Robin Franke

Professor Bonnie Shrewsbury

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A Walkability Analysis of Huntington Park by Census Tract

Introduction

Los Angeles Metro has approved a new 19-mile light rail transit project that will serve the Gateway Cities area called the West Santa Ana Branch (WSAB). The Gateway Cities has previously not been well served by transit and this project is a big push for accessibility in the region. The WSAB is slated to originate at 7th/ Metro and will go all the way to Artesia. For my project, I specifically focused on one of the cities that the WSAB project runs through: Huntington Park. Huntington Park is a very small city, spanning only 3 square miles. Huntington Park has a population of about 60,000 people and is located Southeast of Downtown Los Angeles. For the WSAB project, two stations are going to be placed in Huntington Park.

Defining the Problem

After much discussion and other preliminary proposals, LA Metro has determined that two stations are going to be placed in Huntington Park. One station will be at Pacific Avenue and Randolph Street, while the other will be placed at the intersection of Florence and Salt Lake. See Figure 1:

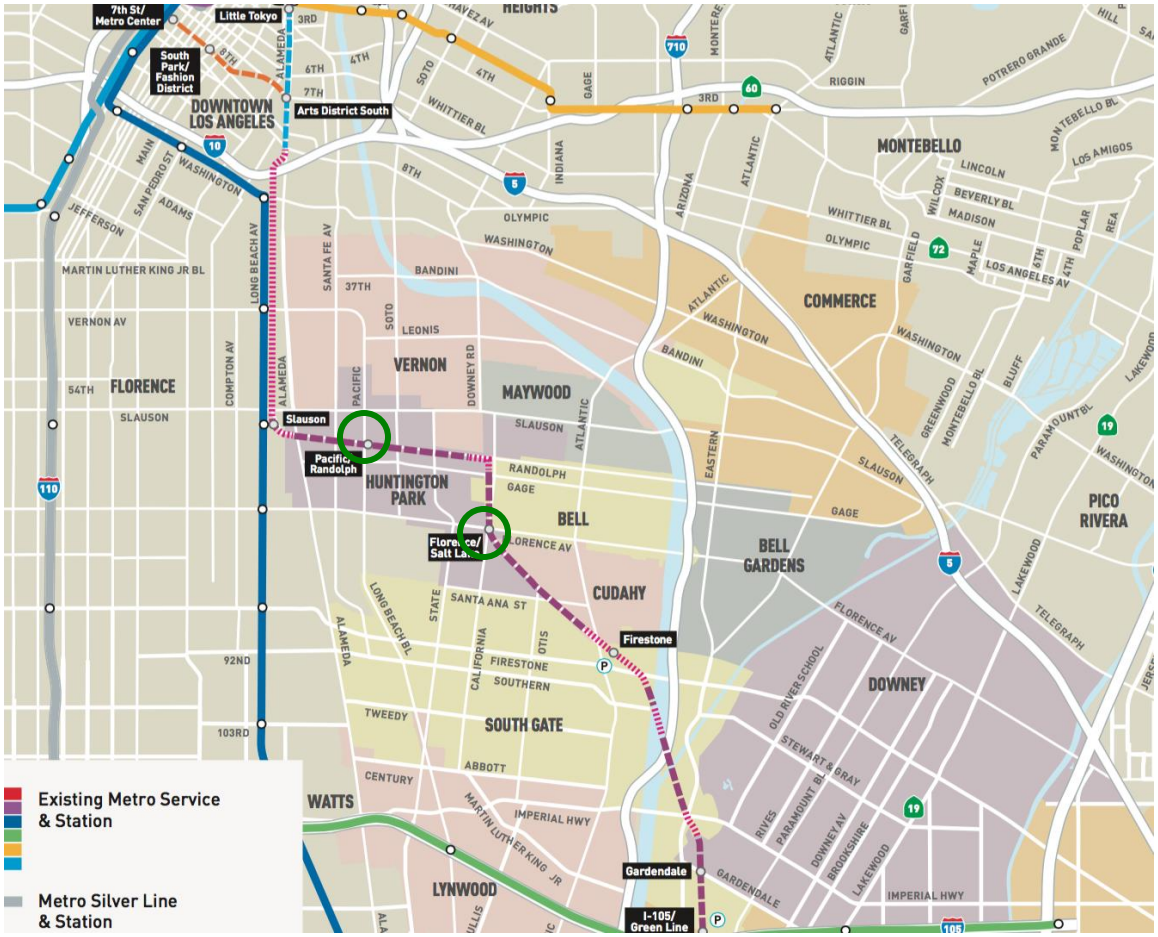

Figure 1: West Santa Ana Branch Stations. Source: LA Metro

I have been curious as to why Metro specifically chose these locations for the stations and how they determined these locations to be the most optimal within the city. A popular GIS analysis to do for transit projects is a walkability analysis to see which stations or stops are the most accessible to specific walkable features in the vicinity. I decided to do a walkability index by census tract for the city of Huntington Park and see if that has any correlation to the locations that Metro decided for the stations. The index I decided to create was one that looked at the count of walkable destinations within each census as a rating for the most walkable census tracts.

Data

The data sets I needed to conduct the walkability analysis depended on what I wanted to consider as walkable features in the city. Based on previous precedents for walkability analyses, I determined that I would need to get data for schools, grocery stores, and parks.

The first dataset I downloaded was the city boundary layer for Huntington Park. I downloaded this data from the LA County GIS Data Portal and then I selected Huntington Park's polygon and saved exported it as a new layer. I then went to the census website to retrieve the census tract data for LA County. Lastly, I clipped the data to only show the census tracts for Huntington Park.

Next, I went to the LA County GIS data portal again to download school data and parks data. Because these were for the whole county, I had to select the points that were within the Huntington Park city boundary and export it as a new layer. I could not find grocery store data for Huntington Park or LA County in general, so I created my own. To do this, I pulled up Google maps and noted where every grocery store was in the satellite image. I then created my own shapefile and manually added the points for each grocery store in the city. The parks data, the school data, and the grocery store data were all point data.

Lastly, I needed to get the data for the two proposed stations for the WSAB project. I used the address locator tool in ArcMap to create points for the two stations on the map. I created these in a new shapefile that I made. I then changed the symbol of the station to be a nifty train logo.

Combining Data

Once I had all the data I needed, I combined all the shapefiles to one singular shapefile to make it easier to manage for an analysis. I then conducted a spatial join of the combined shapefile with the parks, schools, and grocery store data to the census tracts. Once the spatial join was completed, I opened the symbology tab of the census tract data and chose the join_count column to be displayed on the map. I chose a color wheel that would show the tracts with high walkability to be displayed as red while the areas that lack walkable features are shown in cooler blue colors.

Limitations

A limitation that I faced was that I had to create my own data for the grocery stores in Huntington Park. Due to the fact that I relied on satellite imagery and a search for grocery stores in the Huntington Park, I would assume that my data could be missing some smaller stores. Although this data may not be 100% accurate, it should serve as a good baseline of large grocery stores, which is an important part of the analysis. I believe that the data I collected is accurate enough to paint the picture of which tracts in Huntington Park are more walkable than others.

The small size of Huntington Park was also a limitation for my analysis. I chose to focus only on the city of Huntington Park and not consider the data for neighboring cities, even though some of the census tracts cross into other cities. I acknowledge that this means that the data for other cities may be applicable to the walkability of the census tracts and may have altered the results of the analysis.

Another limitation to note in my map is that I used points instead of polygons to identify parks and schools. Ideally, the map would be more accurate if polygons were

used to display these institutions, but the analysis was easier to conduct with all landmarks as point data.

Conclusion

The walkability analysis I conducted showed that the proposed stations are in areas that are displayed as the most walkable in the city of Huntington Park. See Figure 2 below:

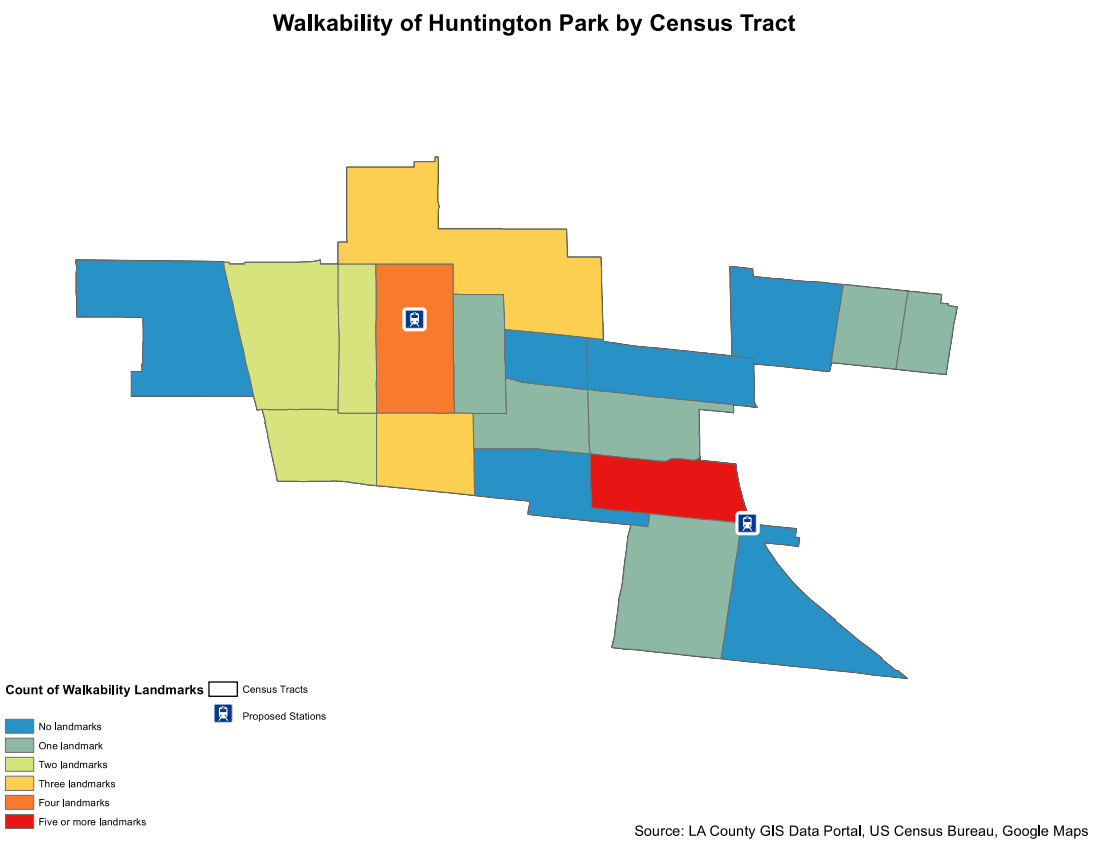

Figure 2

Count of Walkability Landmarks

FID *	Shape *	Join_Count	TARGET_FID	OBJECTID	GEOID10	CT10	LABEL	X_Center	Y_Center	Shape_STAr	Shape_STLe
1	Polygon	1	718	720	06037533202	533202	5332.02	6498068	1814595	3551252.4209	8872.596759
2	Polygon	1	719	721	06037533502	533502	5335.02	6502595	1816993	2521318.29492	6451.915319
3	Polygon	0	720	722	06037533201	533201	5332.01	6498561	1815866	4023503.03711	9389.9619
4	Polygon	1	721	723	06037533503	533503	5335.03	6503738	1816817	1868585.69434	5864.101802
5	Polygon	0	831	833	06037532700	532700	5327.00	6488502	1817106	8303018.42871	13628.005737
6	Polygon	0	856	858	06037533107	533107	5331.07	6496034	1813195	3722557.70508	10165.810331
7	Polygon	3	857	859	06037532500	532500	5325.00	6494569	1818814	10966013.8662	19244.786059
8	Polygon	5	892	894	06037533203	533203	5332.03	6498519	1813086	4143541.9834	9132.354928
9	Polygon	1	926	928	06037534501	534501	5345.01	6498700	1810702	7253320.30371	11078.385065

Figure 3

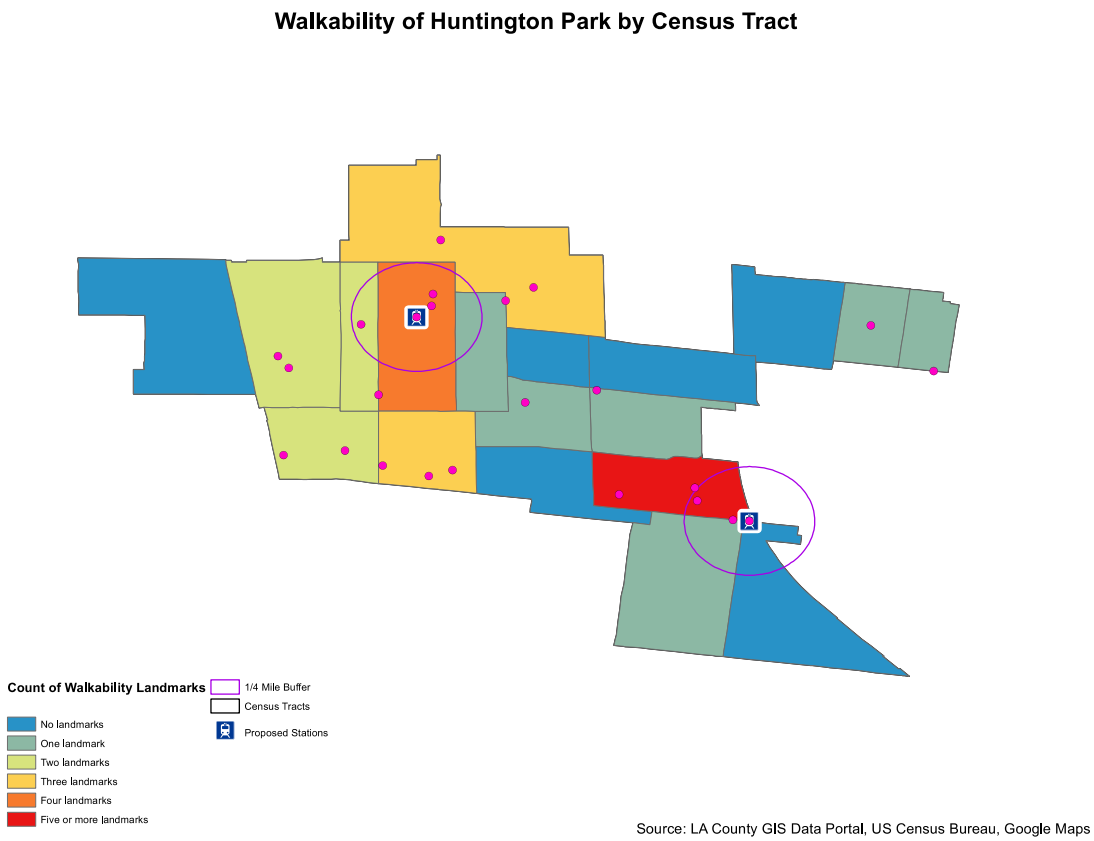

Figure 4

As mentioned in the data section, the map above shows the walkability of Huntington Park by census tract. A walkability analysis was made to show how many "walkable landmarks" are present in each census tract. The walkable features that are included in this analysis are grocery stores, parks, and schools. According to Human Transit, the comfortable walkable distance from a transit station is .25 miles, which is

about a 5-minute walk. Therefore, there is a .25-mile buffer around each transit station. Each landmark is displayed as a single point (See Figure 4) on the map and a spatial analysis was done to join the census layer with the point data. The map shows how many points are in each census tract in a color wheel. The fewer the landmarks in the census tract, the cooler the color is. As seen in the map above, the census tracts that hold the two proposed stations are red and orange, indicated that there were 5+ or 4 landmarks in the area. This is important to note as it indicates that the proposed stations have been placed in areas that are dense with land uses and shops that will be complemented with the WSAB.

This map reinforces the proposed locations for the WSAB stations in Huntington Park. The census tracts that have the highest amount of grocery stores, parks, and schools are where the stations are planned to be and that is a positive aspect for the project as it indicates that there are many destinations that are easily accessible via short walk from the station.

I decided to conduct the walkability analysis based on count rather than weighting each of the features because I determined that all the features were equally important. Due to this, I deemed that a count of the points in each census tract would be just as effective as a scoring system. Although this map reinforces the decision to keep the WSAB stations where they are, this maps shows other important aspects of the city. There are 6 census tracts in the city that have no grocery store, park, or school. This gives important information to new development projects that will certainly rise when the WSAB project is being built. This map can help point to specific areas in the city that are

in need of pedestrian-oriented development and land uses that improve the health of the community.

- Proofreader: Sam Deutsch