
1.25	52	Finance and insurance

2007 NAICS

USEST	code	Description
4.19	3344	Semiconductor and other electronic component manufacturing
4.01	525	Funds, trusts, and other financial vehicles
4.01	5259	Other investment pools and funds
3.91	3341	Computer and peripheral equipment manufacturing
3.41	3369	Other transportation equipment manufacturing
3.05	334	Computer and electronic product manufacturing
3.02	3364	Aerospace product and parts manufacturing
2.98	3152	Cut and sew apparel manufacturing
2.72	3351	Electric lighting equipment manufacturing
2.68	3346	Manufacturing and reproducing magnetic and optical media

2.63	315	Apparel manufacturing
2.55	3333	Commercial and service industry machinery manufacturing
2.52	4236	Electrical and electronic goods merchant wholesalers
2.40	3342	Communications equipment manufacturing
2.35	4242	Drugs and druggists' sundries merchant wholesalers
2.35	3254	Pharmaceutical and medicine manufacturing
2.25	3361	Motor vehicle manufacturing
2.19	3345	Electronic instrument manufacturing
2.12	3322	Cutlery and handtool manufacturing
2.09	3343	Audio and video equipment manufacturing
2.08	3359	Other electrical equipment and component manufacturing
2.07	3328	Coating, engraving, heat treating, and allied activities
2.05	4234	Commercial equip. merchant wholesalers
2.02	3162	Footwear manufacturing
1.99	3149	Other textile product mills
1.93	5223	Activities related to credit intermediation
1.89	314	Textile product mills
1.87	3391	Medical equipment and supplies manufacturing
1.87	4243	Apparel, piece goods, and notions merchant wholesalers
1.82	4541	Electronic shopping and mail-order houses
1.81	4232	Furniture and home furnishing merchant wholesalers
1.81	335	Electrical equipment, appliance, and component manufacturing
1.80	425	Wholesale electronic markets and agents and brokers
1.80	4251	Wholesale electronic markets and agents and brokers
1.80	5416	Management, scientific, and technical consulting services
1.77	4241	Paper and paper product merchant wholesalers
1.77	3363	Motor vehicle parts manufacturing
1.75	5112	Software publishers
1.74	5313	Activities related to real estate
1.72	336	Transportation equipment manufacturing
1.70	339	Miscellaneous manufacturing
1.69	533	Lessors of nonfinancial intangible assets
1.69	5331	Lessors of nonfinancial intangible assets
1.69	3141	Textile furnishings mills
1.68	5611	Office administrative services
1.67	3256	Soap, cleaning compound, and toilet preparation manufacturing
1.67	5414	Specialized design services
1.62	3327	Machine shops and threaded product mfg.
1.59	4239	Miscellaneous durable goods merchant wholesalers
1.59	5179	Other telecommunications
1.59	3399	Other miscellaneous manufacturing
1.56	5415	Computer systems design and related services
1.54	3321	Forging and stamping
1.54	423	Merchant wholesalers, durable goods
1.53	323	Printing and related support activities

1.53	3231	Printing and related support activities
1.52	5417	Scientific research and development services
1.51	42	Wholesale trade
1.51	6212	Offices of dentists
1.50	5418	Advertising, public relations, and related services
1.49	3325	Hardware manufacturing
1.48	5413	Architectural, engineering, and related services
1.48	6215	Medical and diagnostic laboratories
1.47	5239	Other financial investment activities
1.47	3274	Lime and gypsum product manufacturing
1.47	4246	Chemical and allied products merchant wholesalers
1.46	3314	Nonferrous metal (except aluminum) production and processing
1.45	3133	Textile and fabric finishing and fabric coating mills
1.44	3255	Paint, coating, and adhesive manufacturing
1.42	518	Data processing, hosting and related services
1.42	5182	Data processing, hosting, and related services
1.42	332	Fabricated metal product manufacturing
1.42	4249	Miscellaneous nondurable goods merchant wholesalers
1.41	54	Professional, scientific, and technical services
1.41	541	Professional, scientific, and technical services
1.40	2372	Land subdivision
1.39	6211	Offices of physicians
1.38	3261	Plastics product manufacturing
1.35	8112	Electronic and precision equipment repair and maintenance
1.35	5614	Business support services
1.34	5222	Nondepository credit intermediation
1.34	424	Merchant wholesalers, nondurable goods
1.33	3252	Resin, rubber, and artificial fibers mfg.
1.33	3372	Office furniture (including fixtures) manufacturing
1.33	3272	Glass and glass product manufacturing
1.32	5174	Satellite telecommunications
1.31	326	Plastics and rubber products manufacturing
1.30	4235	Metal and mineral (except petroleum) merchant wholesalers
1.29	5619	Other support services
1.29	7112	Spectator sports
1.29	523	Securities, commodity contracts, investments
1.29	3313	Alumina and aluminum production and processing
1.28	4237	Hardware and plumbing merchant wholesalers
1.28	621	Ambulatory health care services
1.28	5613	Employment services
1.28	31	Manufacturing
1.28	531	Real estate
1.27	4231	Motor vehicle and parts merchant wholesalers
1.26	5616	Investigation and security services
1.25	5615	Travel arrangement and reservation services

Riverside County

STEMP	2007 NAICS code	Description
10.28	3362	Motor vehicle body and trailer manufacturing
8.64	2121	Coal mining
4.18	4882	Support activities for rail transportation
3.92	3271	Clay product and refractory manufacturing
3.78	3379	Other furniture related product manufacturing
3.39	3279	Other nonmetallic mineral product manufacturing
3.34	3324	Boiler, tank, and shipping container manufacturing
3.19	3219	Other wood product manufacturing
3.19	3252	Resin, rubber, and artificial fibers mfg.
3.05	493	Warehousing and storage
3.05	4931	Warehousing and storage
2.94	7212	RV (recreational vehicle) parks and recreational camps
2.87	7132	Gambling industries
2.80	3313	Alumina and aluminum production and processing
2.79	5622	Waste treatment and disposal
2.78	2371	Utility system construction
2.72	2381	Foundation, structure, and building exterior contractors
2.61	321	Wood product manufacturing
2.50	237	Heavy and civil engineering construction
2.50	1141	Fishing
2.36	3329	Other fabricated metal product manufacturing
2.32	2373	Highway, street, and bridge construction
2.31	3261	Plastics product manufacturing
2.27	4412	Other motor vehicle dealers
2.21	5312	Offices of real estate agents and brokers
2.19	4529	Other general merchandise stores
2.15	6239	Other residential care facilities
2.13	721	Accommodation
2.12	7211	Traveler accommodation
2.11	2383	Building finishing contractors
2.10	326	Plastics and rubber products manufacturing
2.10	2372	Land subdivision
2.09	2379	Other heavy and civil engineering construction
2.07	2389	Other specialty trade contractors
2.06	3212	Veneer, plywood, and engineered wood product manufacturing
2.05	238	Specialty trade contractors
2.03	327	Nonmetallic mineral product manufacturing
1.95	3391	Medical equipment and supplies manufacturing
1.93	7139	Other amusement and recreation industries
1.92	3273	Cement and concrete product manufacturing
1.91	114	Fishing, hunting and trapping

1.91	339	Miscellaneous manufacturing
1.90	23	Construction
1.86	3399	Other miscellaneous manufacturing
1.86	4852	Interurban and rural bus transportation
1.83	713	Amusement, gambling, and recreation industries
1.82	3322	Cutlery and handtool manufacturing
1.77	3363	Motor vehicle parts manufacturing
1.77	6216	Home health care services
1.75	2123	Nonmetallic mineral mining and quarrying
1.75	3325	Hardware manufacturing
1.72	3331	Agriculture, construction, and mining machinery manufacturing
1.71	3169	Other leather and allied product manufacturing
1.69	3323	Architectural and structural metals manufacturing
1.69	452	General merchandise stores
1.67	4421	Furniture stores
1.65	212	Mining (except oil and gas)
1.63	3326	Spring and wire product manufacturing
1.57	447	Gasoline stations
1.57	4471	Gasoline stations
1.53	4245	Farm product raw material merchant wholesalers
1.51	4413	Automotive parts, accessories, and tire stores
1.51	441	Motor vehicle and parts dealers
1.51	4521	Department stores
1.50	2382	Building equipment contractors
1.50	6232	Residential mental health facilities
1.44	4233	Lumber and other construction materials merchant wholesalers
1.43	3333	Commercial and service industry machinery manufacturing
1.43	71	Arts, entertainment, and recreation
1.42	4411	Automobile dealers
1.42	4842	Specialized freight trucking
1.41	4854	School and employee bus transportation
1.41	32	Manufacturing
1.41	5617	Services to buildings and dwellings
1.39	4441	Building material and supplies dealers
1.39	4482	Shoe stores
1.38	444	Building material and garden equipment and supplies dealers
1.38	4451	Grocery stores
1.38	4884	Support activities for road transportation
1.37	72	Accommodation and food services
1.37	8139	Professional and similar organizations
1.37	442	Furniture and home furnishings stores
1.35	7222	Limited-service eating places
1.35	3339	Other general purpose machinery manufacturing
1.35	44	Retail trade
1.34	445	Food and beverage stores

1.33	337	Furniture and related product manufacturing
1.31	336	Transportation equipment manufacturing
1.30	3335	Metalworking machinery manufacturing
1.29	5323	General rental centers
1.29	5629	Remediation and other waste management services
1.29	5322	Consumer goods rental
1.29	8111	Automotive repair and maintenance
1.28	4541	Electronic shopping and mail-order houses
1.28	5324	Machinery and equipment rental and leasing
1.28	4442	Lawn and garden equipment and supplies stores
1.27	2361	Residential building construction
1.27	332	Fabricated metal product manufacturing
1.27	448	Clothing and clothing accessories stores
1.27	4481	Clothing stores
1.25	4532	Office supplies, stationery, and gift stores

2007 NAICS

USEMP	code	Description
6.24	7132	Gambling industries
6.11	3362	Motor vehicle body and trailer manufacturing
4.70	3379	Other furniture related product manufacturing
3.49	7212	RV (recreational vehicle) parks and recreational camps
3.46	2381	Foundation, structure, and building exterior contractors
3.38	2372	Land subdivision
3.24	4882	Support activities for rail transportation
3.07	3391	Medical equipment and supplies manufacturing
3.07	3169	Other leather and allied product manufacturing
3.05	2383	Building finishing contractors
2.99	493	Warehousing and storage
2.99	4931	Warehousing and storage
2.72	3271	Clay product and refractory manufacturing
2.66	3279	Other nonmetallic mineral product manufacturing
2.60	5312	Offices of real estate agents and brokers
2.58	6239	Other residential care facilities
2.53	339	Miscellaneous manufacturing
2.40	4884	Support activities for road transportation
2.36	3121	Beverage manufacturing
2.35	713	Amusement, gambling, and recreation industries
2.35	5622	Waste treatment and disposal
2.29	721	Accommodation
2.28	7211	Traveler accommodation
2.23	238	Specialty trade contractors
2.19	3219	Other wood product manufacturing
2.19	3369	Other transportation equipment manufacturing

2.11	1151	Support activities for crop production
2.10	4521	Department stores
2.08	312	Beverage and tobacco product manufacturing
2.06	4412	Other motor vehicle dealers
2.04	3399	Other miscellaneous manufacturing
2.02	4922	Local messengers and local delivery
2.00	23	Construction
1.98	7139	Other amusement and recreation industries
1.98	2389	Other specialty trade contractors
1.93	237	Heavy and civil engineering construction
1.92	2371	Utility system construction
1.90	2379	Other heavy and civil engineering construction
1.85	71	Arts, entertainment, and recreation
1.77	4851	Urban transit systems
1.72	3273	Cement and concrete product manufacturing
1.72	327	Nonmetallic mineral product manufacturing
1.69	5324	Machinery and equipment rental and leasing
1.69	2212	Natural gas distribution
1.68	3261	Plastics product manufacturing
1.66	2373	Highway, street, and bridge construction
1.65	115	Support activities for agriculture and forestry
1.65	3324	Boiler, tank, and shipping container manufacturing
1.58	2361	Residential building construction
1.55	4421	Furniture stores
1.49	8111	Automotive repair and maintenance
1.48	3323	Architectural and structural metals manufacturing
1.48	5617	Services to buildings and dwellings
1.48	321	Wood product manufacturing
1.47	4481	Clothing stores
1.45	7222	Limited-service eating places
1.44	4451	Grocery stores
1.44	3329	Other fabricated metal product manufacturing
1.44	3333	Commercial and service industry machinery manufacturing
1.43	72	Accommodation and food services
1.42	443	Electronics and appliance stores
1.42	4431	Electronics and appliance stores
1.42	448	Clothing and clothing accessories stores
1.42	316	Leather and allied product manufacturing
1.42	4482	Shoe stores
1.42	326	Plastics and rubber products manufacturing
1.41	442	Furniture and home furnishings stores
1.41	441	Motor vehicle and parts dealers
1.40	452	General merchandise stores
1.39	4541	Electronic shopping and mail-order houses
1.39	445	Food and beverage stores

1.38	4244	Grocery and related product merchant wholesalers
1.37	6212	Offices of dentists
1.36	4413	Automotive parts, accessories, and tire stores
1.36	236	Construction of buildings
1.35	3313	Alumina and aluminum production and processing
1.35	3114	Fruit and vegetable preserving and specialty food manufacturing
1.34	4411	Automobile dealers
1.34	3344	Semiconductor and other electronic component manufacturing
1.33	2382	Building equipment contractors
1.33	5322	Consumer goods rental
1.32	531	Real estate
1.31	3254	Pharmaceutical and medicine manufacturing
1.30	44	Retail trade
1.29	425	Wholesale electronic markets and agents and brokers
1.29	4251	Wholesale electronic markets and agents and brokers
1.29	4532	Office supplies, stationery, and gift stores
1.29	3252	Resin, rubber, and artificial fibers mfg.
1.28	4422	Home furnishings stores
1.28	53	Real estate and rental and leasing
1.27	5616	Investigation and security services
1.27	3325	Hardware manufacturing
1.27	5629	Remediation and other waste management services
1.26	4452	Specialty food stores
1.26	1141	Fishing
1.26	4231	Motor vehicle and parts merchant wholesalers
1.26	722	Food services and drinking places
1.25	562	Waste management and remediation services

2007 NAICS

STEST	code	Description
12.50	2121	Coal mining
3.38	3362	Motor vehicle body and trailer manufacturing
2.86	3325	Hardware manufacturing
2.59	2379	Other heavy and civil engineering construction
2.41	3212	Veneer, plywood, and engineered wood product manufacturing
2.38	2371	Utility system construction
2.36	3369	Other transportation equipment manufacturing
2.27	3365	Railroad rolling stock manufacturing
2.23	2212	Natural gas distribution
2.05	2389	Other specialty trade contractors
1.99	3324	Boiler, tank, and shipping container manufacturing
1.98	3253	Agricultural chemical mfg.
1.95	3311	Iron and steel mills and ferroalloy manufacturing
1.89	237	Heavy and civil engineering construction

1.82	4412	Other motor vehicle dealers
1.79	4884	Support activities for road transportation
1.76	336	Transportation equipment manufacturing
1.75	1152	Support activities for animal production
1.73	212	Mining (except oil and gas)
1.70	4521	Department stores
1.69	2381	Foundation, structure, and building exterior contractors
1.67	2123	Nonmetallic mineral mining and quarrying
1.67	3274	Lime and gypsum product manufacturing
1.65	3273	Cement and concrete product manufacturing
1.64	3279	Other nonmetallic mineral product manufacturing
1.64	3252	Resin, rubber, and artificial fibers mfg.
1.62	3363	Motor vehicle parts manufacturing
1.62	238	Specialty trade contractors
1.60	4881	Support activities for air transportation
1.59	5617	Services to buildings and dwellings
1.55	3331	Agriculture, construction, and mining machinery manufacturing
1.55	4842	Specialized freight trucking
1.55	321	Wood product manufacturing
1.55	2382	Building equipment contractors
1.53	484	Truck transportation
1.52	7212	RV (recreational vehicle) parks and recreational camps
1.51	4841	General freight trucking
1.51	3219	Other wood product manufacturing
1.50	7112	Spectator sports
1.49	7132	Gambling industries
1.48	327	Nonmetallic mineral product manufacturing
1.48	2362	Nonresidential building construction
1.47	2122	Metal ore mining
1.47	4852	Interurban and rural bus transportation
1.47	4882	Support activities for rail transportation
1.47	3261	Plastics product manufacturing
1.47	4233	Lumber and other construction materials merchant wholesalers
1.46	23	Construction
1.46	2372	Land subdivision
1.46	2383	Building finishing contractors
1.46	6239	Other residential care facilities
1.45	4413	Automotive parts, accessories, and tire stores
1.43	6232	Residential mental health facilities
1.42	3379	Other furniture related product manufacturing
1.42	3323	Architectural and structural metals manufacturing
1.42	3334	HVAC and commercial refrigeration equipment
1.41	3329	Other fabricated metal product manufacturing
1.41	3111	Animal food manufacturing
1.41	441	Motor vehicle and parts dealers

1.40	4482	Shoe stores
1.40	8113	Commercial machinery repair and maintenance
1.39	452	General merchandise stores
1.38	5323	General rental centers
1.38	326	Plastics and rubber products manufacturing
1.37	5324	Machinery and equipment rental and leasing
1.34	2373	Highway, street, and bridge construction
1.34	5629	Remediation and other waste management services
1.32	4542	Vending machine operators
1.31	447	Gasoline stations
1.31	4471	Gasoline stations
1.31	4854	School and employee bus transportation
1.30	4421	Furniture stores
1.29	4539	Other miscellaneous store retailers
1.29	5312	Offices of real estate agents and brokers
1.29	4237	Hardware and plumbing merchant wholesalers
1.29	3366	Ship and boat building
1.28	3352	Household appliance manufacturing
1.27	532	Rental and leasing services
1.27	5322	Consumer goods rental
1.26	8122	Death care services
1.26	3271	Clay product and refractory manufacturing
1.26	7139	Other amusement and recreation industries
1.26	3333	Commercial and service industry machinery manufacturing
1.25	713	Amusement, gambling, and recreation industries
1.25	3339	Other general purpose machinery manufacturing
1.25	3326	Spring and wire product manufacturing

2007 NAICS

USEST	code	Description
4.74	3369	Other transportation equipment manufacturing
3.51	3325	Hardware manufacturing
2.81	3362	Motor vehicle body and trailer manufacturing
2.44	4884	Support activities for road transportation
2.15	6239	Other residential care facilities
1.91	3379	Other furniture related product manufacturing
1.91	3253	Agricultural chemical mfg.
1.90	1152	Support activities for animal production
1.87	3274	Lime and gypsum product manufacturing
1.86	2379	Other heavy and civil engineering construction
1.84	336	Transportation equipment manufacturing
1.80	3333	Commercial and service industry machinery manufacturing
1.72	4521	Department stores
1.71	7112	Spectator sports

1.64	5324	Machinery and equipment rental and leasing
1.64	3364	Aerospace product and parts manufacturing
1.62	2212	Natural gas distribution
1.59	3363	Motor vehicle parts manufacturing
1.55	2389	Other specialty trade contractors
1.55	525	Funds, trusts, and other financial vehicles
1.55	5259	Other investment pools and funds
1.55	3256	Soap, cleaning compound, and toilet preparation manufacturing
1.55	3311	Iron and steel mills and ferroalloy manufacturing
1.54	3324	Boiler, tank, and shipping container manufacturing
1.53	4881	Support activities for air transportation
1.51	2371	Utility system construction
1.46	3212	Veneer, plywood, and engineered wood product manufacturing
1.44	2372	Land subdivision
1.43	6233	Community care facilities for the elderly
1.41	3261	Plastics product manufacturing
1.41	4482	Shoe stores
1.41	2383	Building finishing contractors
1.40	5312	Offices of real estate agents and brokers
1.40	237	Heavy and civil engineering construction
1.39	5616	Investigation and security services
1.39	2362	Nonresidential building construction
1.39	3121	Beverage manufacturing
1.39	7222	Limited-service eating places
1.38	115	Support activities for agriculture and forestry
1.38	5611	Office administrative services
1.37	3346	Manufacturing and reproducing magnetic and optical media
1.37	238	Specialty trade contractors
1.35	312	Beverage and tobacco product manufacturing
1.35	4231	Motor vehicle and parts merchant wholesalers
1.35	4237	Hardware and plumbing merchant wholesalers
1.34	4412	Other motor vehicle dealers
1.33	6212	Offices of dentists
1.33	1151	Support activities for crop production
1.32	326	Plastics and rubber products manufacturing
1.32	4481	Clothing stores
1.32	3323	Architectural and structural metals manufacturing
1.30	2381	Foundation, structure, and building exterior contractors
1.30	2382	Building equipment contractors
1.30	4855	Charter bus industry
1.29	5617	Services to buildings and dwellings
1.29	5223	Activities related to credit intermediation
1.29	3252	Resin, rubber, and artificial fibers mfg.
1.28	4242	Drugs and druggists' sundries merchant wholesalers
1.28	3329	Other fabricated metal product manufacturing

1.28	448	Clothing and clothing accessories stores
1.28	493	Warehousing and storage
1.28	4931	Warehousing and storage
1.27	3334	HVAC and commercial refrigeration equipment
1.27	23	Construction
1.27	5313	Activities related to real estate
1.26	8112	Electronic and precision equipment repair and maintenance
1.25	3399	Other miscellaneous manufacturing
1.25	3322	Cutlery and handtool manufacturing
1.25	3352	Household appliance manufacturing

San Bernardino County

2007 NAICS		
STEMP	code	Description
14.02	3311	Iron and steel mills and ferroalloy manufacturing
5.86	2122	Metal ore mining
5.17	3273	Cement and concrete product manufacturing
5.07	3313	Alumina and aluminum production and processing
4.67	493	Warehousing and storage
4.67	4931	Warehousing and storage
4.29	4841	General freight trucking
4.18	3212	Veneer, plywood, and engineered wood product manufacturing
4.00	6222	Psychiatric and substance abuse hospitals
3.89	331	Primary metal manufacturing
3.68	484	Truck transportation
3.24	1131	Timber tract operations
3.12	212	Mining (except oil and gas)
3.09	3334	HVAC and commercial refrigeration equipment
3.09	3371	Household and institutional furniture mfg.
3.08	3351	Electric lighting equipment manufacturing
3.05	327	Nonmetallic mineral product manufacturing
3.04	3251	Basic chemical manufacturing
2.94	3312	Steel product manufacturing from purchased steel
2.92	7212	RV (recreational vehicle) parks and recreational camps
2.91	2123	Nonmetallic mineral mining and quarrying
2.91	4854	School and employee bus transportation
2.90	2379	Other heavy and civil engineering construction
2.84	4921	Couriers and express delivery services
2.81	3261	Plastics product manufacturing
2.81	4882	Support activities for rail transportation
2.79	326	Plastics and rubber products manufacturing
2.76	3253	Agricultural chemical mfg.
2.72	4842	Specialized freight trucking

2.65	3326	Spring and wire product manufacturing
2.64	3262	Rubber product manufacturing
2.63	492	Couriers and messengers
2.60	337	Furniture and related product manufacturing
2.55	4231	Motor vehicle and parts merchant wholesalers
2.54	4884	Support activities for road transportation
2.52	3321	Forging and stamping
2.47	3323	Architectural and structural metals manufacturing
2.45	4233	Lumber and other construction materials merchant wholesalers
2.45	2212	Natural gas distribution
2.41	6115	Technical and trade schools
2.35	4412	Other motor vehicle dealers
2.25	3372	Office furniture (including fixtures) manufacturing
2.18	3329	Other fabricated metal product manufacturing
2.12	3252	Resin, rubber, and artificial fibers mfg.
1.98	5612	Facilities support services
1.94	3255	Paint, coating, and adhesive manufacturing
1.92	321	Wood product manufacturing
1.92	48	Transportation and warehousing
1.89	3363	Motor vehicle parts manufacturing
1.88	2373	Highway, street, and bridge construction
1.88	3362	Motor vehicle body and trailer manufacturing
1.86	4235	Metal and mineral (except petroleum) merchant wholesalers
1.81	4862	Pipeline transportation of natural gas
1.80	7132	Gambling industries
1.80	3221	Pulp, paper, and paperboard mills
1.77	3117	Seafood product preparation and packaging
1.76	332	Fabricated metal product manufacturing
1.74	8114	Personal and household goods repair and maintenance
1.74	447	Gasoline stations
1.74	4471	Gasoline stations
1.73	3131	Fiber, yarn, and thread mills
1.71	6243	Vocational rehabilitation services
1.69	3219	Other wood product manufacturing
1.69	4413	Automotive parts, accessories, and tire stores
1.68	2213	Water, sewage and other systems
1.65	5611	Office administrative services
1.64	4852	Interurban and rural bus transportation
1.64	4245	Farm product raw material merchant wholesalers
1.64	32	Manufacturing
1.62	2389	Other specialty trade contractors
1.59	4241	Paper and paper product merchant wholesalers
1.59	237	Heavy and civil engineering construction
1.57	2381	Foundation, structure, and building exterior contractors
1.57	22	Utilities

1.57	221	Utilities
1.57	3346	Manufacturing and reproducing magnetic and optical media
1.56	4881	Support activities for air transportation
1.55	4521	Department stores
1.53	452	General merchandise stores
1.51	8112	Electronic and precision equipment repair and maintenance
1.51	6112	Junior colleges
1.51	2371	Utility system construction
1.49	4237	Hardware and plumbing merchant wholesalers
1.49	7213	Rooming and boarding houses
1.47	441	Motor vehicle and parts dealers
1.47	4529	Other general merchandise stores
1.46	8113	Commercial machinery repair and maintenance
1.44	811	Repair and maintenance
1.44	3366	Ship and boat building
1.43	3315	Foundries
1.43	6239	Other residential care facilities
1.43	6219	Other ambulatory health care services
1.42	4247	Petroleum and petroleum products merchant wholesalers
1.42	4511	Sporting goods, hobby, and musical instrument stores
1.41	8111	Automotive repair and maintenance
1.41	3272	Glass and glass product manufacturing
1.39	622	Hospitals
1.37	7222	Limited-service eating places
1.33	3327	Machine shops and threaded product mfg.
1.33	3118	Bakeries and tortilla manufacturing
1.32	4232	Furniture and home furnishing merchant wholesalers
1.32	6221	General medical and surgical hospitals
1.31	4441	Building material and supplies dealers
1.30	3141	Textile furnishings mills
1.29	444	Building material and garden equipment and supplies dealers
1.29	4411	Automobile dealers
1.29	5622	Waste treatment and disposal
1.29	486	Pipeline transportation
1.26	4238	Machinery, equipment, and supplies merchant wholesalers

2007 NAICS

USEMP	code	Description
4.74	3351	Electric lighting equipment manufacturing
4.63	3273	Cement and concrete product manufacturing
4.59	493	Warehousing and storage
4.59	4931	Warehousing and storage
4.43	4884	Support activities for road transportation
4.31	2212	Natural gas distribution

3.92	7132	Gambling industries
3.92	3346	Manufacturing and reproducing magnetic and optical media
3.47	7212	RV (recreational vehicle) parks and recreational camps
3.15	3311	Iron and steel mills and ferroalloy manufacturing
3.02	4921	Couriers and express delivery services
3.00	6222	Psychiatric and substance abuse hospitals
3.00	6115	Technical and trade schools
2.92	492	Couriers and messengers
2.83	4231	Motor vehicle and parts merchant wholesalers
2.80	4841	General freight trucking
2.67	3371	Household and institutional furniture mfg.
2.64	2379	Other heavy and civil engineering construction
2.61	484	Truck transportation
2.59	327	Nonmetallic mineral product manufacturing
2.44	3313	Alumina and aluminum production and processing
2.28	337	Furniture and related product manufacturing
2.25	4842	Specialized freight trucking
2.18	8112	Electronic and precision equipment repair and maintenance
2.17	4882	Support activities for rail transportation
2.16	3323	Architectural and structural metals manufacturing
2.16	4521	Department stores
2.13	4412	Other motor vehicle dealers
2.10	4233	Lumber and other construction materials merchant wholesalers
2.06	4232	Furniture and home furnishing merchant wholesalers
2.04	3261	Plastics product manufacturing
1.99	2381	Foundation, structure, and building exterior contractors
1.95	1131	Timber tract operations
1.89	326	Plastics and rubber products manufacturing
1.84	4237	Hardware and plumbing merchant wholesalers
1.80	5611	Office administrative services
1.79	4239	Miscellaneous durable goods merchant wholesalers
1.77	3372	Office furniture (including fixtures) manufacturing
1.75	2123	Nonmetallic mineral mining and quarrying
1.74	3391	Medical equipment and supplies manufacturing
1.72	6239	Other residential care facilities
1.71	3212	Veneer, plywood, and engineered wood product manufacturing
1.69	48	Transportation and warehousing
1.68	2383	Building finishing contractors
1.68	3321	Forging and stamping
1.67	4235	Metal and mineral (except petroleum) merchant wholesalers
1.66	8114	Personal and household goods repair and maintenance
1.65	4241	Paper and paper product merchant wholesalers
1.63	8111	Automotive repair and maintenance
1.62	3118	Bakeries and tortilla manufacturing
1.59	811	Repair and maintenance

1.58	4854	School and employee bus transportation
1.57	3369	Other transportation equipment manufacturing
1.55	3253	Agricultural chemical mfg.
1.55	2389	Other specialty trade contractors
1.54	488	Support activities for transportation
1.54	331	Primary metal manufacturing
1.52	4881	Support activities for air transportation
1.52	4413	Automotive parts, accessories, and tire stores
1.52	2213	Water, sewage and other systems
1.51	713	Amusement, gambling, and recreation industries
1.51	339	Miscellaneous manufacturing
1.49	332	Fabricated metal product manufacturing
1.47	7222	Limited-service eating places
1.46	3327	Machine shops and threaded product mfg.
1.45	3114	Fruit and vegetable preserving and specialty food manufacturing
1.44	423	Merchant wholesalers, durable goods
1.43	7213	Rooming and boarding houses
1.43	3326	Spring and wire product manufacturing
1.43	4511	Sporting goods, hobby, and musical instrument stores
1.42	4244	Grocery and related product merchant wholesalers
1.37	441	Motor vehicle and parts dealers
1.37	3334	HVAC and commercial refrigeration equipment
1.37	5112	Software publishers
1.35	4481	Clothing stores
1.34	2373	Highway, street, and bridge construction
1.34	238	Specialty trade contractors
1.33	3329	Other fabricated metal product manufacturing
1.32	3119	Other food manufacturing
1.32	6243	Vocational rehabilitation services
1.30	3255	Paint, coating, and adhesive manufacturing
1.30	3399	Other miscellaneous manufacturing
1.30	42	Wholesale trade
1.30	4885	Freight transportation arrangement
1.30	4249	Miscellaneous nondurable goods merchant wholesalers
1.29	4922	Local messengers and local delivery
1.29	448	Clothing and clothing accessories stores
1.27	5324	Machinery and equipment rental and leasing
1.27	452	General merchandise stores
1.26	7139	Other amusement and recreation industries
1.26	451	Sporting goods, hobby, book, and music stores
1.26	22	Utilities
1.26	221	Utilities

STEST **2007 NAICS** **Description**

	code	
6.25	2122	Metal ore mining
5.32	4869	Other pipeline transportation
4.98	3361	Motor vehicle manufacturing
4.57	3311	Iron and steel mills and ferroalloy manufacturing
4.29	3313	Alumina and aluminum production and processing
4.17	4882	Support activities for rail transportation
4.09	3221	Pulp, paper, and paperboard mills
3.91	4852	Interurban and rural bus transportation
3.78	493	Warehousing and storage
3.78	4931	Warehousing and storage
3.21	3362	Motor vehicle body and trailer manufacturing
3.15	3212	Veneer, plywood, and engineered wood product manufacturing
3.13	4862	Pipeline transportation of natural gas
3.09	486	Pipeline transportation
3.06	3262	Rubber product manufacturing
2.95	3312	Steel product manufacturing from purchased steel
2.65	326	Plastics and rubber products manufacturing
2.64	3369	Other transportation equipment manufacturing
2.61	3251	Basic chemical manufacturing
2.60	3334	HVAC and commercial refrigeration equipment
2.58	3261	Plastics product manufacturing
2.52	4841	General freight trucking
2.50	2212	Natural gas distribution
2.46	331	Primary metal manufacturing
2.42	3365	Railroad rolling stock manufacturing
2.36	3273	Cement and concrete product manufacturing
2.33	3255	Paint, coating, and adhesive manufacturing
2.31	3324	Boiler, tank, and shipping container manufacturing
2.26	4854	School and employee bus transportation
2.26	3363	Motor vehicle parts manufacturing
2.22	2213	Water, sewage and other systems
2.22	336	Transportation equipment manufacturing
2.22	1131	Timber tract operations
2.18	3252	Resin, rubber, and artificial fibers mfg.
2.10	484	Truck transportation
2.09	4231	Motor vehicle and parts merchant wholesalers
2.09	3259	Other chemical product and preparation manufacturing
2.08	3329	Other fabricated metal product manufacturing
2.06	321	Wood product manufacturing
2.05	22	Utilities
2.05	221	Utilities
2.02	212	Mining (except oil and gas)
1.98	2371	Utility system construction
1.95	3219	Other wood product manufacturing

1.91	4235	Metal and mineral (except petroleum) merchant wholesalers
1.88	3323	Architectural and structural metals manufacturing
1.88	7212	RV (recreational vehicle) parks and recreational camps
1.86	3321	Forging and stamping
1.85	4884	Support activities for road transportation
1.85	6112	Junior colleges
1.84	322	Paper manufacturing
1.83	8113	Commercial machinery repair and maintenance
1.83	3326	Spring and wire product manufacturing
1.79	4233	Lumber and other construction materials merchant wholesalers
1.78	2123	Nonmetallic mineral mining and quarrying
1.77	3274	Lime and gypsum product manufacturing
1.75	3315	Foundries
1.72	3335	Metalworking machinery manufacturing
1.71	3222	Converted paper product manufacturing
1.70	48	Transportation and warehousing
1.70	327	Nonmetallic mineral product manufacturing
1.69	324	Petroleum and coal products manufacturing
1.69	3241	Petroleum and coal products manufacturing
1.68	4521	Department stores
1.67	4413	Automotive parts, accessories, and tire stores
1.67	2389	Other specialty trade contractors
1.67	2211	Electric power generation, transmission and distribution
1.66	5621	Waste collection
1.65	4412	Other motor vehicle dealers
1.63	6222	Psychiatric and substance abuse hospitals
1.63	5323	General rental centers
1.63	3372	Office furniture (including fixtures) manufacturing
1.62	4237	Hardware and plumbing merchant wholesalers
1.62	441	Motor vehicle and parts dealers
1.62	2379	Other heavy and civil engineering construction
1.60	2373	Highway, street, and bridge construction
1.60	3339	Other general purpose machinery manufacturing
1.60	332	Fabricated metal product manufacturing
1.59	3211	Sawmills and wood preservation
1.59	2381	Foundation, structure, and building exterior contractors
1.58	3253	Agricultural chemical mfg.
1.56	452	General merchandise stores
1.56	6221	General medical and surgical hospitals
1.55	32	Manufacturing
1.55	6115	Technical and trade schools
1.54	622	Hospitals
1.54	4411	Automobile dealers
1.52	325	Chemical manufacturing
1.52	237	Heavy and civil engineering construction

1.52	3331	Agriculture, construction, and mining machinery manufacturing
1.51	4842	Specialized freight trucking
1.51	3379	Other furniture related product manufacturing
1.51	4529	Other general merchandise stores
1.50	5321	Automotive equipment rental and leasing
1.50	6232	Residential mental health facilities
1.49	3327	Machine shops and threaded product mfg.
1.46	447	Gasoline stations
1.46	4471	Gasoline stations
1.44	333	Machinery manufacturing
1.43	4238	Machinery, equipment, and supplies merchant wholesalers
1.40	4247	Petroleum and petroleum products merchant wholesalers
1.39	4246	Chemical and allied products merchant wholesalers
1.39	6214	Outpatient care centers
1.38	8111	Automotive repair and maintenance
1.38	4453	Beer, wine, and liquor stores
1.38	811	Repair and maintenance
1.37	5322	Consumer goods rental
1.37	4881	Support activities for air transportation
1.37	238	Specialty trade contractors
1.36	3352	Household appliance manufacturing
1.36	4812	Nonscheduled air transportation
1.35	2362	Nonresidential building construction
1.35	6113	Colleges, universities, and professional schools
1.35	6216	Home health care services
1.35	488	Support activities for transportation
1.35	3113	Sugar and confectionery product manufacturing
1.34	337	Furniture and related product manufacturing
1.34	3271	Clay product and refractory manufacturing
1.33	532	Rental and leasing services
1.33	562	Waste management and remediation services
1.33	4542	Vending machine operators
1.32	3346	Manufacturing and reproducing magnetic and optical media
1.31	4232	Furniture and home furnishing merchant wholesalers
1.30	4921	Couriers and express delivery services
1.30	2382	Building equipment contractors
1.30	423	Merchant wholesalers, durable goods
1.30	3364	Aerospace product and parts manufacturing
1.29	4859	Other transit and ground passenger transportation
1.27	5616	Investigation and security services
1.27	6239	Other residential care facilities
1.27	3325	Hardware manufacturing
1.27	6223	Specialty (except psychiatric and substance abuse) hospitals
1.27	7222	Limited-service eating places
1.27	8131	Religious organizations

1.26	492	Couriers and messengers
1.26	23	Construction
1.26	4482	Shoe stores
1.25	3371	Household and institutional furniture mfg.

2007 NAICS

USEST	code	Description
5.49	3361	Motor vehicle manufacturing
5.32	3369	Other transportation equipment manufacturing
3.97	493	Warehousing and storage
3.97	4931	Warehousing and storage
3.87	3313	Alumina and aluminum production and processing
3.62	3311	Iron and steel mills and ferroalloy manufacturing
2.91	3346	Manufacturing and reproducing magnetic and optical media
2.84	2122	Metal ore mining
2.77	3262	Rubber product manufacturing
2.67	3362	Motor vehicle body and trailer manufacturing
2.52	326	Plastics and rubber products manufacturing
2.52	4884	Support activities for road transportation
2.48	3261	Plastics product manufacturing
2.43	3255	Paint, coating, and adhesive manufacturing
2.37	4231	Motor vehicle and parts merchant wholesalers
2.36	4852	Interurban and rural bus transportation
2.36	3343	Audio and video equipment manufacturing
2.34	3334	HVAC and commercial refrigeration equipment
2.32	336	Transportation equipment manufacturing
2.22	3312	Steel product manufacturing from purchased steel
2.22	3363	Motor vehicle parts manufacturing
2.13	3351	Electric lighting equipment manufacturing
2.13	4869	Other pipeline transportation
2.09	331	Primary metal manufacturing
2.08	6112	Junior colleges
2.03	3379	Other furniture related product manufacturing
2.01	3364	Aerospace product and parts manufacturing
2.01	4232	Furniture and home furnishing merchant wholesalers
2.01	3341	Computer and peripheral equipment manufacturing
1.99	3274	Lime and gypsum product manufacturing
1.98	3114	Fruit and vegetable preserving and specialty food manufacturing
1.92	3212	Veneer, plywood, and engineered wood product manufacturing
1.90	4841	General freight trucking
1.90	4235	Metal and mineral (except petroleum) merchant wholesalers
1.89	3329	Other fabricated metal product manufacturing
1.88	3259	Other chemical product and preparation manufacturing
1.87	6239	Other residential care facilities

1.84	3321	Forging and stamping
1.82	3221	Pulp, paper, and paperboard mills
1.82	2212	Natural gas distribution
1.81	2213	Water, sewage and other systems
1.80	4882	Support activities for rail transportation
1.79	3324	Boiler, tank, and shipping container manufacturing
1.74	3323	Architectural and structural metals manufacturing
1.74	6115	Technical and trade schools
1.72	3372	Office furniture (including fixtures) manufacturing
1.71	3252	Resin, rubber, and artificial fibers mfg.
1.70	4521	Department stores
1.69	4237	Hardware and plumbing merchant wholesalers
1.67	3326	Spring and wire product manufacturing
1.66	6113	Colleges, universities, and professional schools
1.65	332	Fabricated metal product manufacturing
1.62	3327	Machine shops and threaded product mfg.
1.61	4242	Drugs and druggists' sundries merchant wholesalers
1.58	488	Support activities for transportation
1.56	5223	Activities related to credit intermediation
1.56	3315	Foundries
1.56	322	Paper manufacturing
1.56	3325	Hardware manufacturing
1.55	4249	Miscellaneous nondurable goods merchant wholesalers
1.53	484	Truck transportation
1.53	325	Chemical manufacturing
1.52	3222	Converted paper product manufacturing
1.52	3253	Agricultural chemical mfg.
1.52	5616	Investigation and security services
1.52	423	Merchant wholesalers, durable goods
1.51	3251	Basic chemical manufacturing
1.50	3219	Other wood product manufacturing
1.48	4233	Lumber and other construction materials merchant wholesalers
1.46	5321	Automotive equipment rental and leasing
1.46	3272	Glass and glass product manufacturing
1.46	337	Furniture and related product manufacturing
1.45	3328	Coating, engraving, heat treating, and allied activities
1.45	4239	Miscellaneous durable goods merchant wholesalers
1.44	7222	Limited-service eating places
1.44	4241	Paper and paper product merchant wholesalers
1.44	3273	Cement and concrete product manufacturing
1.43	4413	Automotive parts, accessories, and tire stores
1.43	48	Transportation and warehousing
1.42	4885	Freight transportation arrangement
1.41	8111	Automotive repair and maintenance
1.41	32	Manufacturing

1.41	6214	Outpatient care centers
1.40	4236	Electrical and electronic goods merchant wholesalers
1.37	3391	Medical equipment and supplies manufacturing
1.37	4812	Nonscheduled air transportation
1.36	5611	Office administrative services
1.36	334	Computer and electronic product manufacturing
1.36	42	Wholesale trade
1.36	324	Petroleum and coal products manufacturing
1.36	3241	Petroleum and coal products manufacturing
1.35	4453	Beer, wine, and liquor stores
1.35	3371	Household and institutional furniture mfg.
1.34	4922	Local messengers and local delivery
1.34	811	Repair and maintenance
1.33	7212	RV (recreational vehicle) parks and recreational camps
1.32	3352	Household appliance manufacturing
1.31	6212	Offices of dentists
1.31	4881	Support activities for air transportation
1.31	3133	Textile and fabric finishing and fabric coating mills
1.31	3115	Dairy product manufacturing
1.31	4246	Chemical and allied products merchant wholesalers
1.30	3339	Other general purpose machinery manufacturing
1.30	8113	Commercial machinery repair and maintenance
1.29	5324	Machinery and equipment rental and leasing
1.29	339	Miscellaneous manufacturing
1.28	2362	Nonresidential building construction
1.27	3333	Commercial and service industry machinery manufacturing
1.27	3271	Clay product and refractory manufacturing
1.27	321	Wood product manufacturing
1.27	2389	Other specialty trade contractors
1.27	327	Nonmetallic mineral product manufacturing
1.27	3113	Sugar and confectionery product manufacturing
1.26	4482	Shoe stores
1.26	6233	Community care facilities for the elderly
1.26	424	Merchant wholesalers, nondurable goods
1.26	3119	Other food manufacturing
1.25	8112	Electronic and precision equipment repair and maintenance
1.25	2371	Utility system construction
1.25	492	Couriers and messengers

San Diego County

	2007 NAICS	
STEMP	code	Description
9.02	3366	Ship and boat building

5.62	3336	Engine, turbine, and power transmission equipment manufacturing
3.64	4872	Scenic and sightseeing transportation, water
3.57	4862	Pipeline transportation of natural gas
2.88	712	Museums, historical sites, and similar institutions
2.88	7121	Museums, historical sites, and similar institutions
2.77	487	Scenic and sightseeing transportation
2.18	3341	Computer and peripheral equipment manufacturing
2.16	6114	Business schools and computer and management training
2.08	1141	Fishing
2.00	3399	Other miscellaneous manufacturing
1.99	5417	Scientific research and development services
1.99	5174	Satellite telecommunications
1.95	1152	Support activities for animal production
1.91	7224	Drinking places (alcoholic beverages)
1.85	7132	Gambling industries
1.83	7211	Traveler accommodation
1.81	8112	Electronic and precision equipment repair and maintenance
1.81	721	Accommodation
1.78	4542	Vending machine operators
1.76	8132	Grantmaking and giving services
1.68	5418	Advertising, public relations, and related services
1.64	336	Transportation equipment manufacturing
1.63	7131	Amusement parks and arcades
1.63	4851	Urban transit systems
1.62	5313	Activities related to real estate
1.60	114	Fishing, hunting and trapping
1.57	5612	Facilities support services
1.55	5323	General rental centers
1.54	5419	Other professional, scientific, and technical services
1.52	6115	Technical and trade schools
1.49	4236	Electrical and electronic goods merchant wholesalers
1.47	5231	Securities and commodity contracts intermediation and brokerage
1.45	333	Machinery manufacturing
1.44	6214	Outpatient care centers
1.44	4855	Charter bus industry
1.41	339	Miscellaneous manufacturing
1.41	3359	Other electrical equipment and component manufacturing
1.39	533	Lessors of nonfinancial intangible assets
1.39	5331	Lessors of nonfinancial intangible assets
1.37	531	Real estate
1.35	5611	Office administrative services
1.35	4412	Other motor vehicle dealers
1.34	2372	Land subdivision

1.32	7112	Spectator sports
1.32	2373	Highway, street, and bridge construction
1.32	6117	Educational support services
1.31	713	Amusement, gambling, and recreation industries
1.31	5413	Architectural, engineering, and related services
1.31	8121	Personal care services
1.30	3343	Audio and video equipment manufacturing
1.30	6233	Community care facilities for the elderly
1.30	3254	Pharmaceutical and medicine manufacturing
1.30	2389	Other specialty trade contractors
1.30	3364	Aerospace product and parts manufacturing
1.28	5614	Business support services
1.27	71	Arts, entertainment, and recreation
1.25	53	Real estate and rental and leasing
1.25	7111	Performing arts companies
1.25	2362	Nonresidential building construction

2007 NAICS

USEMP	code	Description
5.86	3366	Ship and boat building
5.57	4872	Scenic and sightseeing transportation, water Engine, turbine, and power transmission equipment manufacturing
4.13	3336	Gambling industries
4.01	7132	Amusement parks and arcades
3.74	7131	Communications equipment manufacturing
3.67	3342	Scientific research and development services
3.66	5417	Computer and peripheral equipment manufacturing
3.32	3341	Urban transit systems
3.30	4851	Electrical and electronic goods merchant wholesalers
3.12	4236	Scenic and sightseeing transportation
3.00	487	Museums, historical sites, and similar institutions
2.87	712	Museums, historical sites, and similar institutions
2.87	7121	Museums, historical sites, and similar institutions
2.62	5418	Advertising, public relations, and related services
2.61	8112	Electronic and precision equipment repair and maintenance
2.45	5112	Software publishers
2.30	3343	Audio and video equipment manufacturing
2.26	5313	Activities related to real estate
2.23	3169	Other leather and allied product manufacturing
2.20	3399	Other miscellaneous manufacturing
2.19	6114	Business schools and computer and management training
2.18	8132	Grantmaking and giving services
2.15	2372	Land subdivision
2.08	2212	Natural gas distribution

2.02	3364	Aerospace product and parts manufacturing
1.99	4884	Support activities for road transportation
1.97	7211	Traveler accommodation
1.95	721	Accommodation
1.93	3254	Pharmaceutical and medicine manufacturing
1.89	6115	Technical and trade schools
1.87	339	Miscellaneous manufacturing
1.87	334	Computer and electronic product manufacturing
1.79	5414	Specialized design services
1.76	531	Real estate
1.76	1152	Support activities for animal production
1.70	2383	Building finishing contractors
1.68	713	Amusement, gambling, and recreation industries
1.66	5174	Satellite telecommunications
1.65	71	Arts, entertainment, and recreation
1.63	7111	Performing arts companies
1.59	533	Lessors of nonfinancial intangible assets
1.59	5331	Lessors of nonfinancial intangible assets
1.57	8129	Other personal services
1.56	6117	Educational support services
1.56	7224	Drinking places (alcoholic beverages)
1.55	54	Professional, scientific, and technical services
1.55	541	Professional, scientific, and technical services
1.54	4521	Department stores
1.54	5419	Other professional, scientific, and technical services
1.53	53	Real estate and rental and leasing
1.51	3391	Medical equipment and supplies manufacturing
1.48	5611	Office administrative services
1.47	511	Publishing industries (except Internet)
1.47	3344	Semiconductor and other electronic component manufacturing
1.46	5413	Architectural, engineering, and related services
1.43	3345	Electronic instrument manufacturing
1.43	4855	Charter bus industry
1.41	5311	Lessors of real estate
1.38	7212	RV (recreational vehicle) parks and recreational camps
1.38	2361	Residential building construction
1.38	7112	Spectator sports
1.37	6214	Outpatient care centers
1.36	5312	Offices of real estate agents and brokers
1.34	4481	Clothing stores
1.32	4422	Home furnishings stores
1.31	4249	Miscellaneous nondurable goods merchant wholesalers
1.30	236	Construction of buildings
1.29	5222	Nondepository credit intermediation
1.29	5617	Services to buildings and dwellings

1.28	448	Clothing and clothing accessories stores
1.27	5324	Machinery and equipment rental and leasing
1.27	72	Accommodation and food services
1.26	3359	Other electrical equipment and component manufacturing
1.26	5416	Management, scientific, and technical consulting services
1.25	5415	Computer systems design and related services

2007 NAICS

STEST	code	Description
3.13	4872	Scenic and sightseeing transportation, water
2.98	3366	Ship and boat building
2.81	4879	Scenic and sightseeing transportation, other
2.52	1141	Fishing
2.51	487	Scenic and sightseeing transportation
2.32	5417	Scientific research and development services
2.21	3254	Pharmaceutical and medicine manufacturing
2.18	114	Fishing, hunting and trapping
1.81	4832	Inland water transportation
1.74	1152	Support activities for animal production
1.73	6114	Business schools and computer and management training
1.64	3336	Engine, turbine, and power transmission equipment manufacturing
1.62	2212	Natural gas distribution
1.61	1132	Forest nurseries and gathering of forest products
1.59	3169	Other leather and allied product manufacturing
1.55	3161	Leather and hide tanning and finishing
1.54	5612	Facilities support services
1.53	3369	Other transportation equipment manufacturing
1.53	5312	Offices of real estate agents and brokers
1.49	3342	Communications equipment manufacturing
1.48	483	Water transportation
1.47	2372	Land subdivision
1.46	3345	Electronic instrument manufacturing
1.45	6113	Colleges, universities, and professional schools
1.44	3352	Household appliance manufacturing
1.41	3343	Audio and video equipment manufacturing
1.38	6222	Psychiatric and substance abuse hospitals
1.36	4831	Deep sea, coastal, and great lakes water transportation
1.35	4412	Other motor vehicle dealers
1.34	5416	Management, scientific, and technical consulting services
1.34	5313	Activities related to real estate
1.28	531	Real estate
1.28	4233	Lumber and other construction materials merchant wholesalers
1.28	5323	General rental centers

1.27	316	Leather and allied product manufacturing
1.26	3399	Other miscellaneous manufacturing
1.25	5239	Other financial investment activities
1.25	5413	Architectural, engineering, and related services
1.25	5419	Other professional, scientific, and technical services

2007 NAICS

USEST	code	Description
4.00	5417	Scientific research and development services
3.42	4879	Scenic and sightseeing transportation, other
3.18	3254	Pharmaceutical and medicine manufacturing
3.08	3369	Other transportation equipment manufacturing
2.99	3343	Audio and video equipment manufacturing
2.88	3342	Communications equipment manufacturing
2.70	3341	Computer and peripheral equipment manufacturing
2.62	4872	Scenic and sightseeing transportation, water
2.51	334	Computer and electronic product manufacturing
2.47	3344	Semiconductor and other electronic component manufacturing
2.40	3345	Electronic instrument manufacturing
2.25	487	Scenic and sightseeing transportation
2.09	3346	Manufacturing and reproducing magnetic and optical media
1.97	3366	Ship and boat building
1.89	1152	Support activities for animal production
1.88	3169	Other leather and allied product manufacturing
1.78	5313	Activities related to real estate
1.78	6113	Colleges, universities, and professional schools
1.77	6114	Business schools and computer and management training
1.75	5112	Software publishers
1.75	5416	Management, scientific, and technical consulting services
1.70	4541	Electronic shopping and mail-order houses
1.66	3161	Leather and hide tanning and finishing
1.66	5312	Offices of real estate agents and brokers
1.58	3359	Other electrical equipment and component manufacturing
1.57	4236	Electrical and electronic goods merchant wholesalers
1.56	5611	Office administrative services
1.55	316	Leather and allied product manufacturing
1.55	5179	Other telecommunications
1.54	3399	Other miscellaneous manufacturing
1.52	531	Real estate
1.50	525	Funds, trusts, and other financial vehicles
1.50	5259	Other investment pools and funds
1.50	5223	Activities related to credit intermediation
1.49	5239	Other financial investment activities
1.45	4851	Urban transit systems

1.45	2372	Land subdivision
1.43	5415	Computer systems design and related services
1.43	5413	Architectural, engineering, and related services
1.41	53	Real estate and rental and leasing
1.41	339	Miscellaneous manufacturing
1.41	8129	Other personal services
1.41	6117	Educational support services
1.41	4242	Drugs and druggists' sundries merchant wholesalers
1.40	3352	Household appliance manufacturing
1.40	3351	Electric lighting equipment manufacturing
1.39	3333	Commercial and service industry machinery manufacturing
1.39	5414	Specialized design services
1.39	54	Professional, scientific, and technical services
1.39	541	Professional, scientific, and technical services
1.39	6115	Technical and trade schools
1.36	4249	Miscellaneous nondurable goods merchant wholesalers
1.34	3379	Other furniture related product manufacturing Engine, turbine, and power transmission equipment manufacturing
1.33	3336	manufacturing
1.32	518	Data processing, hosting and related services
1.32	5182	Data processing, hosting, and related services
1.31	4855	Charter bus industry
1.30	3364	Aerospace product and parts manufacturing
1.29	6212	Offices of dentists
1.28	511	Publishing industries (except Internet)
1.25	6233	Community care facilities for the elderly
1.25	523	Securities, commodity contracts, investments

Table A-3: Application Code

```
<%@ Page Language="C#" AutoEventWireup="true" CodeFile="Default.aspx.cs"
Inherits="_Default" %>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html>
<head>
    <title></title>
</head>
<body>
    <div id="container" style="width:100%">

        <div id="header" style="background-color:#929761;height:100px">
            <h1 style="margin-bottom:10;text-align:center">NAICS Location Quotient
            Selection</h1>
            <h2 style="text-align:center">for Southern California</h2></div>
```

```

<div id="locator" style="height:100%;width:30%;float:left;">
    
</div>

<div id="content" style="background-
color:white;height:100%;width:30%;float:right;">

    <p>
        <b><font size="5" ">Select from the following
options</font></b>
    </p>

    <form method="get" action="Map.aspx" ">
        <p><font size="5" color="blue">
            County in comparison to:
        </font></p>
        <input type="radio" id="cb1" name="levelOfComparison"
value="State" checked="checked" />
        <label for="cb1">State</label><br />
        <input type="radio" id="cb2" name="levelOfComparison"
value="Nation" />
        <label for="cb2">Nation</label><br />

        <p><font size="5" color=blue>
            LQ variable:
        </font></p>
        <input type="radio" id="cb3" name="lqVariable"
value="Employment" checked="checked" />
        <label for="cb3">Employment</label><br />
        <input type="radio" id="cb4" name="lqVariable"
value="Establishment" />
        <label for="cb4">Establishment</label><br /><br />

    <p>
        <font size ="5" color="blue">Choose an NAICS code</font>
    </p>
    <p>
        <b><font size="5">Industry Sector: 2 digit</font></b>
    </p>
    <select name="twoDigitCode">
        <option value="11" selected="selected">11 :Agriculture,
forestry, fishing and hunting</option>
        <option value="21">21 :Mining, quarrying, and oil and gas
extraction</option>
        <option value="22">22 :Utilities</option>
        <option value="23">23 :Constrction</option>
        <option value="31">31 :Manufacturing: food , textile,
apparel</option>
        <option value="32">32 :Manufacturing: wood and
chemical</option>
        <option value="33">33 :Manufacturing: metal, electronic,
equipment, furniture</option>
        <option value="42">42 :Wholesale trade</option>
        <option value="44">44 :Retail trade</option>
        <option value="45">45 :Retail trade</option>
    </select>

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    <option value="48">48 :Transportation: commercial and
tourism</option>
    <option value="49">49 :Transportation and
warehousing</option>
    <option value="51">51 :Information</option>
    <option value="52">52 :Finanace and insurance</option>
    <option value="53">53 :Real estate and rental and
leasing</option>
    <option value="54">54 :Professional, scientific, and
technical services</option>
    <option value="55">55 :Management of companies and
enterprises</option>
    <option value="56">56 :Administrative and Support and
Waste Mang and Remediation Srvs</option>
    <option value="62">61 :Educational services</option>
    <option value="71">71 :Arts, entertainment, and
recreation</option>
    <option value="72">72 :Accomodation and food
services</option>
    <option value="81">81 :Other services: except public
administration</option>
</select>
<p>
<b><font size="5">Sub Sector: 3 digit</font></b>
</p>
<select name="threeDigitCode">
    <option value="" selected="selected"></option>
    <option value="113">113 :Forestry and logging</option>
    <option value="114">114 :Fishing, hunting and
trapping</option>
    <option value="115">115 :Support activities for
agriculture and forestry</option>
    <option value="211">211 :Oil and gas extraction</option>
    <option value="212">212 :Mining (except oil and
gas)</option>
    <option value="213">213 :Support activities for
mining</option>
    <option value="221">221 :Utilities</option>
    <option value="236">236 :Construction of
buildings</option>
    <option value="237">237 :Heavy and civil engineering
construction</option>
    <option value="238">238 :Specialty trade
contractors</option>
    <option value="311">311 :Food manufacturing</option>
    <option value="312">312 :Beverage and tobacco product
manufacturing</option>
    <option value="313">313 :Textile mills</option>
    <option value="314">314 :Textile product mills</option>
    <option value="315">315 :Apparel manufacturing</option>
    <option value="316">316 :Leather and allied product
manufacturing</option>
    <option value="321">321 :Wood product
manufacturing</option>
    <option value="322">322 :Paper manufacturing</option>
    <option value="323">323 :Printing and related support
activities</option>

```


manufacturing</option> <option value="324">324 :Petroleum and coal products
 manufacturing</option> <option value="325">325 :Chemical manufacturing</option>
 manufacturing</option> <option value="326">326 :Plastics and rubber products
 manufacturing</option> <option value="327">327 :Nonmetallic mineral product
 manufacturing</option> <option value="331">331 :Primary metal
 manufacturing</option> <option value="332">332 :Fabricated metal product
 manufacturing</option> <option value="333">333 :Machinery manufacturing</option>
 manufacturing</option> <option value="334">334 :Computer and electronic product
 manufacturing</option> <option value="335">335 :Electrical equipment, appliance,
 and component manufacturing</option>
 manufacturing</option> <option value="336">336 :Transportation equipment
 manufacturing</option> <option value="337">337 :Furniture and related product
 manufacturing</option> <option value="339">339 :Miscellaneous
 manufacturing</option> <option value="423">423 :Merchant wholesalers, durable
 goods</option>
 goods</option> <option value="424">424 :Merchant wholesalers, nondurable
 agents and brokers</option> <option value="425">425 :Wholesale electronic markets and
 dealers</option> <option value="441">441 :Motor vehicle and parts
 stores</option> <option value="442">442 :Furniture and home furnishings
 stores</option> <option value="443">443 :Electronics and appliance
 equipment and supplies dealers</option> <option value="444">444 :Building material and garden
 stores</option> <option value="445">445 :Food and beverage stores</option>
 stores</option> <option value="446">446 :Health and personal care
 stores</option> <option value="447">447 :Gasoline stations</option>
 stores</option> <option value="448">448 :Clothing and clothing accessories
 music stores</option> <option value="451">451 :Sporting goods, hobby, book, and
 stores</option> <option value="452">452 :General merchandise
 retailers</option> <option value="453">453 :Miscellaneous store
 retailers</option> <option value="454">454 :Nonstore retailers</option>
 transportation</option> <option value="481">481 :Air transportation</option>
 transportation</option> <option value="483">483 :Water transportation</option>
 transportation</option> <option value="484">484 :Truck transportation</option>
 transportation</option> <option value="485">485 :Transit and ground passenger
 transportation</option> <option value="486">486 :Pipeline transportation</option>
 transportation</option> <option value="487">487 :Scenic and sightseeing

transportation</option> <option value="488">488 :Support activities for
 <option value="492">492 :Couriers and messengers</option>
 <option value="493">493 :Warehousing and storage</option>
 <option value="511">511 :Publishing industries (except
 Internet)</option>
 <option value="512">512 :Motion picture and sound
 recording industries</option>
 <option value="515">515 :Broadcasting (except
 Internet)</option>
 <option value="517">517 :Telecommunications</option>
 <option value="518">518 :Data processing, hosting and
 related services</option>
 <option value="519">519 :Other information
 services</option>
 <option value="521">521 :Monetary authorities- central
 bank</option>
 <option value="522">522 :Credit intermediation and related
 activities</option>
 <option value="523">523 :Securities, commodity contracts,
 investments</option>
 <option value="524">524 :Insurance carriers and related
 activities</option>
 <option value="525">525 :Funds, trusts, and other
 financial vehicles</option>
 <option value="531">531 :Real estate</option>
 <option value="532">532 :Rental and leasing
 services</option>
 <option value="533">533 :Lessors of nonfinancial
 intangible assets</option>
 <option value="541">541 :Professional, scientific, and
 technical services</option>
 <option value="551">551 :Management of companies and
 enterprises</option>
 <option value="561">561 :Administrative and support
 services</option>
 <option value="562">562 :Waste management and remediation
 services</option>
 <option value="611">611 :Educational services</option>
 <option value="621">621 :Ambulatory health care
 services</option>
 <option value="622">622 :Hospitals</option>
 <option value="623">623 :Nursing and residential care
 facilities</option>
 <option value="624">624 :Social assistance</option>
 <option value="711">711 :Performing arts, spectator
 sports, and related industries</option>
 <option value="712">712 :Museums, historical sites, and
 similar institutions</option>
 <option value="713">713 :Amusement, gambling, and
 recreation industries</option>
 <option value="721">721 :Accommodation</option>
 <option value="722">722 :Food services and drinking
 places</option>
 <option value="811">811 :Repair and maintenance</option>
 <option value="812">812 :Personal and laundry
 services</option>

```

        <option value="813">813 :Religious, Grantmaking, Civic,
Professional, and Similar Orgs</option>
    </select>

    <p>
        <b><font size="5">Industry Group: 4 digit</font></b>
    </p>
    <select name="fourDigitCode">
        <option value="" selected="selected"></option>
        <option value="1131">1131 :Timber tract
operations</option>
        <option value="1132">1132 :Forest nurseries and gathering
of forest products</option>
        <option value="1133">1133 :Logging</option>
        <option value="1141">1141 :Fishing</option>
        <option value="1142">1142 :Hunting and trapping</option>
        <option value="1151">1151 :Support activities for crop
production</option>
        <option value="1152">1152 :Support activities for animal
production</option>
        <option value="1153">1153 :Support activities for
forestry</option>
        <option value="2111">2111 :Oil and gas extraction</option>
        <option value="2121">2121 :Coal mining</option>
        <option value="2122">2122 :Metal ore mining</option>
        <option value="2123">2123 :Nonmetallic mineral mining and
quarrying</option>
        <option value="2131">2131 :Support activities for
mining</option>
        <option value="2211">2211 :Electric power generation,
transmission and distribution</option>
        <option value="2212">2212 :Natural gas
distribution</option>
        <option value="2213">2213 :Water, sewage and other
systems</option>
        <option value="2361">2361 :Residential building
construction</option>
        <option value="2362">2362 :Nonresidential building
construction</option>
        <option value="2371">2371 :Utility system
construction</option>
        <option value="2372">2372 :Land subdivision</option>
        <option value="2373">2373 :Highway, street, and bridge
construction</option>
        <option value="2379">2379 :Other heavy and civil
engineering construction</option>
        <option value="2381">2381 :Foundation, structure, and
building exterior contractors</option>
        <option value="2382">2382 :Building equipment
contractors</option>
        <option value="2383">2383 :Building finishing
contractors</option>
        <option value="2389">2389 :Other specialty trade
contractors</option>
        <option value="3111">3111 :Animal food
manufacturing</option>
        <option value="3112">3112 :Grain and oilseed
milling</option>

```

manufacturing</option> <option value="3113">3113 :Sugar and confectionery product
 and specialty food manufacturing</option> <option value="3114">3114 :Fruit and vegetable preserving
 manufacturing</option> <option value="3115">3115 :Dairy product
 processing</option> <option value="3116">3116 :Animal slaughtering and
 packaging</option> <option value="3117">3117 :Seafood product preparation and
 manufacturing</option> <option value="3118">3118 :Bakeries and tortilla
 manufacturing</option> <option value="3119">3119 :Other food
 <option value="3121">3121 :Beverage manufacturing</option>
 <option value="3122">3122 :Tobacco manufacturing</option>
 <option value="3131">3131 :Fiber, yarn, and thread
 mills</option>
 <option value="3132">3132 :Fabric mills</option>
 and fabric coating mills</option> <option value="3133">3133 :Textile and fabric finishing
 mills</option> <option value="3141">3141 :Textile furnishings
 mills</option> <option value="3149">3149 :Other textile product
 <option value="3151">3151 :Apparel knitting mills</option>
 <option value="3152">3152 :Cut and sew apparel
 manufacturing</option>
 apparel manufacturing</option> <option value="3159">3159 :Apparel accessories and other
 finishing</option> <option value="3161">3161 :Leather and hide tanning and
 <option value="3162">3162 :Footwear manufacturing</option>
 <option value="3169">3169 :Other leather and allied
 product manufacturing</option>
 preservation</option> <option value="3211">3211 :Sawmills and wood
 <option value="3212">3212 :Veneer, plywood, and engineered
 wood product manufacturing</option>
 manufacturing</option> <option value="3219">3219 :Other wood product
 <option value="3221">3221 :Pulp, paper, and paperboard
 mills</option>
 manufacturing</option> <option value="3222">3222 :Converted paper product
 activities</option> <option value="3231">3231 :Printing and related support
 manufacturing</option> <option value="3241">3241 :Petroleum and coal products
 manufacturing</option> <option value="3251">3251 :Basic chemical
 fibers mfg.</option> <option value="3252">3252 :Resin, rubber, and artificial
 mfg.</option> <option value="3253">3253 :Agricultural chemical
 manufacturing</option> <option value="3254">3254 :Pharmaceutical and medicine

manufacturing</option> <option value="3255">3255 :Paint, coating, and adhesive
 toilet preparation manufacturing</option> <option value="3256">3256 :Soap, cleaning compound, and
 preparation manufacturing</option> <option value="3259">3259 :Other chemical product and
 manufacturing</option> <option value="3261">3261 :Plastics product
 manufacturing</option> <option value="3262">3262 :Rubber product
 manufacturing</option> <option value="3271">3271 :Clay product and refractory
 manufacturing</option> <option value="3272">3272 :Glass and glass product
 manufacturing</option> <option value="3273">3273 :Cement and concrete product
 manufacturing</option> <option value="3274">3274 :Lime and gypsum product
 product manufacturing</option> <option value="3279">3279 :Other nonmetallic mineral
 ferroalloy manufacturing</option> <option value="3311">3311 :Iron and steel mills and
 from purchased steel</option> <option value="3312">3312 :Steel product manufacturing
 and processing</option> <option value="3313">3313 :Alumina and aluminum production
 aluminum) production and processing</option> <option value="3314">3314 :Nonferrous metal (except
 manufacturing</option> <option value="3315">3315 :Foundries</option>
 <option value="3321">3321 :Forging and stamping</option>
 <option value="3322">3322 :Cutlery and handtool
 manufacturing</option> <option value="3323">3323 :Architectural and structural
 metals manufacturing</option> <option value="3324">3324 :Boiler, tank, and shipping
 container manufacturing</option> <option value="3325">3325 :Hardware manufacturing</option>
 manufacturing</option> <option value="3326">3326 :Spring and wire product
 <option value="3327">3327 :Machine shops and threaded
 product mfg.</option> <option value="3328">3328 :Coating, engraving, heat
 treating, and allied activities</option> <option value="3329">3329 :Other fabricated metal product
 manufacturing</option> <option value="3331">3331 :Agriculture, construction, and
 mining machinery manufacturing</option> <option value="3332">3332 :Industrial machinery
 manufacturing</option> <option value="3333">3333 :Commercial and service industry
 machinery manufacturing</option> <option value="3334">3334 :HVAC and commercial
 refrigeration equipment</option> <option value="3335">3335 :Metalworking machinery
 manufacturing</option> <option value="3336">3336 :Engine, turbine, and power
 transmission equipment manufacturing</option>

manufacturing</option> <option value="3339">3339 :Other general purpose machinery
 equipment manufacturing</option> <option value="3341">3341 :Computer and peripheral
 manufacturing</option> <option value="3342">3342 :Communications equipment
 manufacturing</option> <option value="3343">3343 :Audio and video equipment
 electronic component manufacturing</option> <option value="3344">3344 :Semiconductor and other
 manufacturing</option> <option value="3345">3345 :Electronic instrument
 magnetic and optical media</option> <option value="3346">3346 :Manufacturing and reproducing
 manufacturing</option> <option value="3351">3351 :Electric lighting equipment
 manufacturing</option> <option value="3352">3352 :Household appliance
 manufacturing</option> <option value="3353">3353 :Electrical equipment
 component manufacturing</option> <option value="3359">3359 :Other electrical equipment and
 manufacturing</option> <option value="3361">3361 :Motor vehicle
 manufacturing</option> <option value="3362">3362 :Motor vehicle body and trailer
 manufacturing</option> <option value="3363">3363 :Motor vehicle parts
 manufacturing</option> <option value="3364">3364 :Aerospace product and parts
 manufacturing</option> <option value="3365">3365 :Railroad rolling stock
 manufacturing</option> <option value="3366">3366 :Ship and boat building</option>
 manufacturing</option> <option value="3369">3369 :Other transportation equipment
 furniture mfg.</option> <option value="3371">3371 :Household and institutional
 fixtures) manufacturing</option> <option value="3372">3372 :Office furniture (including
 manufacturing</option> <option value="3379">3379 :Other furniture related product
 manufacturing</option> <option value="3391">3391 :Medical equipment and supplies
 manufacturing</option> <option value="3399">3399 :Other miscellaneous
 merchant wholesalers</option> <option value="4231">4231 :Motor vehicle and parts
 merchant wholesalers</option> <option value="4232">4232 :Furniture and home furnishing
 materials merchant wholesalers</option> <option value="4233">4233 :Lumber and other construction
 wholesalers</option> <option value="4234">4234 :Commercial equip. merchant
 (except petroleum) merchant wholesalers</option> <option value="4235">4235 :Metal and mineral (except
 merchant wholesalers</option> <option value="4236">4236 :Electrical and electronic goods

<option value="4237">4237 :Hardware and plumbing merchant
 wholesalers</option>
 <option value="4238">4238 :Machinery, equipment, and
 supplies merchant wholesalers</option>
 <option value="4239">4239 :Miscellaneous durable goods
 merchant wholesalers</option>
 <option value="4241">4241 :Paper and paper product
 merchant wholesalers</option>
 <option value="4242">4242 :Drugs and druggists' sundries
 merchant wholesalers</option>
 <option value="4243">4243 :Apparel, piece goods, and
 notions merchant wholesalers</option>
 <option value="4244">4244 :Grocery and related product
 merchant wholesalers</option>
 <option value="4245">4245 :Farm product raw material
 merchant wholesalers</option>
 <option value="4246">4246 :Chemical and allied products
 merchant wholesalers</option>
 <option value="4247">4247 :Petroleum and petroleum
 products merchant wholesalers</option>
 <option value="4248">4248 :Beer, wine, and distilled
 alcoholic beverage merchant wholesalers</option>
 <option value="4249">4249 :Miscellaneous nondurable goods
 merchant wholesalers</option>
 <option value="4251">4251 :Wholesale electronic markets
 and agents and brokers</option>
 <option value="4411">4411 :Automobile dealers</option>
 <option value="4412">4412 :Other motor vehicle
 dealers</option>
 <option value="4413">4413 :Automotive parts, accessories,
 and tire stores</option>
 <option value="4421">4421 :Furniture stores</option>
 <option value="4422">4422 :Home furnishings
 stores</option>
 <option value="4431">4431 :Electronics and appliance
 stores</option>
 <option value="4441">4441 :Building material and supplies
 dealers</option>
 <option value="4442">4442 :Lawn and garden equipment and
 supplies stores</option>
 <option value="4451">4451 :Grocery stores</option>
 <option value="4452">4452 :Specialty food stores</option>
 <option value="4453">4453 :Beer, wine, and liquor
 stores</option>
 <option value="4461">4461 :Health and personal care
 stores</option>
 <option value="4471">4471 :Gasoline stations</option>
 <option value="4481">4481 :Clothing stores</option>
 <option value="4482">4482 :Shoe stores</option>
 <option value="4483">4483 :Jewelry, luggage, and leather
 goods stores</option>
 <option value="4511">4511 :Sporting goods, hobby, and
 musical instrument stores</option>
 <option value="4512">4512 :Book, periodical, and music
 stores</option>
 <option value="4521">4521 :Department stores</option>
 <option value="4529">4529 :Other general merchandise
 stores</option>

<option value="4531">4531 :Florists</option>
 <option value="4532">4532 :Office supplies, stationery,
 and gift stores</option>
 <option value="4533">4533 :Used merchandise
 stores</option>
 <option value="4539">4539 :Other miscellaneous store
 retailers</option>
 <option value="4541">4541 :Electronic shopping and mail-
 order houses</option>
 <option value="4542">4542 :Vending machine
 operators</option>
 <option value="4543">4543 :Direct selling
 establishments</option>
 <option value="4811">4811 :Scheduled air
 transportation</option>
 <option value="4812">4812 :Nonscheduled air
 transportation</option>
 <option value="4831">4831 :Deep sea, coastal, and great
 lakes water transportation</option>
 <option value="4832">4832 :Inland water
 transportation</option>
 <option value="4841">4841 :General freight
 trucking</option>
 <option value="4842">4842 :Specialized freight
 trucking</option>
 <option value="4851">4851 :Urban transit systems</option>
 <option value="4852">4852 :Interurban and rural bus
 transportation</option>
 <option value="4853">4853 :Taxi and limousine
 service</option>
 <option value="4854">4854 :School and employee bus
 transportation</option>
 <option value="4855">4855 :Charter bus industry</option>
 <option value="4859">4859 :Other transit and ground
 passenger transportation</option>
 <option value="4861">4861 :Pipeline transportation of
 crude oil</option>
 <option value="4862">4862 :Pipeline transportation of
 natural gas</option>
 <option value="4869">4869 :Other pipeline
 transportation</option>
 <option value="4871">4871 :Scenic and sightseeing
 transportation, land</option>
 <option value="4872">4872 :Scenic and sightseeing
 transportation, water</option>
 <option value="4879">4879 :Scenic and sightseeing
 transportation, other</option>
 <option value="4881">4881 :Support activities for air
 transportation</option>
 <option value="4882">4882 :Support activities for rail
 transportation</option>
 <option value="4883">4883 :Support activities for water
 transportation</option>
 <option value="4884">4884 :Support activities for road
 transportation</option>
 <option value="4885">4885 :Freight transportation
 arrangement</option>

transportation</option> <option value="4889">4889 :Other support activities for
 services</option> <option value="4921">4921 :Couriers and express delivery
 delivery</option> <option value="4922">4922 :Local messengers and local
 storage</option> <option value="4931">4931 :Warehousing and
 and directory publishers</option> <option value="5111">5111 :Newspaper, periodical, book,
 industries</option> <option value="5112">5112 :Software publishers</option>
 industries</option> <option value="5121">5121 :Motion picture and video
 broadcasting</option> <option value="5122">5122 :Sound recording
 programming</option> <option value="5151">5151 :Radio and television
 carriers</option> <option value="5152">5152 :Cable and other subscription
 carriers (except satellite)</option> <option value="5171">5171 :Wired telecommunications
 telecommunications</option> <option value="5172">5172 :Wireless telecommunications
 telecommunications</option> <option value="5174">5174 :Satellite
 telecommunications</option> <option value="5179">5179 :Other
 related services</option> <option value="5182">5182 :Data processing, hosting, and
 services</option> <option value="5191">5191 :Other information
 bank</option> <option value="5211">5211 :Monetary authorities- central
 intermediation</option> <option value="5221">5221 :Depository credit
 intermediation</option> <option value="5222">5222 :Nondepository credit
 intermediation</option> <option value="5223">5223 :Activities related to credit
 contracts intermediation and brokerage</option> <option value="5231">5231 :Securities and commodity
 exchanges</option> <option value="5232">5232 :Securities and commodity
 activities</option> <option value="5239">5239 :Other financial investment
 insurance related activities</option> <option value="5241">5241 :Insurance carriers</option>
 funds</option> <option value="5242">5242 :Agencies, brokerages, and other
 and brokers</option> <option value="5259">5259 :Other investment pools and
 estate</option> <option value="5311">5311 :Lessors of real estate</option>
 leasing</option> <option value="5312">5312 :Offices of real estate agents
 <option value="5313">5313 :Activities related to real
 <option value="5321">5321 :Automotive equipment rental and
 <option value="5322">5322 :Consumer goods rental</option>

and leasing</option>
 <option value="5323">5323 :General rental centers</option>
 <option value="5324">5324 :Machinery and equipment rental

intangible assets</option>
 <option value="5331">5331 :Lessors of nonfinancial

bookkeeping, and payroll services</option>
 <option value="5411">5411 :Legal services</option>
 <option value="5412">5412 :Accounting, tax preparation,

related services</option>
 <option value="5413">5413 :Architectural, engineering, and

services</option>
 <option value="5414">5414 :Specialized design

related services</option>
 <option value="5415">5415 :Computer systems design and

technical consulting services</option>
 <option value="5416">5416 :Management, scientific, and

development services</option>
 <option value="5417">5417 :Scientific research and

and related services</option>
 <option value="5418">5418 :Advertising, public relations,

and technical services</option>
 <option value="5419">5419 :Other professional, scientific,

enterprises</option>
 <option value="5511">5511 :Management of companies and

services</option>
 <option value="5611">5611 :Office administrative

services</option>
 <option value="5612">5612 :Facilities support

services</option>
 <option value="5613">5613 :Employment services</option>
 <option value="5614">5614 :Business support

reservation services</option>
 <option value="5615">5615 :Travel arrangement and

services</option>
 <option value="5616">5616 :Investigation and security

dwellings</option>
 <option value="5617">5617 :Services to buildings and

disposal</option>
 <option value="5619">5619 :Other support services</option>
 <option value="5621">5621 :Waste collection</option>
 <option value="5622">5622 :Waste treatment and

management services</option>
 <option value="5629">5629 :Remediation and other waste

schools</option>
 <option value="6111">6111 :Elementary and secondary

professional schools</option>
 <option value="6112">6112 :Junior colleges</option>
 <option value="6113">6113 :Colleges, universities, and

and management training</option>
 <option value="6114">6114 :Business schools and computer

schools</option>
 <option value="6115">6115 :Technical and trade

instruction</option>
 <option value="6116">6116 :Other schools and

services</option>
 <option value="6117">6117 :Educational support

<option value="6211">6211 :Offices of physicians</option>
 <option value="6212">6212 :Offices of dentists</option>

practitioners</option> <option value="6213">6213 :Offices of other health
 centers</option> <option value="6214">6214 :Outpatient care
 laboratories</option> <option value="6215">6215 :Medical and diagnostic
 services</option> <option value="6216">6216 :Home health care
 services</option> <option value="6219">6219 :Other ambulatory health care
 hospitals</option> <option value="6221">6221 :General medical and surgical
 hospitals</option> <option value="6222">6222 :Psychiatric and substance abuse
 and substance abuse) hospitals</option> <option value="6223">6223 :Specialty (except psychiatric
 facilities</option> <option value="6231">6231 :Nursing care
 facilities</option> <option value="6232">6232 :Residential mental health
 the elderly</option> <option value="6233">6233 :Community care facilities for
 facilities</option> <option value="6239">6239 :Other residential care
 services</option> <option value="6241">6241 :Individual and family
 services</option> <option value="6242">6242 :Emergency and other relief
 services</option> <option value="6243">6243 :Vocational rehabilitation
 services</option> <option value="6244">6244 :Child day care
 companies</option> <option value="7111">7111 :Performing arts
 sports, and similar events</option> <option value="7112">7112 :Spectator sports</option>
 figures</option> <option value="7113">7113 :Promoters of performing arts,
 and performers</option> <option value="7114">7114 :Agents and managers for public
 similar institutions</option> <option value="7115">7115 :Independent artists, writers,
 arcades</option> <option value="7121">7121 :Museums, historical sites, and
 industries</option> <option value="7131">7131 :Amusement parks and
 and recreational camps</option> <option value="7132">7132 :Gambling industries</option>
 houses</option> <option value="7139">7139 :Other amusement and recreation
 restaurants</option> <option value="7211">7211 :Traveler accommodation</option>
 places</option> <option value="7212">7212 :RV (recreational vehicle) parks
 <option value="7213">7213 :Rooming and boarding
 <option value="7221">7221 :Full-service
 <option value="7222">7222 :Limited-service eating
 <option value="7223">7223 :Special food services</option>

```

        <option value="7224">7224 :Drinking places (alcoholic
beverages)</option>
        <option value="8111">8111 :Automotive repair and
maintenance</option>
        <option value="8112">8112 :Electronic and precision
equipment repair and maintenance</option>
        <option value="8113">8113 :Commercial machinery repair and
maintenance</option>
        <option value="8114">8114 :Personal and household goods
repair and maintenance</option>
        <option value="8121">8121 :Personal care services</option>
        <option value="8122">8122 :Death care services</option>
        <option value="8123">8123 :Drycleaning and laundry
services</option>
        <option value="8129">8129 :Other personal
services</option>
        <option value="8131">8131 :Religious
organizations</option>
        <option value="8132">8132 :Grantmaking and giving
services</option>
        <option value="8133">8133 :Social advocacy
organizations</option>
        <option value="8134">8134 :Civic and social
organizations</option>
        <option value="8139">8139 :Professional and similar
organizations</option>
    </select>

```

```

        <input type="submit" value="Submit" />
    </form>

```

```

</div>

```

```

    <div id="menu" style="background-
color:white;height:100%;width:40%;float:left;">
        <b><font size="5">What is a Location Quotient?</font></b>
        <b></b>
        <p><font size="4.5">

```

A location quotient or LQ, is a value used to measure industry specialization within a region.

It compares industry employment or establishment data within a county to larger reference area.

If the resulting LQ value is greater than 1.25 then the region is considered specialized

in that industry.

```

    </font></p>
    <div >
        
    </div>

```

```

    <p><font size="4.5">
        Here, you have the option of comparing county level industry data to
either the state of California<br />
or the nation. Also, you can choose between employment or
establishment as the variable of <br />
comparison.
    </font></p>

```

```

    <p><font size="4.5">
    <br></br>
    After you've made your selection and click submit, you will be linked
to a web map application<br /> that
    will display the results of your selection.
    </font></p>

```

```

</div>

```

```

<div id="footer" style="background-color:#929761;clear:both;text-
align:center;">

```

```

    Industry Cluster Analysis</div>

```

```

</div>

```

```

</body>

```

```

</html>

```

```

dojo.require("esri.map");
dojo.require("esri.arcgis.utils");

```

```

var map;

```

```

function init() {

```

```

    var urlObject = esri.urlToObject(document.location.href);

```

```

    var agoId = "ac72baee6bed4957bd6519c11c5e3b00";

```

```

    var bingMapsKey;

```

```

    if (urlObject.query) {

```

```

        //agoId = urlObject.query.webmap;

```

```

        bingMapsKey = urlObject.query.bingMapsKey;

```

```

    }

```

```

    else {

```

```

        agoId = "ac72baee6bed4957bd6519c11c5e3b00"

```

```

    }

```

```

    var itemDeferred = esri.arcgis.utils.getItem(agoId);

```

```

    itemDeferred.addCallback(function (itemInfo) {

```

```

        dojo.byId("title").innerHTML = itemInfo.item.title;

```

```

        dojo.byId("subtitle").innerHTML = itemInfo.item.snippet;

```

```

        dojo.byId("dataSource").innerHTML = "<a target='_blank'

```

```

href='http://www.arcgis.com/home/item.html?id=" + agoId + "'>View data
details</a>";

```

```

        var mapDeferred = esri.arcgis.utils.createMap(itemInfo, "map", {

```

```

            mapOptions: {

```

```

                slider: true

```

```

            },

```

```

            bingMapsKey: bingMapsKey,

```

```

            geometryServiceURL:

```

```

"http://sampleserver3.arcgisonline.com/ArcGIS/rest/services/Geometry/GeometryServe
r"

```

```

        });

```

```

        mapDeferred.addCallback(function (response) {

```

```

            map = response.map;

```

```

            if (map.loaded) {

```

```

                addScalebar();

```

```

                loadLQLayer();

```

```

        addIdentify(response.itemInfo);
    } else {
        dojo.connect(map, "onLoad", function () {
            addScalebar();
            loadLQLayer();

            addIdentify(response.itemInfo);
        });
    }
    dojo.connect(dijit.byId('map'), 'resize', resizeMap);
});
mapDeferred.addErrback(function (error) {
    console.log("Map creation failed: ", dojo.toJson(error));
});

});
itemDeferred.addErrback(function (error) {
    console.log("getItem failed: ", dojo.toJson(error));
});

}

function resizeMap() {
    //resize the map when the browser resizes - view the 'Resizing and
    repositioning the map' section in
    //the following help topic for more details
    http://help.esri.com/EN/webapi/javascript/arcgis/help/jshelp\_start.htm#jshelp/inside\_guidelines.htm
    var resizeTimer;
    clearTimeout(resizeTimer);
    resizeTimer = setTimeout(function () {
        map.resize();
        map.reposition();
    }, 500);
}

function addScalebar() {
    var scalebar = new esri.dijit.Scalebar({
        map: map,
        scalebarUnit: "english" //metric or english
    });
}

function addLegend() {
    //legend widget definition will go here

}

function loadLQLayer() {
    //by default hide all of the feature service layers we are NOT using
    for (var i = 4; i < 20; i++) {
        map.getLayer("operational" + i).hide();
    }

    var urlObject = esri.urlToObject(document.location.href);

```

```

    var levelOfComparison = urlObject.query.levelOfComparison, lqVariable =
urlObject.query.lqVariable,
        twoDigitCode = urlObject.query.twoDigitCode, threeDigitCode =
urlObject.query.threeDigitCode,
        fourDigitCode = urlObject.query.fourDigitCode;

console.log(twoDigitCode);
console.log(threeDigitCode);
console.log(fourDigitCode);

var targetLayerId, naicsVar;
if (levelOfComparison == "State") {
    //state

    if (lqVariable == "Employment") {
        //employment

        if (fourDigitCode != "") {
            //four digit code

            var fourDigParsed = parseInt(fourDigitCode);
            if (fourDigParsed < 5111) {
                //bottom half
                targetLayerId = "18";
            }
            else {
                //top half
                targetLayerId = "17";
            }
            naicsVar = "STEMP_" + fourDigitCode;
        }
        else if (threeDigitCode != "") {
            //three digit code
            targetLayerId = "19";
            naicsVar = "STEMP3__STEMP_" + threeDigitCode;
        }
        else {
            //two digit code
            targetLayerId = "20";
            naicsVar = "STEMP2__STEMP_" + twoDigitCode;
        }
    }
    else {
        //establishment

        if (fourDigitCode != "") {
            //four digit code

            var fourDigParsed = parseInt(fourDigitCode);
            if (fourDigParsed < 5111) {
                //bottom half
                targetLayerId = "10";
            }
            else {
                //top half
                targetLayerId = "9";
                naicsVar = "STEST_" + fourDigitCode;
            }
        }
    }
}

```

```

    }
    else if (threeDigitCode != "") {
        //three digit code
        targetLayerId = "11";
        naicsVar = "STEST3__STEST_" + threeDigitCode;
    }
    else {
        //two digit code
        targetLayerId = "12";
        naicsVar = "STEST2__STEST_" + twoDigitCode;
    }
}
}
else {
    //nation

    if (lqVariable == "Employment") {
        //employment

        if (fourDigitCode != "") {
            //four digit code

            var fourDigParsed = parseInt(fourDigitCode);
            if (fourDigParsed < 5111) {
                //bottom half
                targetLayerId = "14";
            }
            else {
                //top half
                targetLayerId = "13";
            }
            naicsVar = "USEMP_" + fourDigitCode;
        }
        else if (threeDigitCode != "") {
            //three digit code
            targetLayerId = "15";
            naicsVar = "USEMP3__USEMP_" + threeDigitCode;
        }
        else {
            //two digit code
            targetLayerId = "16";
            naicsVar = "USEMP2__USEMP_" + twoDigitCode;
        }
    }
    else {
        //establishment

        if (fourDigitCode != "") {
            //four digit code

            var fourDigParsed = parseInt(fourDigitCode);
            if (fourDigParsed < 5111) {
                //bottom half
                targetLayerId = "6";
            }
            else {
                //top half

```



```

        targetLayerId = "5";
    }
    naicsVar = "USEST_" + fourDigitCode;
}
else if (threeDigitCode != "") {
    //three digit code
    targetLayerId = "7";
    naicsVar = "USEST3__USEST_" + threeDigitCode;
}
else {
    //two digit code
    targetLayerId = "8";
    naicsVar = "USEST2__USEST_" + twoDigitCode;
}
}
}

var targetLayer = map.getLayer("operational" + targetLayerId);
targetLayer.show();

var symbol = new esri.symbol.SimpleFillSymbol();
symbol.setColor(new dojo.Color([255, 250, 250, 0.75])); //default color

console.log(targetLayer.name);

var renderer = new esri.renderer.ClassBreaksRenderer(symbol, naicsVar);
//class break colors

    renderer.addBreak(0.0, 0.75, new
esri.symbol.SimpleFillSymbol().setColor(new dojo.Color([140, 184, 164, 0.85]]));
    renderer.addBreak(0.76, 1.24, new
esri.symbol.SimpleFillSymbol().setColor(new dojo.Color([153, 204, 102, 0.85]]));
    renderer.addBreak(1.25, 2.0, new
esri.symbol.SimpleFillSymbol().setColor(new dojo.Color([247, 122, 45, 0.85]]));
    renderer.addBreak(2.01, 12.5, new
esri.symbol.SimpleFillSymbol().setColor(new dojo.Color([232, 21, 21, 0.85]]));
    targetLayer.setRenderer(renderer);

}

//show map on load
dojo.addOnLoad(init);

```