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PPD 631  
Final Project

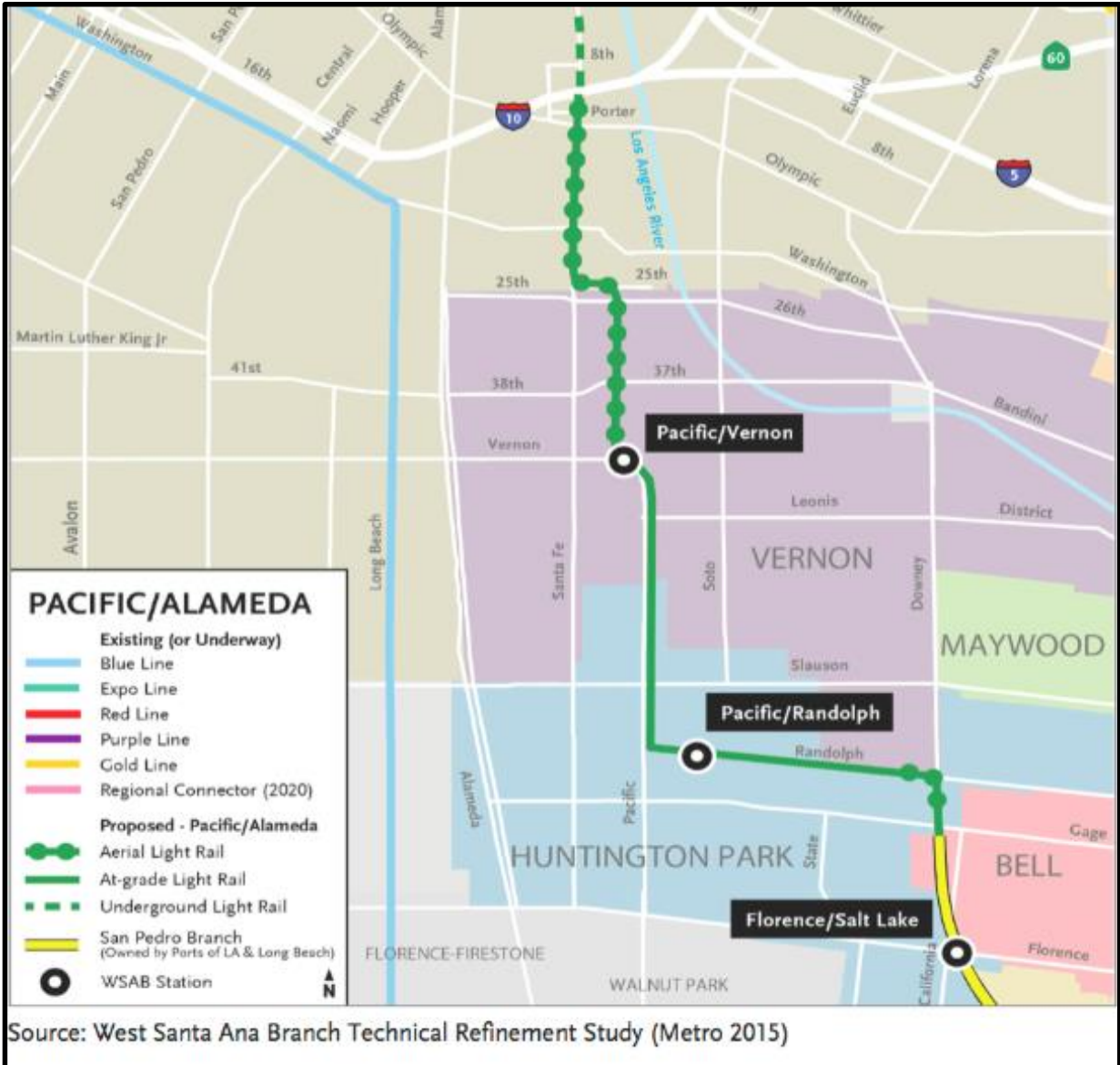
## **Commuter Dependency on Public Transit in Future WSAB Transit Corridor**

### **Background**

The West Santa Ana Branch Transit (WSAB) Corridor project aims to connect downtown Los Angeles to Southeast Los Angeles County, which includes 1.2 million residents in unincorporated territory in Florence-Graham, Vernon, Bell, Cudahy, South Gate, Downey, Paramount, Bellflower, Cerritos, Artesia, and Huntington Park, which is the focus on this report.

The City of Huntington Park is predominantly Hispanic or Latino, and an increasing majority of its 59,473 residents are renters rather than homeowners. Between 2000 and 2018, the percentage of individuals who travel to work by driving in Huntington Park increased by 12.6 percentage points according to a SCAG report. 49.2 percent of households own two or more vehicles, and common major destinations for commuters from the city include Los Angeles, Vernon, Commerce, South Gate, Downey, Carson, Santa Fe Springs, and Long Beach.

The following map visualizes the proposed WSAB project that would connect Huntington Park and its surrounding communities to DTLA:



Source: West Santa Ana Branch Technical Refinement Study (Metro 2015)

## **Introduction**

This project was prepared for PPD 631 but will also be incorporated into a Transportation Studio assignment for PPD 531. The goal of this project is to analyze the potential impact of two proposed light rail transit stations in Huntington Park, CA which would connect the area to Downtown Los Angeles at Union Station. The GIS analysis prepared for this report compares population density to the current rate of worker ridership and dependency on public transportation as a primary mode of commuting to work from Huntington Park and the surrounding South Gate region.

## **Maps**

The following maps on Page 4 and Page 5 visualize the population density of Huntington Park relative to its surrounding cities, and the ratio of workers who rely on public transportation relative to those who take other means in the same geography. The final map on Page 6 compares how many of Huntington Park workers take public transit and its average income relative to neighboring cities. All maps were created using ArcGIS Online and enrichment data that was available through ESRI within that program. This is further explained in the Limitations section of this report.

# Map 1: Population Density in Huntington Park and its Surrounding Areas

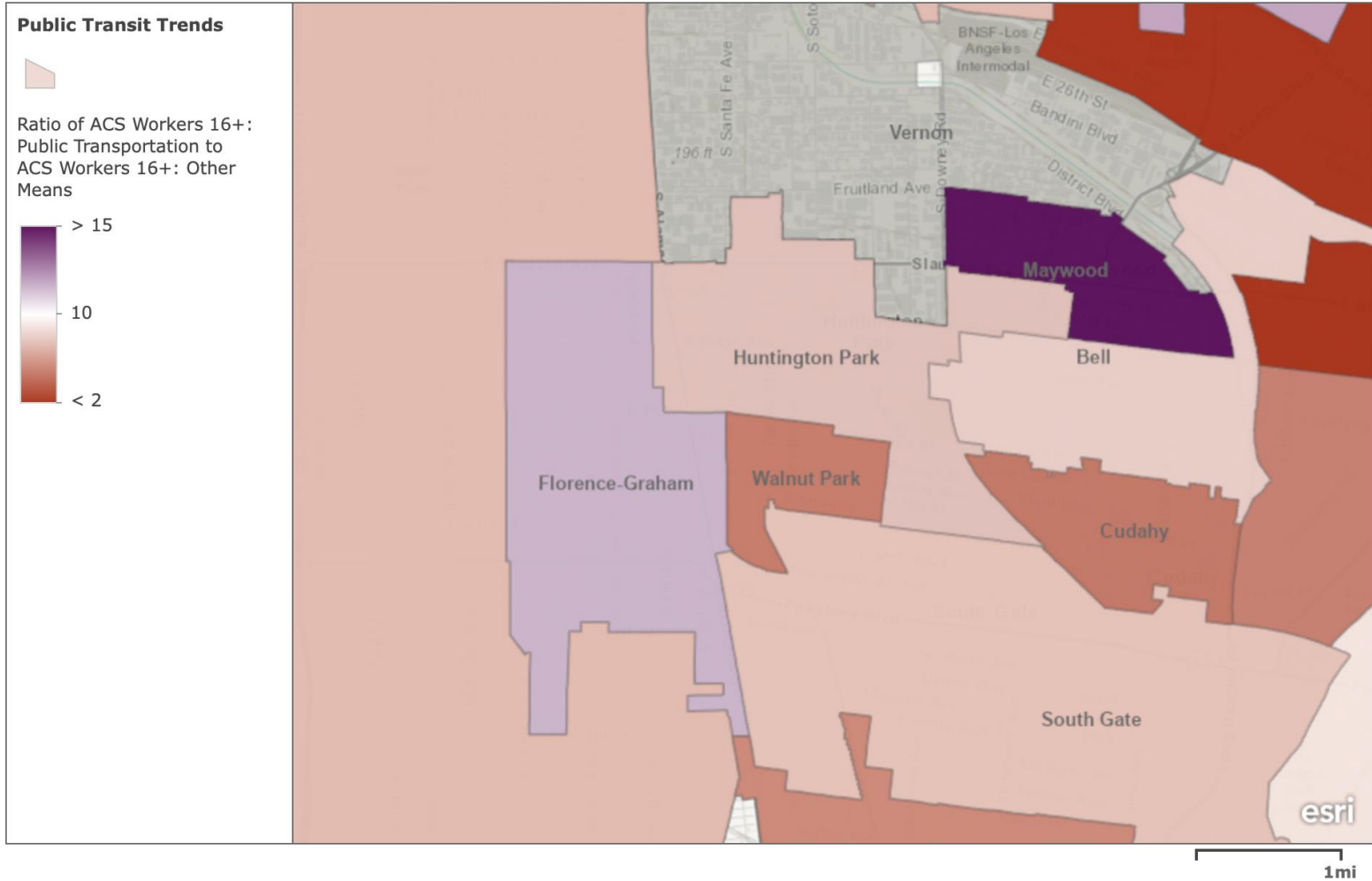
## Population Density LA County



County of Los Angeles, Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA

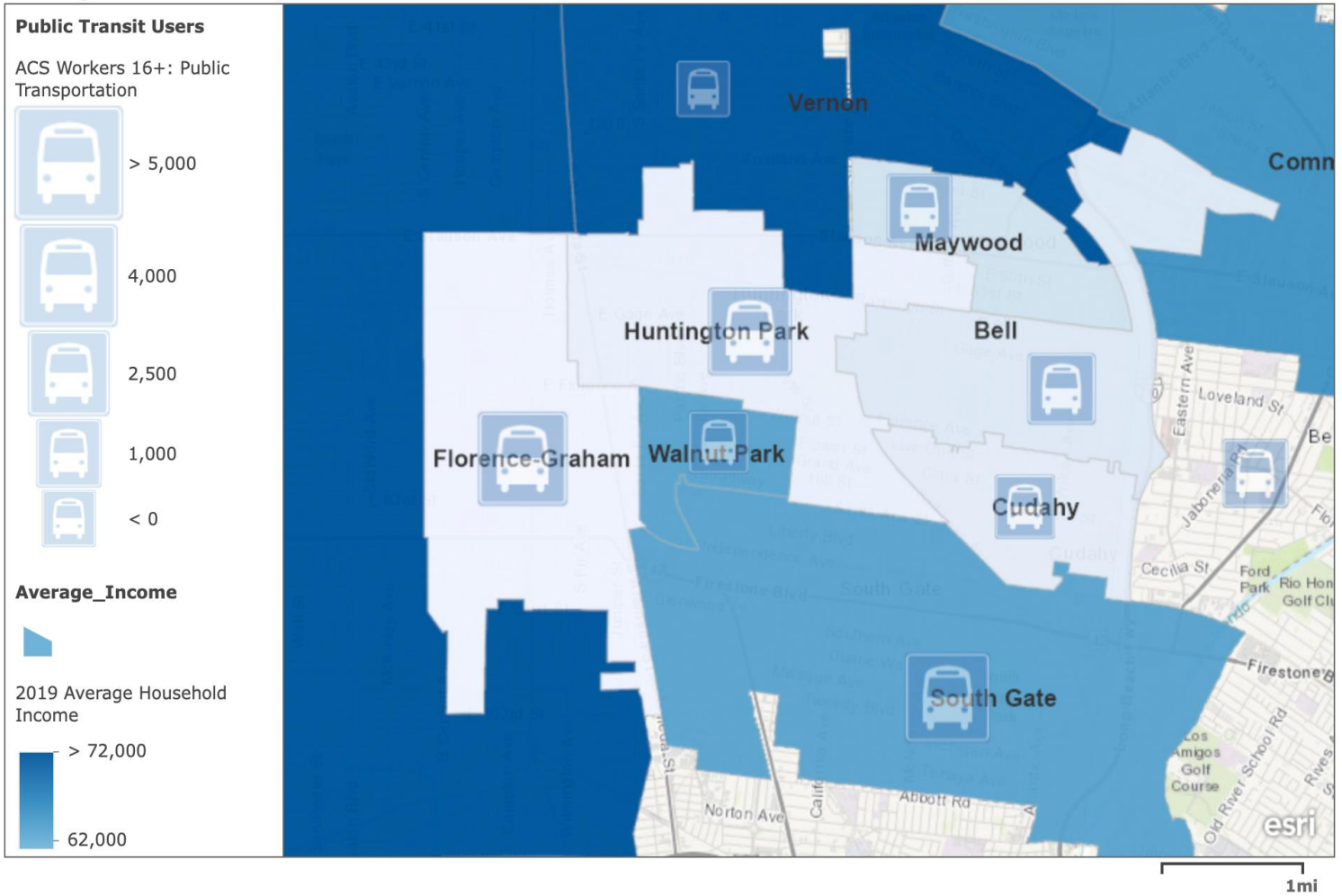
# Map 2: Ratio of Workers Who Take Public Transit Compared to Other Modes of Transit

## Public Transit Trends Surrounding Huntington Park



### Map 3: Average Income and Number of Workers Who Take Public Transit

#### Average Income Compared To Transit Use



County of Los Angeles, Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA

## **Analysis**

Based on the above findings, Huntington Park is a relatively dense city compared to its neighboring cities, yet still does not have light rail transit as a part of its public transportation system. According to data from the U.S. Census Bureau, Huntington Park is home to 58,114 residents as of 2010. There are approximately 24,696 residents who are 16 or older and employed. Out of those workers, 78.8% rely on vehicles to get to work, while 11% rely on public transit to commute. The second map demonstrates that there are higher amounts of workers in Maywood and Florence who rely on public transportation to get to work compared to the current rate of workers who utilize existing public transit in Huntington Park. Darker shades on Map 2 represent higher numbers of public transit commuters relative to those who take other modes of transit.

Lastly, Map 3 demonstrates how much lower Huntington Park's average income level is compared to its surrounding cities', and also how many more residents rely on public transit in this city compared to others. More Huntington Park residents rely on public transit to get to work compared to Vernon or Walnut Park residents- both of those cities have higher average incomes. These maps allow us to visualize and compare commuter behavior between Huntington Park and its neighbors. Despite the fact that its population density is relatively high compared to the surrounding area, the city only attracts 11% of its working demographic to its current public transportation system.

## **Methodology**

To create these maps, I used ArcGIS Online to create three different layers to compare overall population density and average income levels to commuter ridership behavior in both Huntington Park and the surrounding area. First, I found a layer map that included all city boundaries within LA County. For the population density map, I used ESRI data to enrich a layer map of the cities in LA County and stylized the content to represent density in different shades of blue. I adjusted the data scale to emphasize the difference in population density for each city.

For the public transit map, I used the same process to enrich a layer map of the cities with worker preferences for getting to work from cities in LA County. I then selected data from the American Community Survey that collected the number of workers who are 16 or older who use public transportation to get to work, and the number of workers who are in the same age range who rely on other modes to commute (cars, trucks, vans, bikes, etc). For the third map, I layered transportation data for the workers in Map 2 and included data for average income levels for the same geography.



## **Limitations**

Originally, I wanted to compare ridership trends throughout the South Gate area relative to Huntington Park. But the data table I found from the U.S. Census Bureau could not be properly joined with the shapefile of LA County I used as a layer on ArcMap. Moving forward, I wanted to create two maps that compare ridership trends during the daytime and evening in the same geographic region. Unfortunately, ESRI only had data available on daytime trends, and none for the evening. I tried to get this data from Metro instead, but discovered that they also do not have data on evening trends that I could use as an enrichment layer in ArcGIS. I also wanted to combine multiple layers to compare them in one map, but ArcMap was unexpectedly unavailable through the university prior to the final deadline for this project, so I chose instead to create three maps that demonstrate population density, average income, and public transit use.

Lastly, my goal was to include an analysis of female ridership trends in this report to demonstrate the need for enhanced safety features at the future light rail stations. As a female public transit commuter myself, I wanted to prove my theory that there is a relationship between female riders feeling unsafe on public transit systems at night and a drop in ridership in the evenings. As I already stated, however, this data was unavailable and so I could not conclude whether or not my hypothesis is true.

## **Conclusion**

The data I was able to find using the American Community Survey and the U.S. Census Bureau tell a story of a region that has outgrown its existing public transportation system. The majority of commuters in Huntington Park currently prefer driving themselves to work, most likely because of the lack of public transportation options that exist today. My map analysis demonstrates that the population in Huntington Park and its neighboring cities are currently densely populated, and that more workers choose to take existing public transit to get to work in the city compared to more affluent areas in the surrounding cities. The proposed future light rail station locations in Huntington Park and Florence would provide an alternative to vehicles as a mode of commuter transportation for workers. These stations would connect the entire region to the existing Metrolink light rail system throughout the County. This indicates that all commuters, particularly those living in a city with a lower average income than the surrounding area, would benefit from the proposed light rail system by offering a convenient, cost effective, and possibly time saving alternative to driving to work.

**Data Sources**

U.S. Census Bureau Data, American Community Survey Results

ArcGIS Online

2010 Demographic data, U.S. Census

2013-2017 Commuter trend data, U.S. Census

Huntington Park Community Profile, Southern California Association of Governments

West Santa Ana Branch Transit Project, Metro

County of Los Angeles, Bureau of Land Management