

TOD ~in~ PBC

Overview

This project was created as part of Dr. Rebecca Walter's Real Estate Data Modeling course, RE 370, and examines potential sites for transit oriented development in eastern Palm Beach County. While much of South Florida is suburban sprawl, its concentration along the coastline offers the potential to institute smart-growth practices. There is a long-standing plan to turn a rail corridor that is currently used by freight trains into a second commuter rail line that would run parallel to the current TriRail line. This new addition would be called the Coastal Link and runs through the densest regions of the metropolitan area which has the potential to change the way that people move around the region.

By: Samuel J Albee

Data

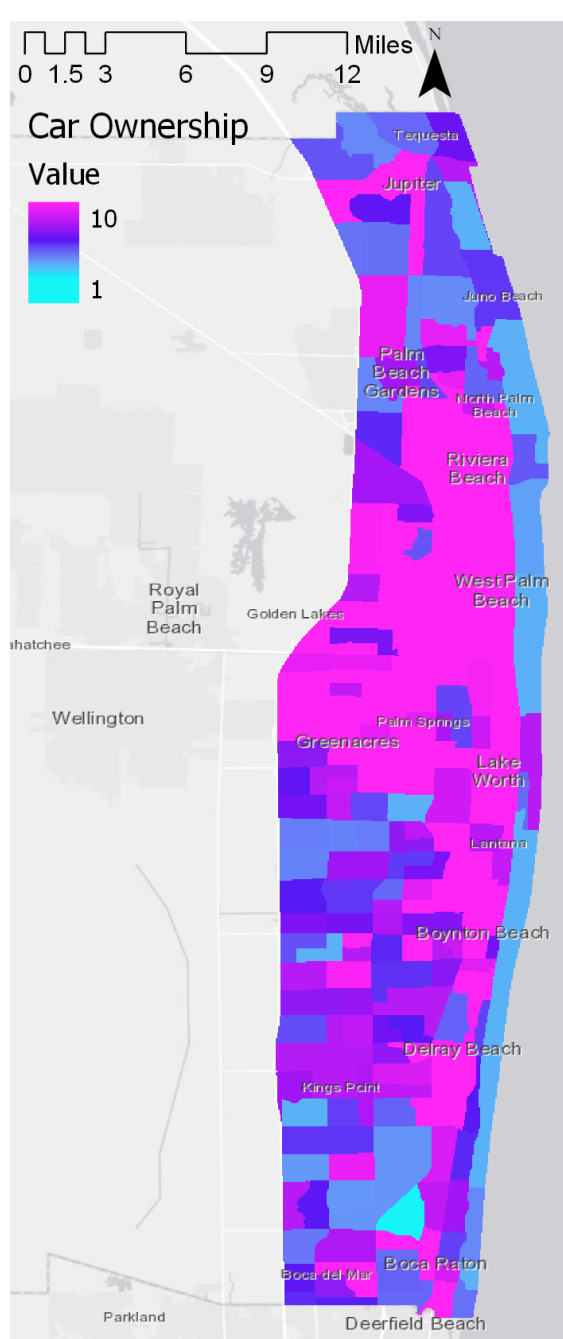
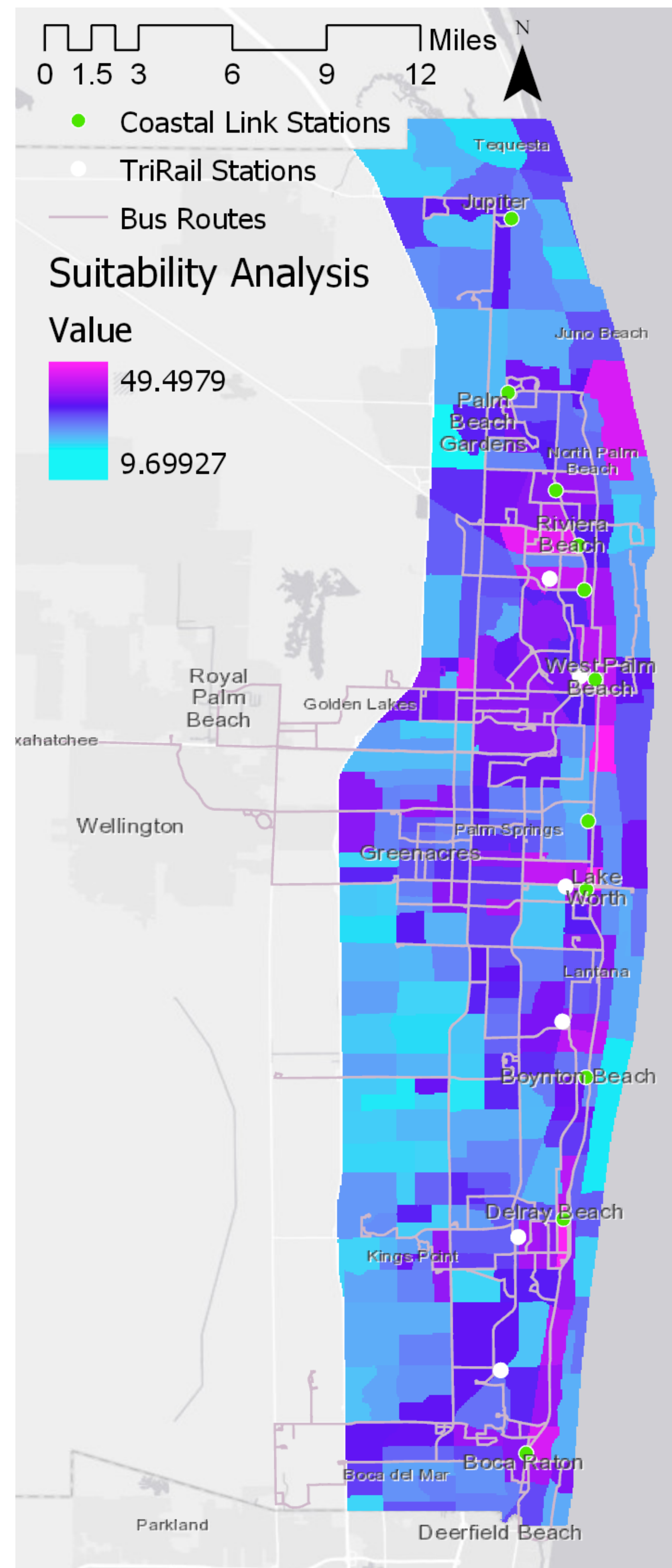
To create my suitability model, I examined a variety of criteria at the census tract level, including the number of cars that each household possesses, daytime population, household income, population density, and transit ridership. I used ESRI Community Analyst to find the data, with 2017 ESRI being the source of all of the data except for transit ridership, which is from the American Community Survey 5-Year Estimates 2012- 2016. Additionally, I included three overlays on my final suitability model to provide additional context. The locations of the current TriRail stations and bus routes were both publicly available shapefiles from the South Florida Regional Transit Authority (SFRTA), while the locations of the proposed Coastal Link stations were available in a document highlighting opportunities for development around future stations.

Methodology

After examining these five factors, I used their census tract information to place them on a map. From there, I proceeded to rasterize the data sets using the maximum area method. Then, I transformed the layers to all have the same one to ten scale, so that we could use them to create a suitability model. When inputting the transformed raster data into the suitability model, I chose to give the values a weight of one, while giving weights of two to Daytime Population and Transit Ridership, as I felt these would best reflect areas that people currently use mass transit in their daily life.

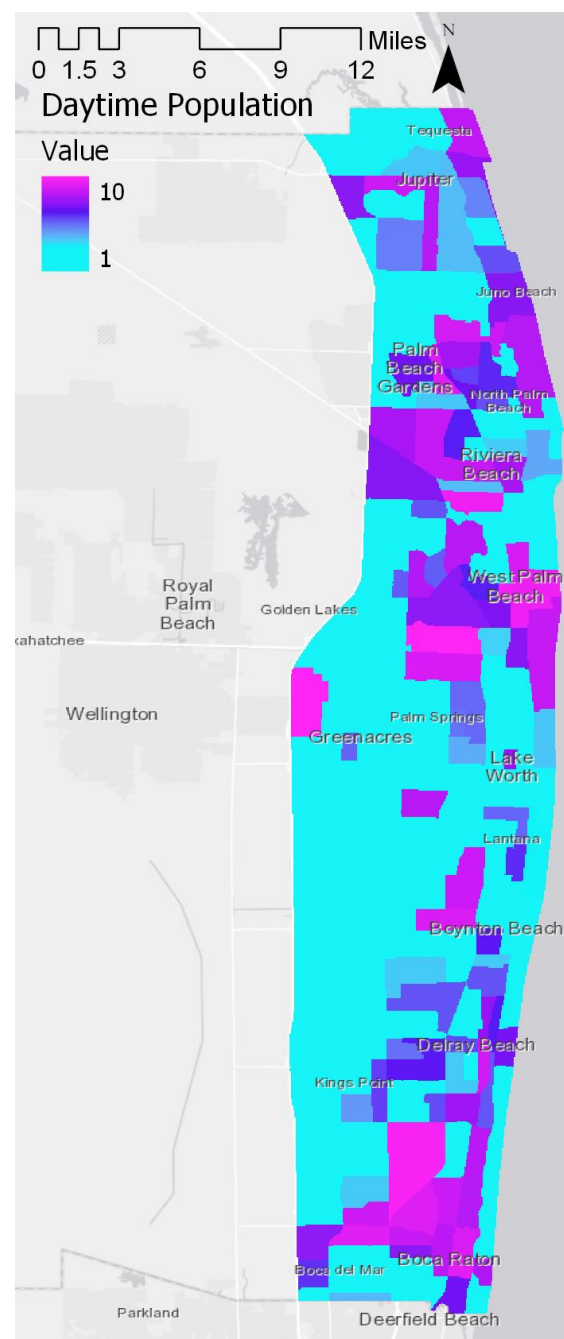
Findings

For the most part, the findings confirmed my suspicions, that the areas directly adjacent to the future commuter rail line are more prone to use mass-transit than the areas that are adjacent to the commuter rail line currently in operation. These areas also have office space where people commute on a daily basis. While there are likely many who chose to live in single family homes as a lifestyle choice, perhaps more people would choose to live closer to work if there were more options available. Currently, many of these dense areas are more expensive to live in than surrounding areas. The most suitable areas were the downtown areas of Delray Beach, Lake Worth, Boca Raton, Riviera Beach, and West Palm Beach. If new transit oriented developments were made with a large number of units set aside for affordable housing, then residents would have greater economic access to the region as a whole.



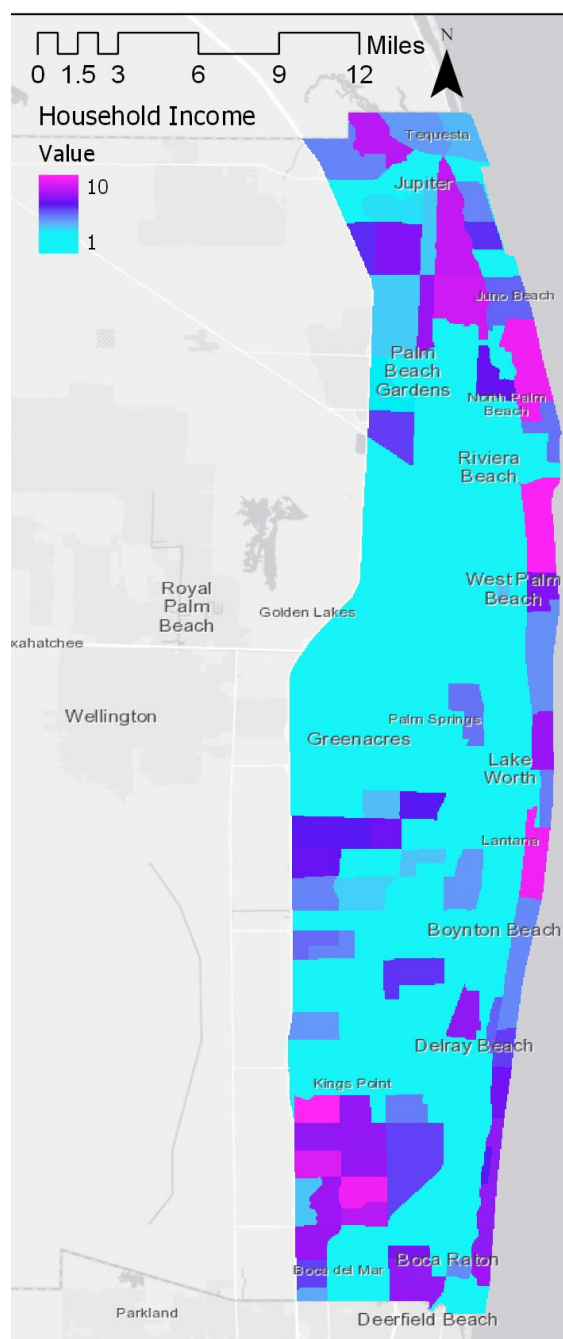
Car Ownership

Amount of car ownership per household was an important factor for the suitability model for equity purposes. For most residents of South Florida, owning a car is a necessity and therefore households with no cars may face a greater difficulty of mobility. While rasterizing this data, I used MS Small to prioritize areas with lower amounts of car ownership.



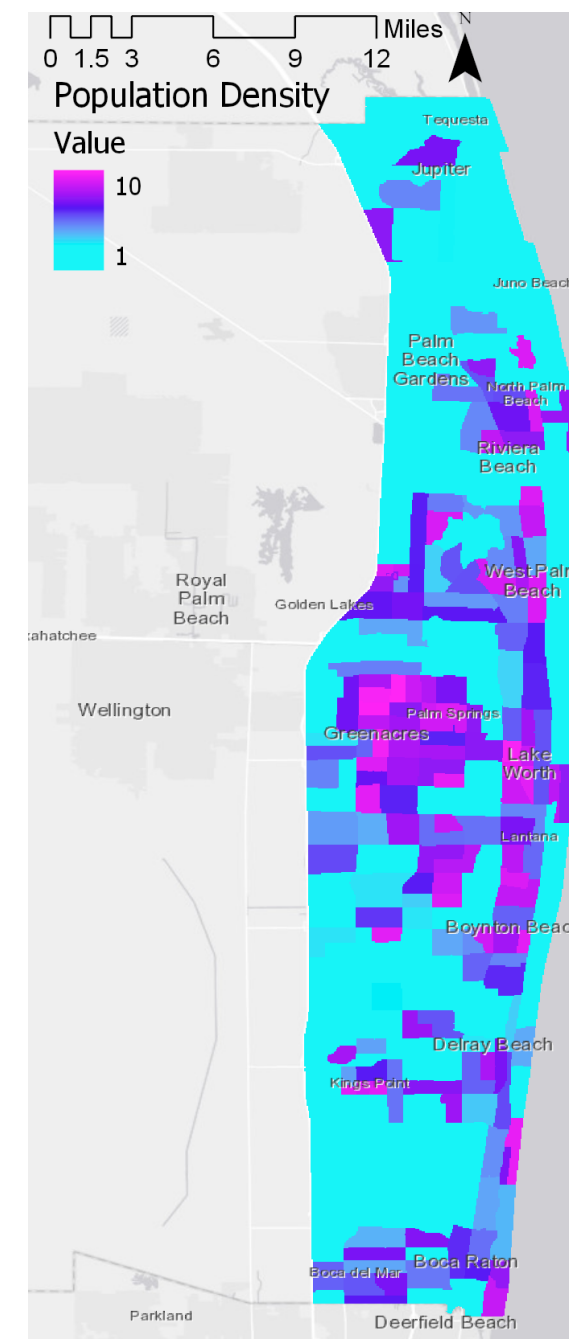
Daytime Population

The population of the census tracts during the daytime was considered an important factor in determining potential sites for TOD. The reasoning behind this is that there should be more housing available where people are already commuting, giving residents of the county more options in housing, in this instance more options close to centers of employment, thus in theory decreasing automobile-dependence.



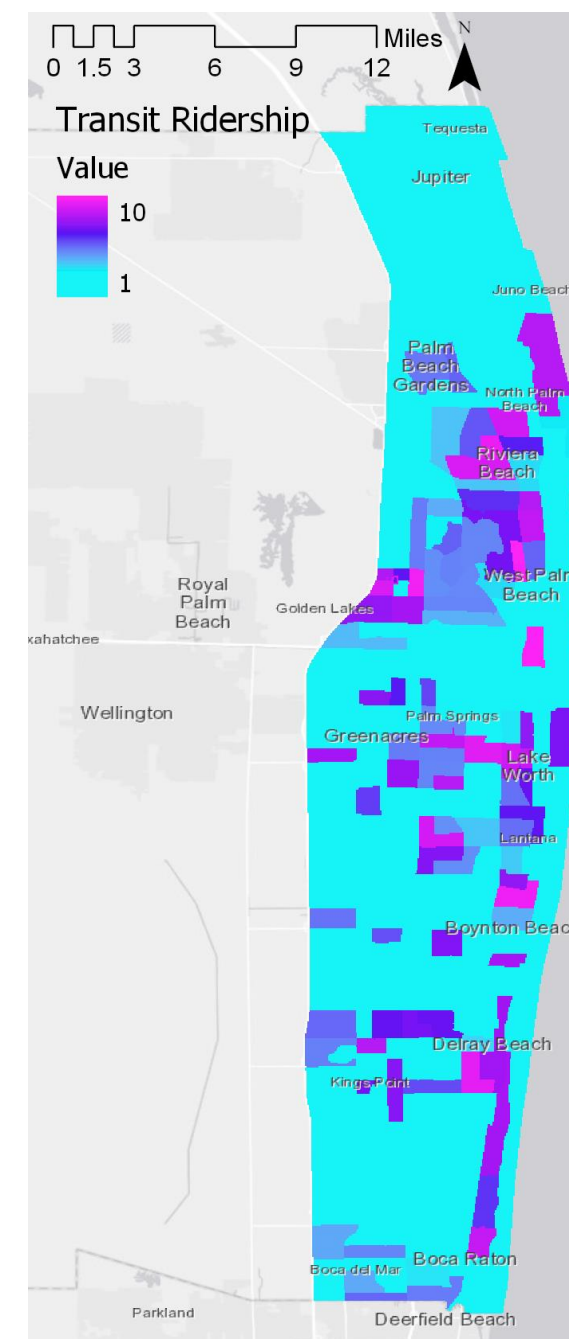
Household Income

While affordable housing was a concern, the idea behind these developments were to largely be mixed between low-income and market-rate housing. Ideally, this would promote upward social mobility due to access to employment and increased mobility. Additionally, the developments would avoid both the negative aspects of concentrating too many marginalized households together, and also the unaffordability of most housing near employment centers and transit.



Population Density

Population density was one of the five factors considered in the suitability model because mass-transit is more feasible in high-density areas. An issue that TriRail faces is that for much of its route, it runs parallel to I-95 and does not pass through many walkable areas. If built, the Coastal Link would not face this problem, as much of its route runs through some of the most densely populated areas in the county.



Transit Ridership

An increased level of importance was given to transit ridership as a part of the suitability model, since transit ridership is not very high in Palm Beach County. Therefore, it is important to take note of which areas people use it in and to try to make it more accessible to others to further promote its use. Access to public transit is a leading factor in upward economic mobility and quality of life.