

Site Selection Analysis of Panda Express in Central Los Angeles Based on GIS Methods

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PPD631: Geographic Information Systems for Public Policy, Planning & Development

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December 8, 2019

## **Introduction**

Panda Express is a fast-food restaurant chain which serves American Chinese cuisine. It was founded in 1983 by Andrew Cherng and his wife Peggy Cherng at the Glendale Galleria Mall in California. Today, there are currently more than 2,000 stores worldwide. While stores are mainly located in the United States, it has branches in Canada, Mexico, Russia and other places (Boss, 2006). It is experiencing rapid development under the American fast-food culture and continuously seeking new locations based on its food characteristics and target customers. The company prefers to have store locations with high visibility and accessibility, such as regional and super-regional shopping centers, university campuses, and other non-traditional food court sites with a strong balance of residential and daytime activity.

This paper will use the central area of Los Angeles to analyze the location characteristics of Panda Express and try to find potential areas suitable for opening new stores in this area. This paper will analyze four potential factors Panda Express considers when selecting a potential new location: (1) total population in the surrounding area, (2) hospital and medical centers, (3) shopping centers, and (4) colleges and universities. This paper will use ten original sites to examine how the potential factors play a role in Panda Express's choice of location. Using the results, some potential locations will be ruled out. The GIS map will clearly display the location distribution and overlapping areas between related elements, which could help Panda Express find potential site selection areas in Central Los Angeles.

## **Data**

According to Panda Express's site criteria, this article sets a buffer zone of each Panda Express to one to two miles. This buffer zone equates to a five to ten-minute drive time. In order to explore Panda Express's preference for different influencing factors when choosing a site, I

also set buffer zones of hospitals and medical centers, shopping centers, and university and college campuses to one to two miles.

### **Current Panda Express Locations In Central Los Angeles**

There are currently ten Panda Express locations in Central Los Angeles. I obtained their addresses and store names on Panda Express's official website and organized them into Excel tables. The data is as follows.

<b>Name</b>	<b>Address</b>
La Cienega & Horner	1544 S La Cienega Blvd, Los Angeles, CA 90035
Pico & San Vicente	4700 West Pico Blvd, Los Angeles, CA 90019
Cahuenga & Yucca	1803 N. Cahuenga Blvd, Hollywood, CA 90028
Sunset & Western	5543 West Sunset Blvd, Los Angeles, CA 90028
Vine & Waring - Vons	727 North Vine St, Los Angeles, CA 90038
Western & Venice Panda Express	1713 S Western Ave, Los Angeles, CA 90019
Wilshire & Union	1603 Wilshire Blvd, Los Angeles, CA 90017
Los Angeles Central Library	630 W. 5th Street, Los Angeles, CA 90071
Washington Blvd & Trinity Panda Express	524 E Washington Blvd, Los Angeles, CA 90011
4th & Grand	350 S Grand Ave #1a, Los Angeles, CA 90071

### **Neighborhood and Population**

According to Mapping L.A., Central Los Angeles contains 26 neighborhoods. In 2010, the total population of this area was 836,638 and the current population is estimated to be 8.80 million. To ensure visibility and accessibility, I set the population of neighborhoods that may open Panda Express stores in the future to be greater than 30,000.

### **Hospitals and Medical Centers**

There are eighteen hospitals and medical centers in Central Los Angeles. Because of the source limitation of Central Los Angeles, I found data on hospitals and medical centers throughout Los Angeles on ArcGIS Hub and deleted unnecessary data outside Central Los Angeles.

### **Shopping Centers**

According to Eric Garcetti @ MayorOfLA, there are twenty-one shopping centers in Central Los Angeles. Most of them are comprehensive malls that include restaurants, supermarkets, shops, and entertainment facilities.

### **University and College Campuses**

Based on data from ArcGIS Hub, there are 38 university campuses in the Central Los Angeles regions. Panda Express opens new stores at colleges and universities with more than 14,000 people. When using the data, I deleted information about university and college campuses located outside Central Los Angeles.

### **Methodology**

Figure 1 shows the distribution of ten Panda Express sites in Central Los Angeles. In the southeast corner of the map, the two stores named 4<sup>th</sup> & Grand and Los Angeles Central Library Panda Express are located within one mile of one another. I need to analyze the total population distribution to further analyze whether the store has a wrong location setting problem.

## Distribution of Panda Express in Central Los Angeles

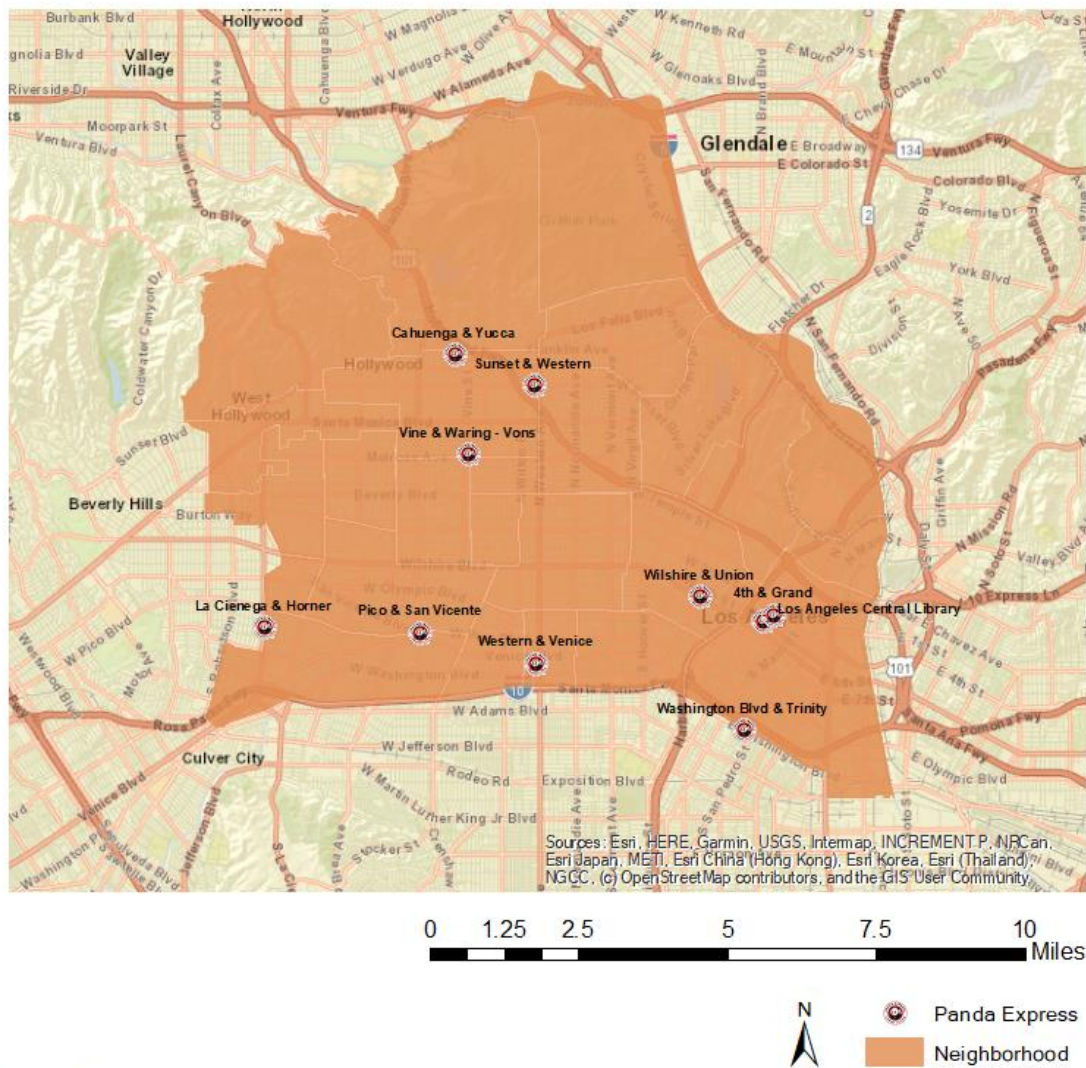
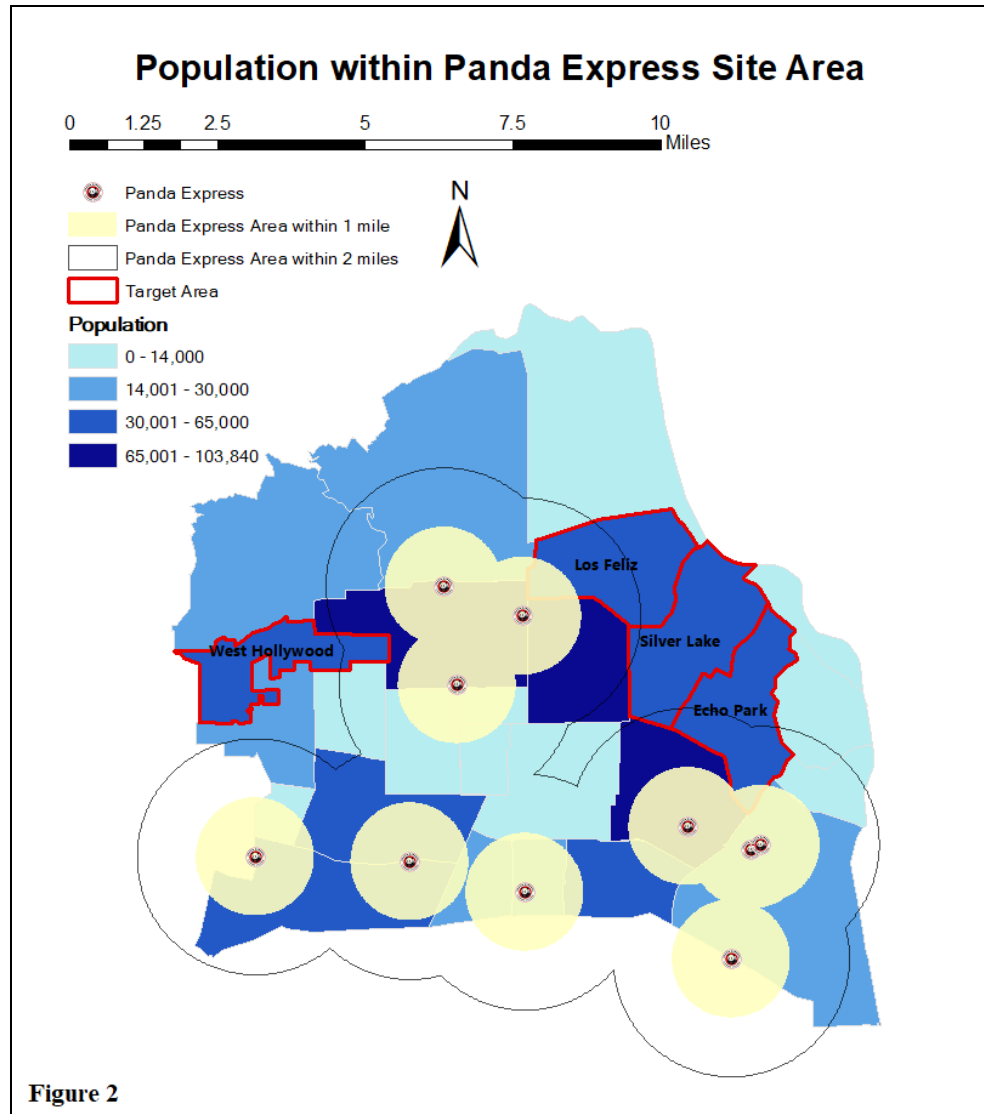


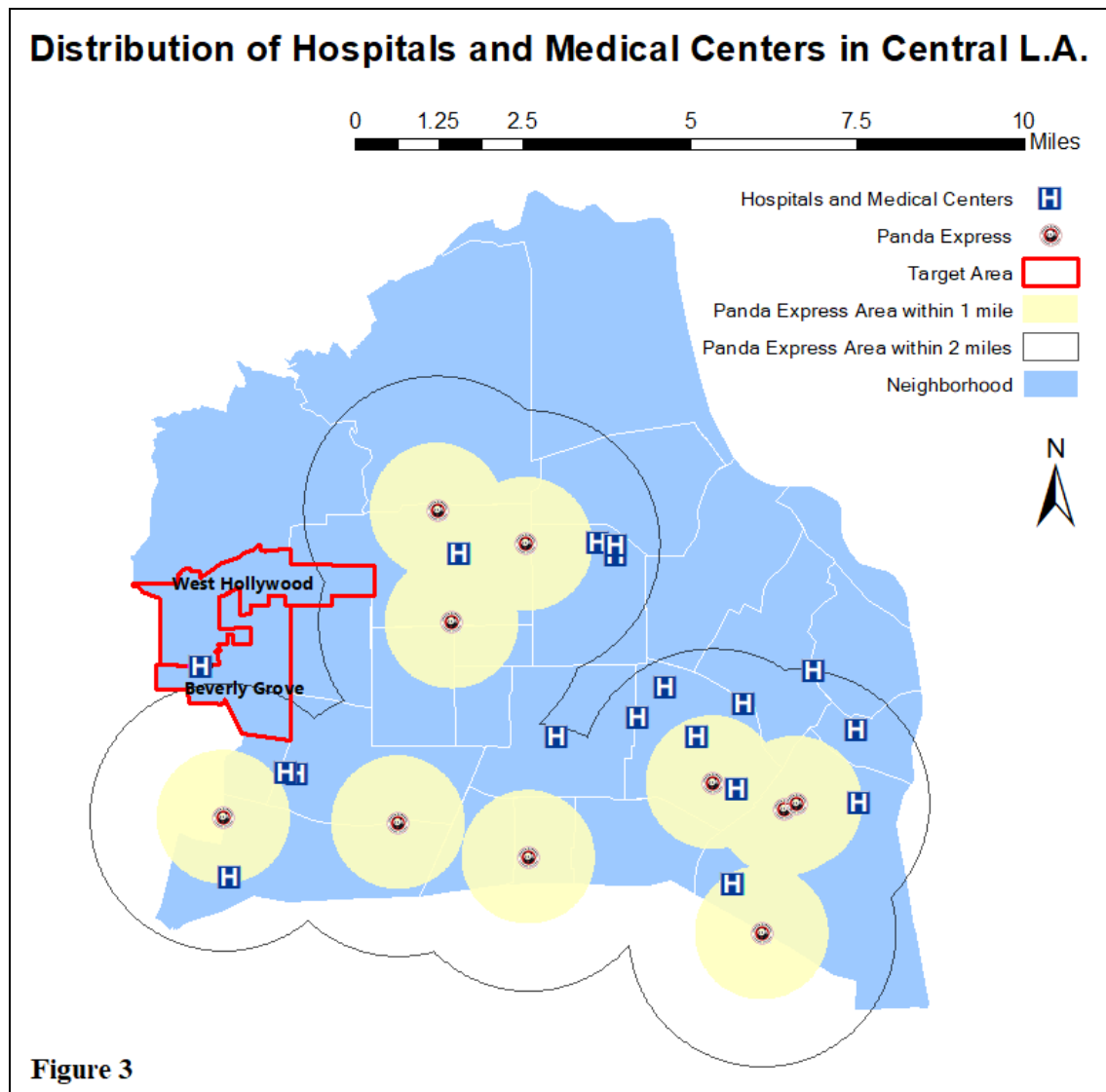
Figure 1



In Figure 2 (Population within Panda Express Site Area), I found that the majority of the Panda Express locations were established in parts of the city with more than 30,000 residents. Only three stores were built in an area where the number of potential customers is less than 30,000. Therefore, I believe that Panda Express is more inclined to open stores with a population greater than 30,000 and based on this preference, I have found four potential neighborhoods suitable for a new store: West Hollywood, Los Feliz, Silver Lake, and Echo Park.

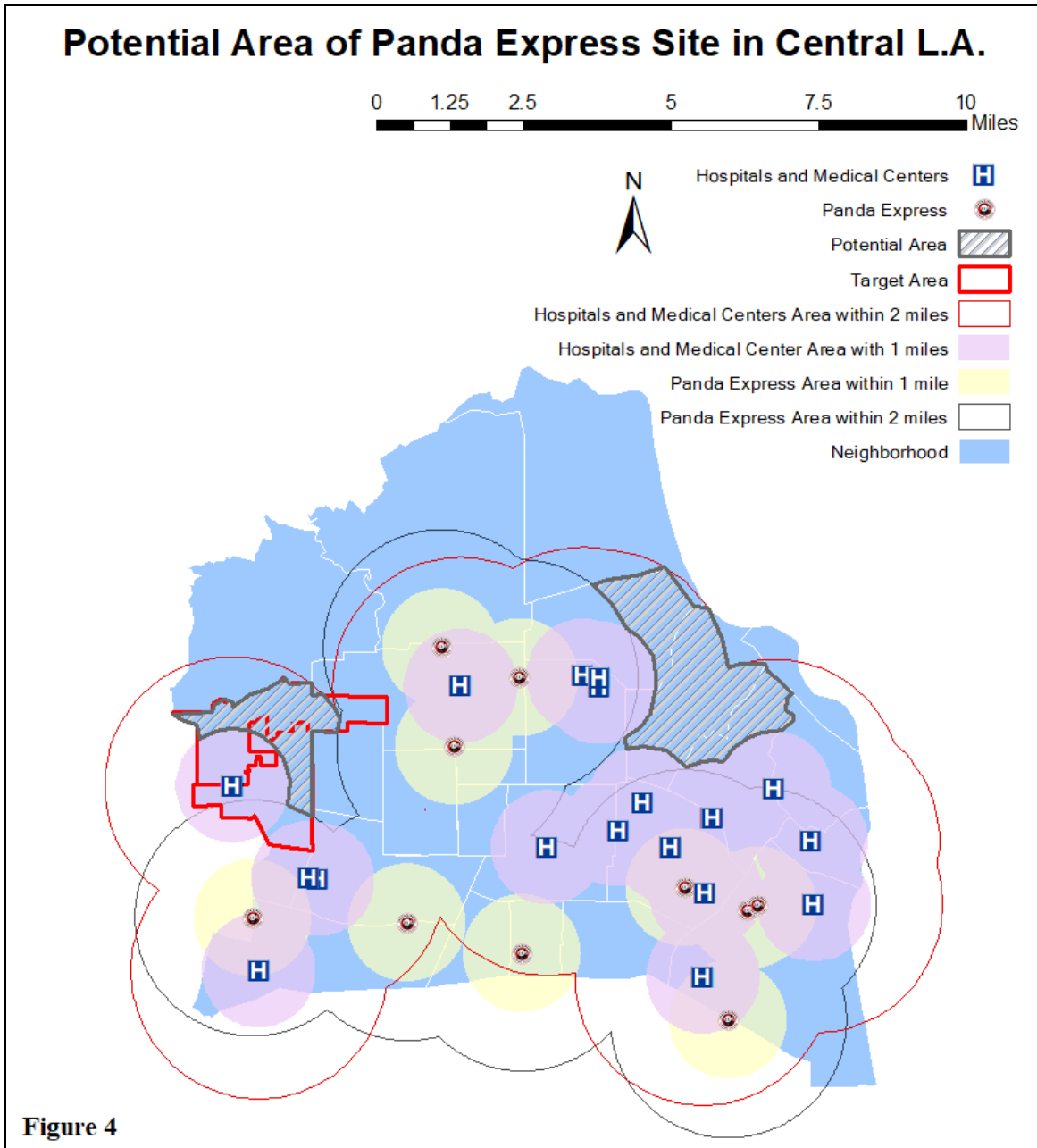
Meanwhile, the 4<sup>th</sup> & Grand and Los Angeles Central Library Panda Express are in an area population between 14,001 to 30,000. This population size does not require two sites in this

area. It is worth mentioning, however, that the Los Angeles Central Library Panda Express is in the Central Los Angeles Library, which has a day population much different than its residential population. Knowing that visitors to library would prefer to eat within walking distance of the library, Panda Express opened a branch directly in the library.



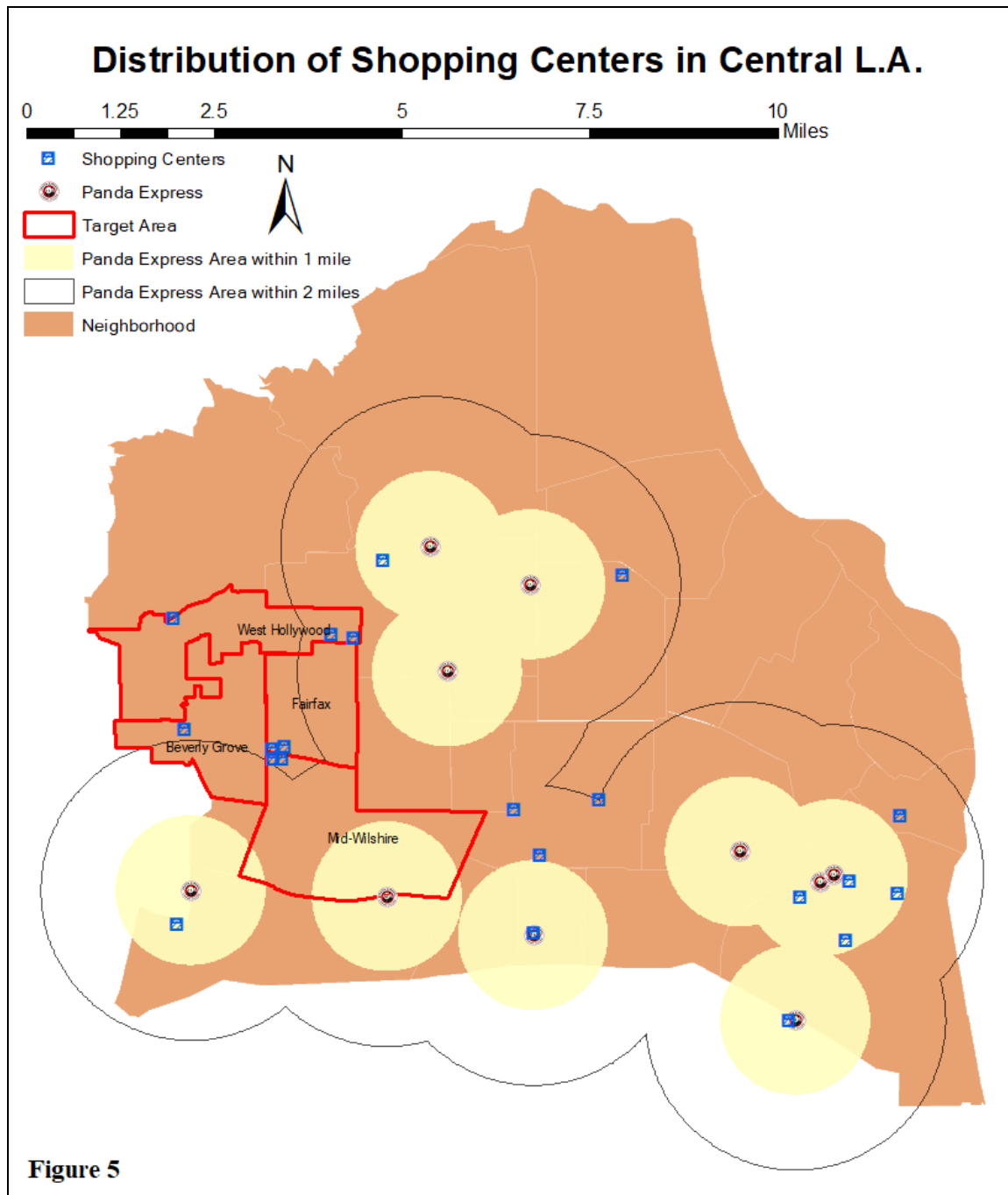
According to Figure 3 (Distribution of Hospital and Medical Centers in Central L.A.), I found that Panda Express prefers to avoid having locations close to a hospital. For example, only 5 of 18 hospitals shown on the chart were in the one-mile zone of a Panda Express. Panda Express will, however, place a store within two miles from a hospital. Therefore, I set hospitals

at the center of the circle and drew two circles: one with a one-mile radius and one with a two-mile radius of each hospital. The new sites will be chosen from the areas, outside of the one-mile zone, but within the two-miles zone of a hospital.



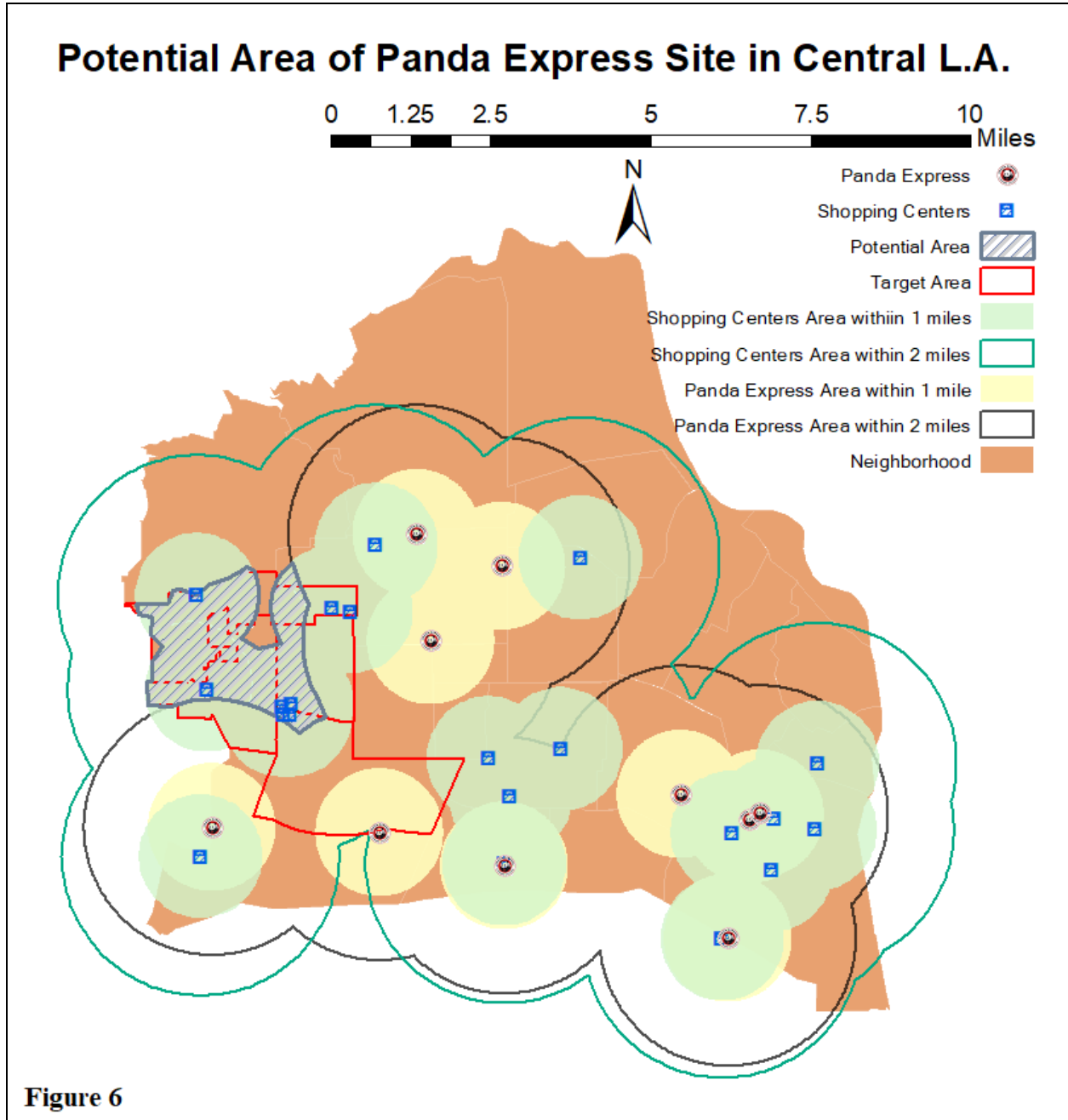
As shown in Figure 4, the two gray shaded areas are potential areas which are suitable for a new Panda Express store.





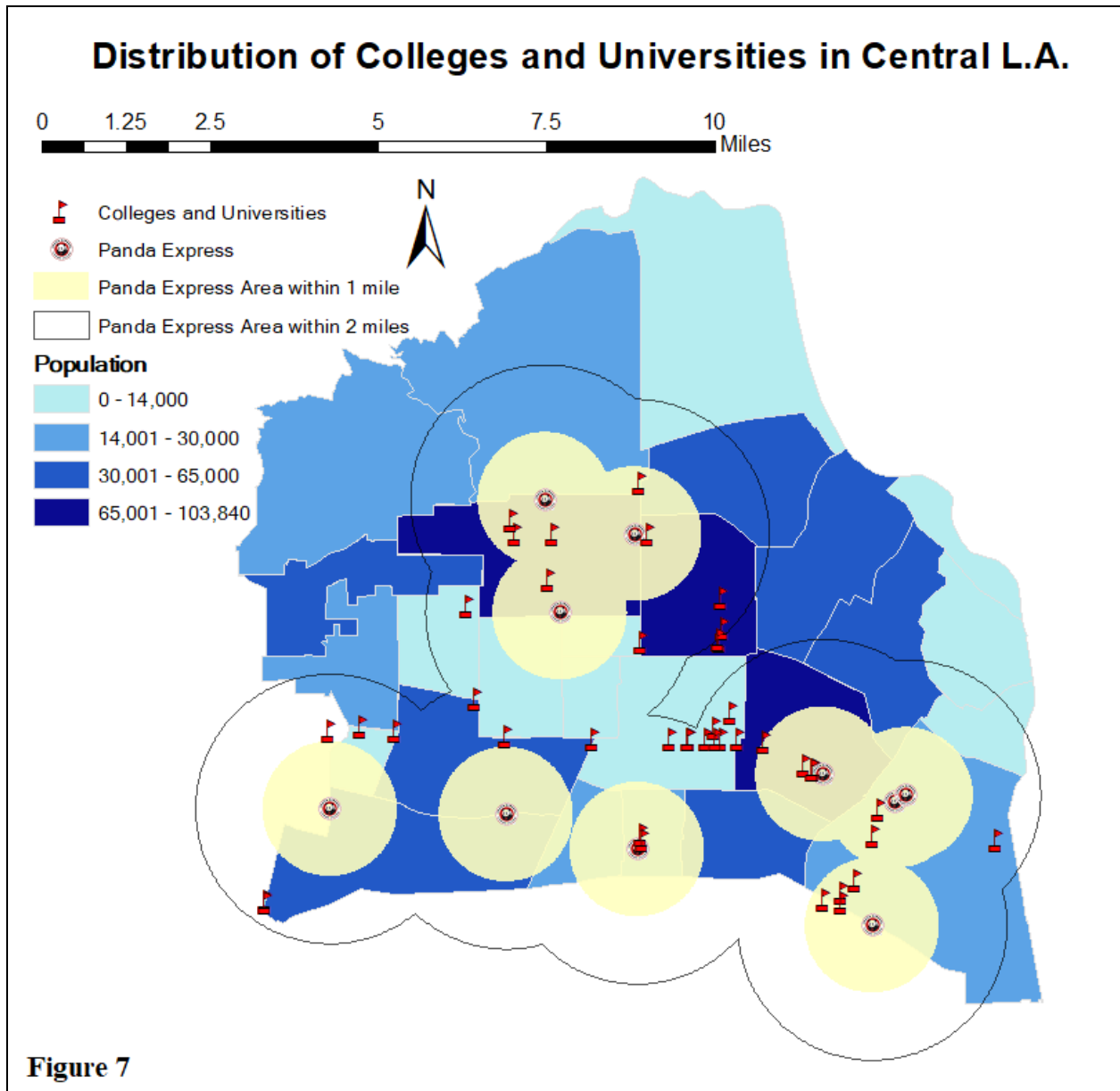
According to Figure 5 (Distribution of Shopping Centers in Central L.A.), the distance of the nearest shopping center is a critical indicator when determining whether a new Panda Express should be established in that region. Panda Express prefers locations close to shopping centers. As such, several target neighborhoods can be ruled out.

The new sites will be chosen from the areas-outside of the two-mile zone, but within the one-mile zone of a shopping center. The gray shaded areas in Figure 6 show the potential area for a new Panda Express site.



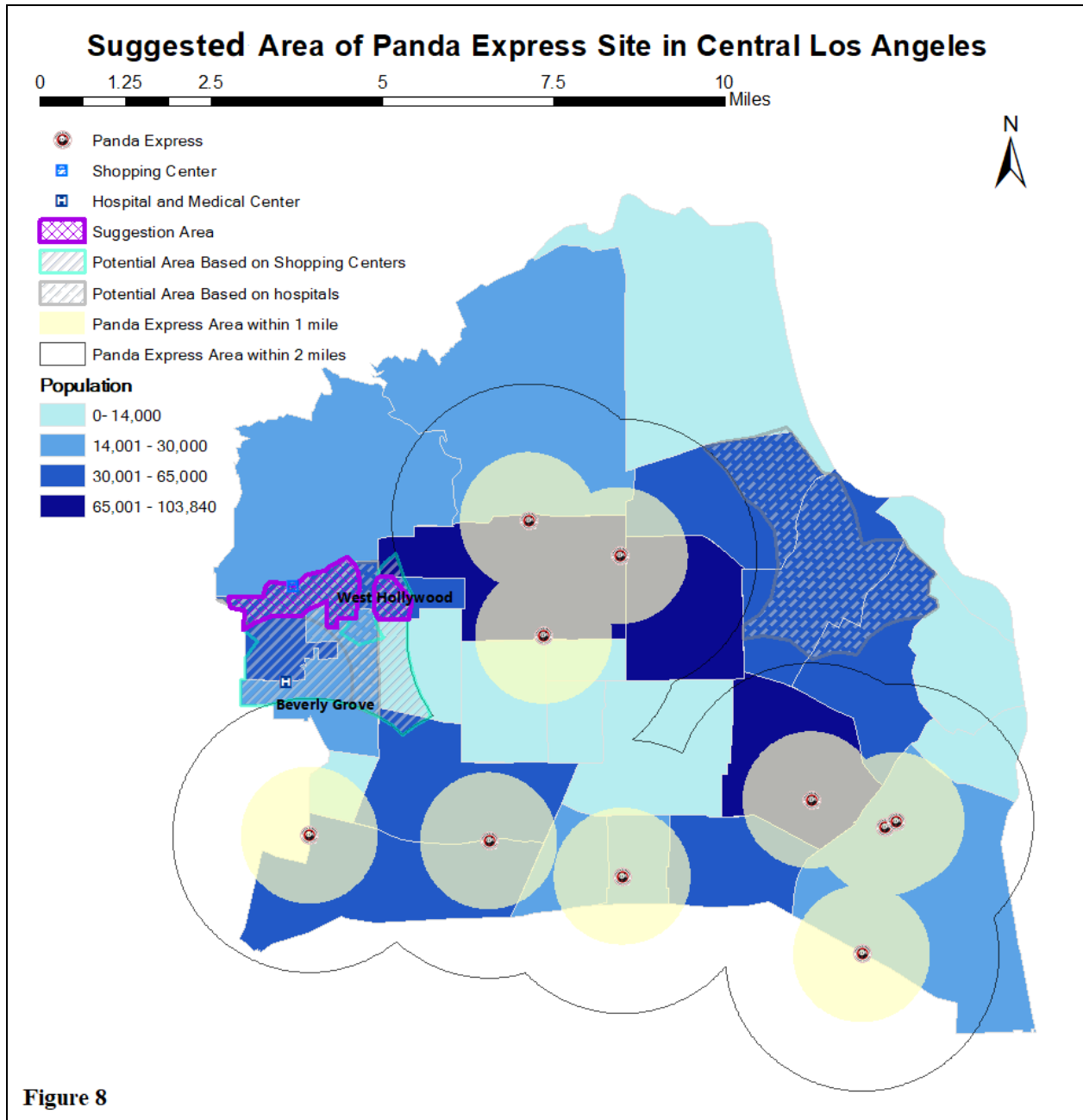
According to Figure 7 (Distribution of Colleges and Universities in Central L.A.), it is likely that a good portion of patrons of Panda Express are students, teachers, and college staff

when the stores are located near universities or colleges. Panda Express provides cheap and fast food which suits students' requirements. Because there are no universities or colleges in the Central Los Angeles region, it is a big concern whether this location is suitable for Panda Express.



In order to find the most suitable area for a new Panda Express store, I overlapped the areas found by the four factors. Specifically, I overlapped the area with a population greater than

30,000 with the potential area found in Figure 4 and Figure 6 to get the final suggested area. As shown in Figure 8, the purple shaded area is the suggested area where I propose to open a new store, which is the northwestern and central parts of West Hollywood. Although there are no college and university campuses in this area, the population here is more than 30,000 and it is in a one-mile radius of a shopping center and two-mile radius of a hospital.



### **Conclusion**

Through the analysis and verification of the four variables, I can draw the following conclusions. First, the 4<sup>th</sup> & Grand and Los Angeles Central Library Panda Express locations may have a problem of wasting resources. Considering the unique location of the latter location, I think that these two stores can still be profitable. Secondly, after combining multiple factors, I believe that the northwestern and central parts of West Hollywood are the best potential sites for a new Panda Express. Last but not least, although the suggested area doesn't have a college or university nearby, the store will still be successful.

### **Limitation**

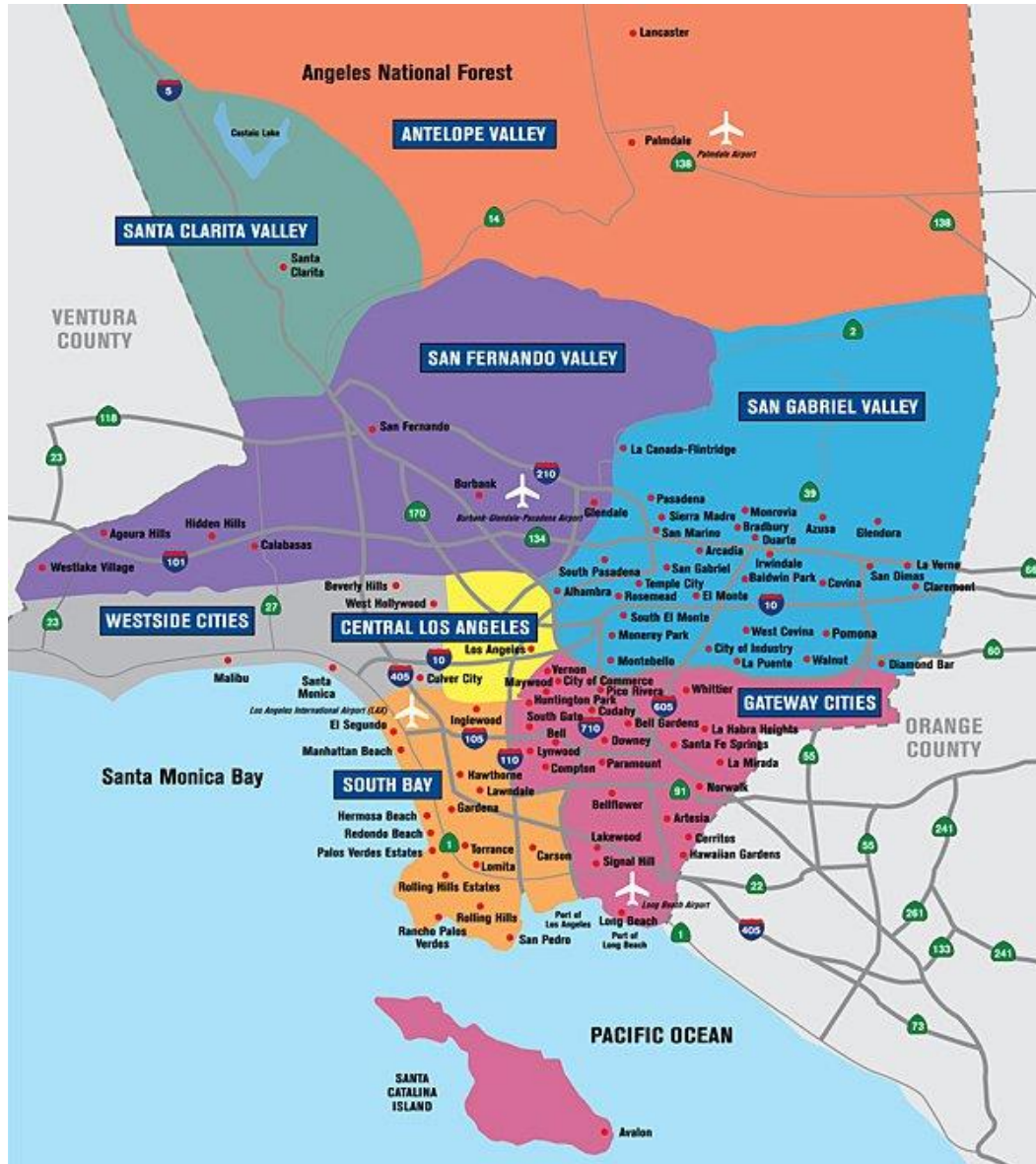
Due to the difficulty in finding relevant data, the population analysis does not distinguish between daily visitors to a region and the region's actual residential population, which has the probability to rule out some regions with sufficient customers but a small population. For example, the Griffith Park Community receives an estimated 3 million visitors each year—this figure does not reflect the region's actual residential population. In future research, I will refine the data classification and study special areas, such as Griffith Park.

Moreover, I only considered four factors—total population, hospitals and medical centers, shopping centers, and colleges and universities—when I chose alternative locations. If I do not consider resource constraints, I will add more variables for analysis, and may even get the specific impact of different factors.

Additionally, all the analysis in this paper is qualitative. Further research is needed. If I could build a quantitative model to weigh the degree of the factors influencing the profitability of Panda Express, the results would be much more convincing.

Appendix

Data Name	Resources	Link
Panda Express location	Panda Express official website	<a href="https://bit.ly/2rMAiXy">https://bit.ly/2rMAiXy</a>
Neighborhood and Population	Mapping L.A.	<a href="https://bit.ly/37UR8nG">https://bit.ly/37UR8nG</a>
Shopping Centers	Eric Garcetti@ MayorOfLA	<a href="https://bit.ly/2OE4JrK">https://bit.ly/2OE4JrK</a>
University and College Campuses	ArcGIS Hub	<a href="https://bit.ly/2OBXReo">https://bit.ly/2OBXReo</a>
Hospitals and Medical Centers	ArcGIS Hub	<a href="https://bit.ly/2P0tnBL">https://bit.ly/2P0tnBL</a>



Full-size map of Los Angeles  
 Source: <https://mila.ss.ucla.edu/>

### Reference

Site criteria PDF for website. <https://m.pandaexpress.com/files/PandaExpressSiteCriteria.pdf>

Boss, D. (2006). Panda express: FE&S FE&S. *Foodservice Equipment & Supplies*, 59(4), 44-46.

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