

Finding the Best Place to Live in the United States

URP4273 Final Project

Team 3

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Main Goal:

The main goal of this analysis is to find the best place to live in the United States for a young, college-educated individual interested in starting a family.

Background:

Our group was tasked with setting criteria to determine the best place to live in the United States. Through careful selection of criteria, we determined the ideal location for a young, college educated individual, who is interested in starting a family. Our ten criteria included proximity to national park boundaries, proximity to international airports, proximity to hospitals, proximity to cell towers, proximity to the coast, disposable income level, diversity, average age, education level, and air quality. These ten criteria break down into four major categories: socioeconomic, entertainment, public health, and communication. We believe the ten criteria we chose most appropriately represents what a young college educated individual would consider when choosing a place the live.

For proximity to international airports, we chose 10 miles as the buffer distance. Such a short distance seemed appropriate for young, educated individual who might travel frequently for work or entertainment. We set the average disposable income level at \$80,000. A higher level of income typically results in a better quality of life. A young, educated individual doesn't necessarily have such a high level of disposable income, but being in an area where others do, will push him or her to become more financially successful. For average age we chose 30- 40 years old because that gave an ideal age distribution that encompassed old and young, but specifically those in or entering their peak careers. For education level, we decided to require at least 50% of the population to have some form of a college degree. A young, educated individual would have better job opportunities in a highly affluent area, and would be able to better raise their family in an area where more than half the population is college educated.

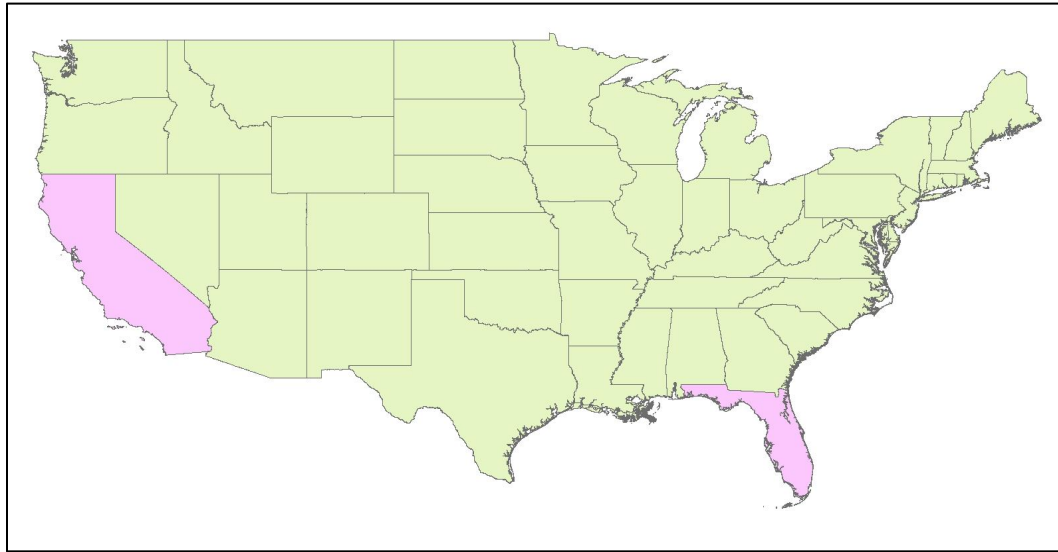
Scope Area:

The scope area of the project is the states Florida and California. These states were chosen because their characteristics closely align with the goal of the analysis.

Florida was chosen because it is a state that has many places of interest, such as Disney World, the Florida Keys, NASA, etc. These characteristics draw in not only tourists and revenue but residents as well. Florida has a warm climate and many areas are near beaches. Florida is number 7 in the top 10 states of the U.S. that has the current greatest economic growth.

California was chosen because it has similar desirable characteristics as Florida. It too has many places of interests such as Disneyland, Yosemite National Park, the Golden Gate Bridge, etc. California also has a very nice climate that also has a low humidity. There are many areas that are close to the coast and beautiful beaches. California is number 2 in the top 10 states of the U.S. that has the current greatest economic growth.

Map of the United States with scope areas California and Florida selected in pink:



Objectives and Criteria:

In the socio-economic group, there are four criteria:

1. average age of adult (median age range) --Selected by median age range 30 to 40 years
2. college education --At least 50% of population has at least some degree of college education
3. racial diversity --Selected by Diversity Index > 45
4. disposable income - - zip code with over \$85,000 average disposable income

1. Average age of adult

Adults are the main labor force in California and Florida. The working class age of adults in California and Florida will have a significant influence in the success or failure of an economy for any specific city. Considering different ages, a median age range of 30 to 40 is the most ideal sample for our research. When the average age is less than 30, the majority of the population is still in school. When the average age is higher than 40, much of the population is nearing retirement age, or already retired.

2. College education

Generally, higher education can help individuals get a more financially successful job than those that do not have higher education. It is often seen in big companies and businesses that many of their employees are college educated. College education can provide people with many opportunities to learn highly specific skills that will lead to better job opportunities. When a local population has at least 50% college educated residents, their economy is stronger and there are more job opportunities available.

3. Racial diversity

Racial diversity shows diversity of cultures and race. A higher percent of racial diversity leads to a larger diversity of jobs in an area. A Diversity Index which of at least 45 is the most ideal for a young, college educated individual interested in starting a family..

4. Disposable income

According to the theory of Engel coefficient, when disposable income is high, people are relatively wealthier which stimulates growth within the community. The more people spend within their community, the more businesses can grow, which subsequently creates more jobs. The ideal level of disposable income is an average of at least \$85,000 per year.

In the entertainment group, there are two criteria:

5. Proximity to the coast-- within 40 miles
6. Proximity to national park boundaries-- 50 miles
5. Proximity to coast.

The geographical location of Florida and California is ideal for choosing proximity of 40 miles to the coast as criteria. Both states are famous for their coasts. The coast is a popular destination for vacation, so it brings in revenue from tourists. The coast is also popular for recreational sports and hobbies. We determined that living near a coast would be ideal for a young, college- educated individual interested in starting a family. Forty miles is the boundary criteria because as the distance from the coast becomes larger we believe that time and cost will become a factor.

6. National park boundaries

According to NPS (national park service), national parks bring in a significant amount of revenue every year from tourists. They also provide a place of entertainment for locals. We determined that a young, college- educated individual who is interested in starting a family would seek a place to live that was within 50 miles of a national park boundary.

In the public health group, there are two criteria:

7. Proximity to a hospital—5 miles
8. Air quality—ambient air pollution of less than 30 PM 10 (particulate matter of 10 microns or less
7. Proximity to hospital

Hospital is an important reference index as a test of public health within a community. Being able to get to a hospital within a short period of time may be the difference between life and death. With a buffer distance of 5 miles, an individual is never more than 10 minutes from the emergency room, which we believe is an important criterion for almost anyone, not just the specific individual we are analyzing for.

8. Air quality

Air quality is an important factor in public health. Clean air results in a location that individuals seek, therefore will bring in more residents, businesses, revenue, and jobs. A location with an air quality of less than 30 PM 10 will sufficient for our individual of interest.

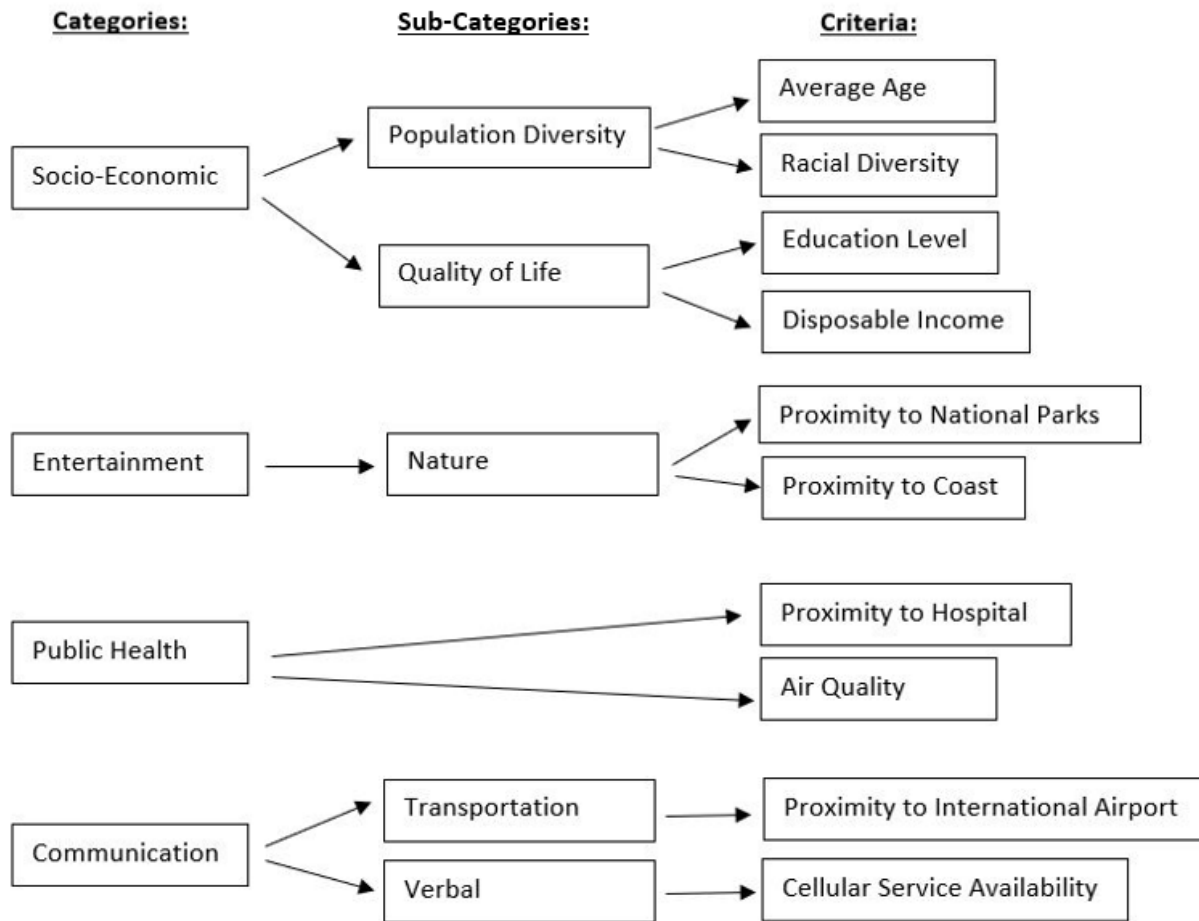
In the communication group, there are two criteria:

9. Cell phone service
10. Proximity to international airport—10 miles
9. Cell phone service

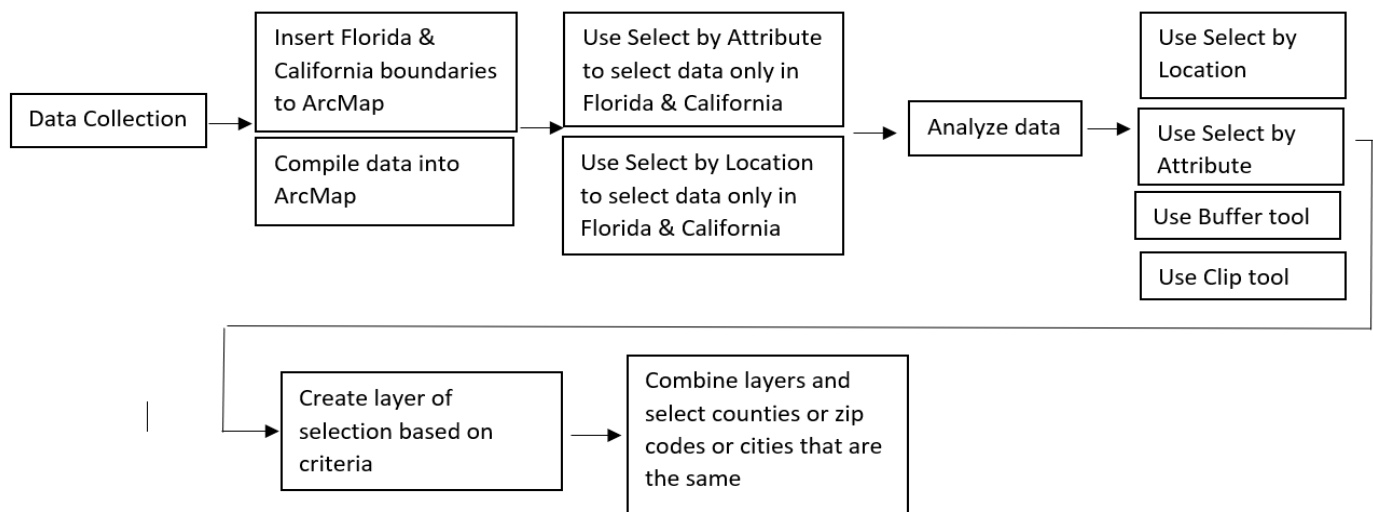
Being in an area with cell phone service will provide people more information and news with higher speed. It also allows for easy communication and networking, which can positively influence the economy of a community.

10. International airport

International airports are an important form of transportation. Being able to easily access an international airport means easier commute between communities from all over the globe. International airports bring in revenue from tourists and businesses, which stimulates the community's economy, therefore creating more job opportunities and disposable income. With a buffer of 10 miles, our individual of interest can easily commute to the airport within a reasonable period of time.



Methodology:



After selecting the criteria, we searched for the data using online resources. Following data collection, we began compiling criteria with ArcMap and ArcCatalog software. We also added data of boundaries of Florida and California.

The first criterion analyzed was the education level and the average age. Both datasets were received from Dr. Papajorgi through class materials. Because the data was for the entire country, we selected only the data for Florida and California using "Select by Attribute." Then we created a new layer for the selection with only the data from Florida and California. We observed the data in order to analyze if the selected criteria measure was too harsh, too lenient, or just right. At this point, we altered the defined criteria if needed. This procedure was used for every data set that contained the entire United States.

For median age, using a median age of 30 to 40 years selected about half of the areas of Florida and California and was a good criterion that achieved our goal of having a decent spread of ages. For education level, selecting counties that had at least 50% of the population with some level of college education selected about half of the area and gave a criteria that achieved our goal. Then, we combined counties that were included in both selections by using "Select by Location" and "are identical" between the two layers to create a new selection. We created a new layer from this selection to continue forward.

For racial diversity, we used the "Quantities" and "Color Ramp" functions to analyze the data. We were then able to view and analyze the spread of the diversity index throughout the area. We decided to choose a diversity index of 45 as the cutoff value because it selected the top 50% most diverse areas of Florida and California. We wanted a high diversity index that did not too limit too much.

The original data for air quality was on a global scale and was a shapefile containing points. We created a new layer of points only contained within Florida and California. We then applied the criteria of air quality using areas with ambient air pollution of 30 PM10 (particulate matter of 10 microns or less). Many areas satisfied this criterion. Overall air quality in the United States is high. We were then able to combine this selection with diversity by assuming that the air quality would not vary significantly within the entire county and selected counties that contained the cities that met the air quality standard and were selected by the diversity criteria. We created a new layer based off this selection and combined it with the median age and education selection, again creating a new layer based on all the selections. This process continued throughout the methodology.

The next data analyzed was disposable income levels, proximity to emergency care facilities and proximity to large airports. When we analyzed the disposable income levels we decided to view the data through symbology. We used the symbology feature on GIS to break the disposable income levels into 5 groups. After studying the data presented, we chose the specific value of \$80,000 of disposable income on average for the zip code. We specifically chose \$80,000 because it fell in the 4th group, slightly above average but not outrageous. We felt like this would be perfect for our prospective person looking for a new area to live. We selected the zip codes that satisfied this criteria using Select by Attribute.

The data we collected for hospitals included many facilities for senior living, rehabilitation and emergency care. We knew that we didn't need to live close to a senior living facility or rehabilitation facility, so we used "Select by Attribute" and only selected the facilities labeled as "emergency care." After we identified the locations needed, we decided to use the "buffer tool," on each location with a 5 mile radius. Zip codes that fell within this range were selected.

After putting the airport data into ArcMap, we realized that it had many more airports than we were expecting. Looking through the attribute table, we realized that many of the airports were only for helicopters and private flying. These type of airports aren't necessary for our project so we decided to

do a “Select by Attribute” and select only public airports. After we had spatially mapped all the locations, we used the “buffer tool” to create a 10 mile buffer around the airports. Zip codes that fell within that range were then selected.

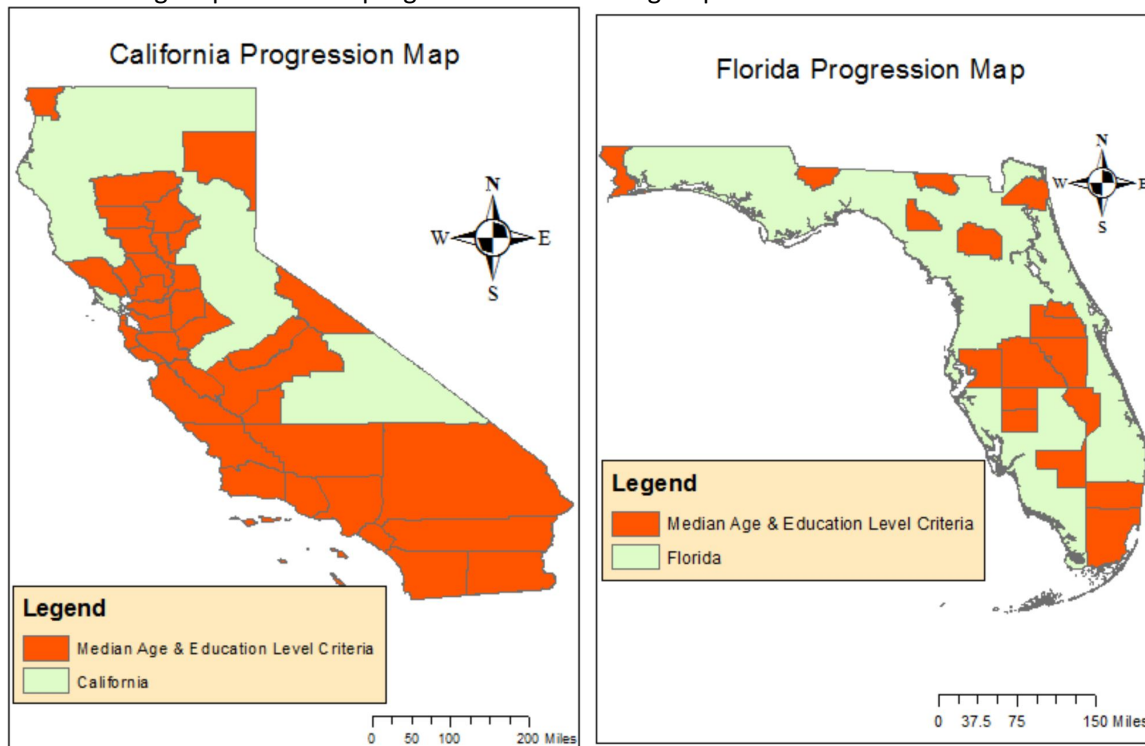
The last two datasets we analyzed were for national park locations and cellphone coverage areas. When we analyzed the data for national parks, we specifically looked at the boundaries. Our criterion was to select areas within 50 miles of a national park. In ArcMap, we uploaded the data for national park boundaries, and then created a buffer of 50 miles around the national parks. We saved the buffer as a new layer. That layer included the 50-mile buffer and the national parks themselves.

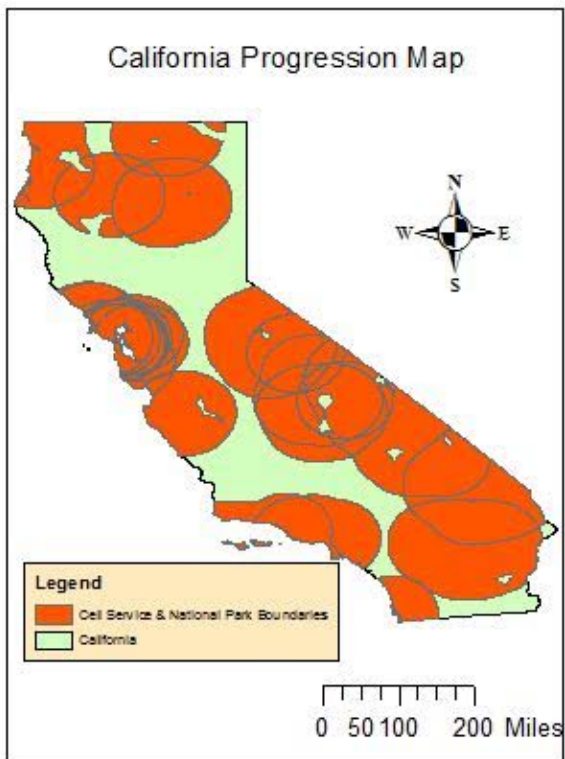
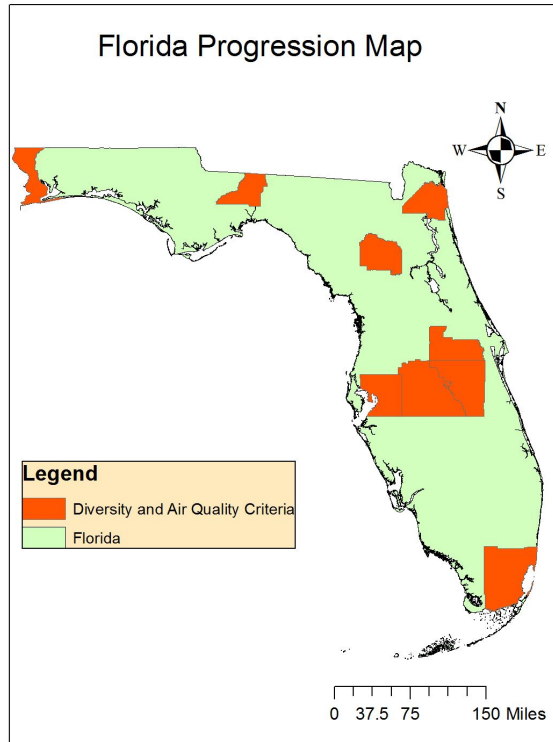
When analyzing cell phone tower coverage, we found a zip file online with data for cellphone coverage within the United States. There were no specific values that we used for cell phone coverage, because simply being within cellphone coverage was enough of a criterion. We uploaded this data to ArcGIS and clipped it with the national park boundaries layer that we created. The result was a new layer that encompassed areas that were within 50 miles of a national park and within cellphone coverage. We saved this layer to later clip it with other layers and select zip codes that fell within the designated areas.

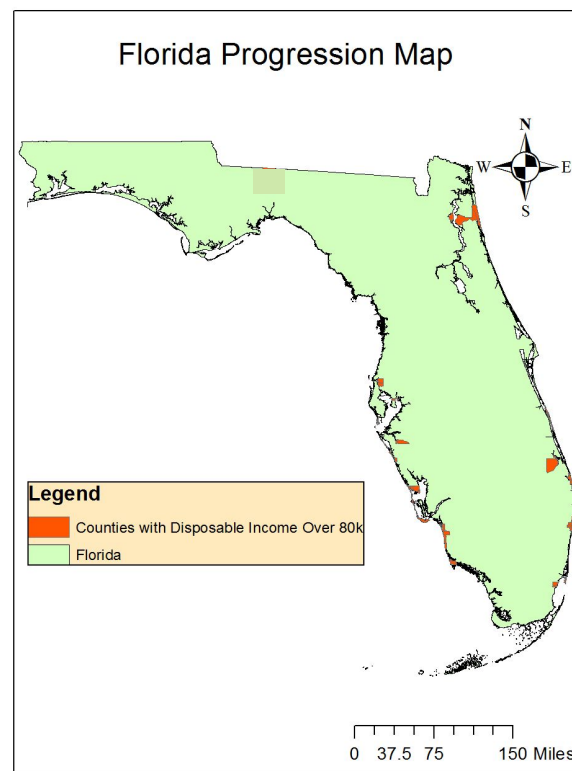
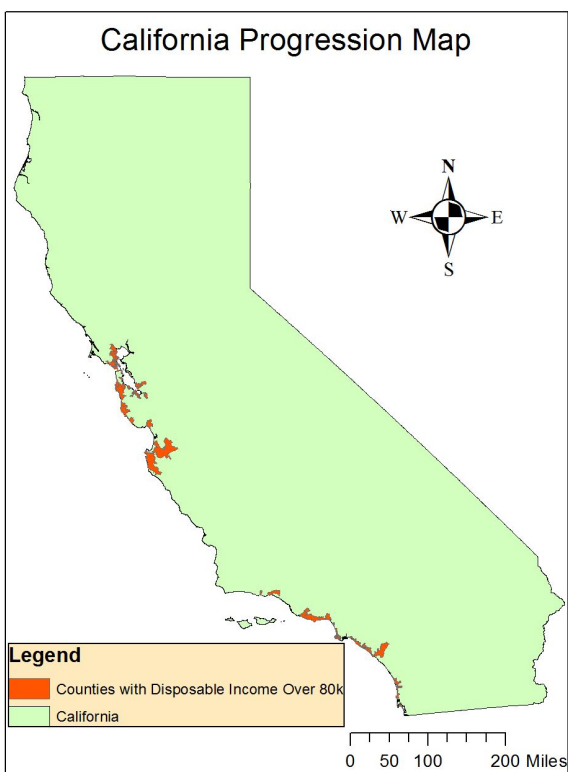
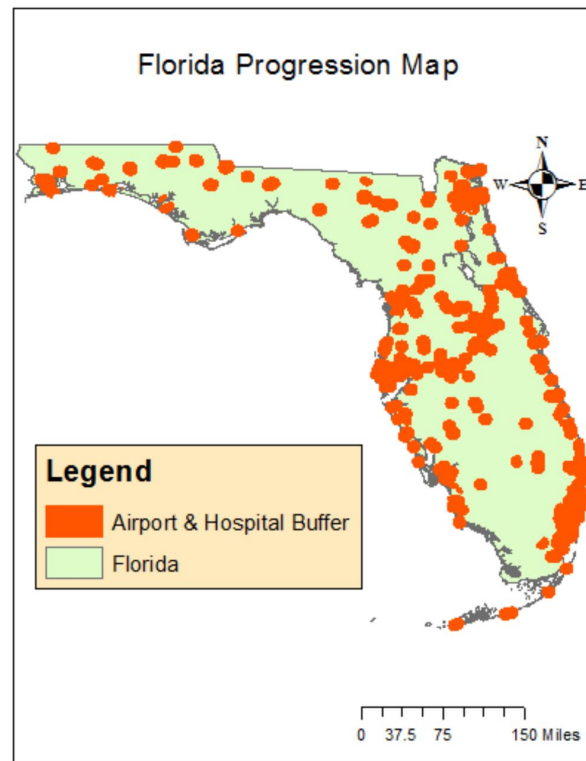
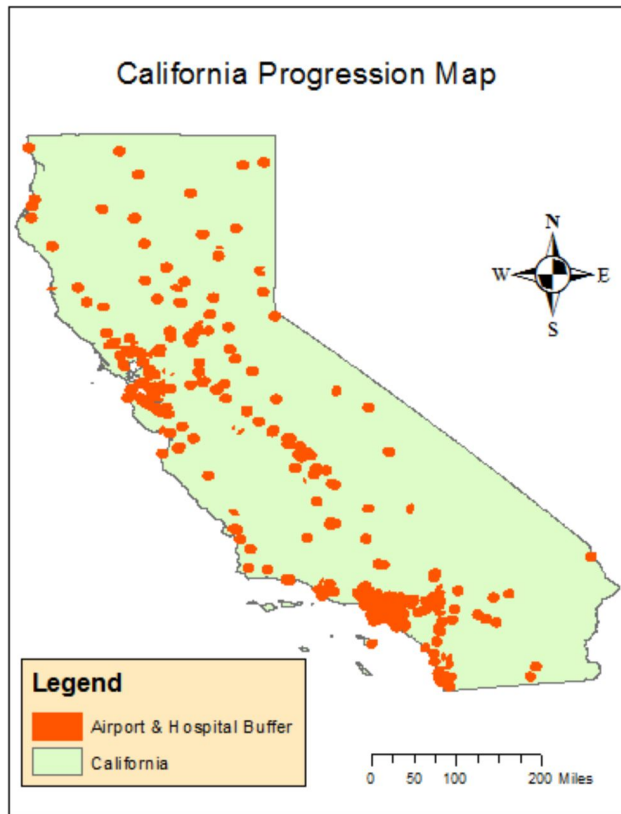
Some data came as counties and others as zip codes. We wanted to narrow down the final result to zip codes instead of counties so when we created selections that incorporated both, we selected zip codes that fell within the county.

After computing the final list of cities from the zip codes, we made two intellectual maps, one of Florida and one of California using ArcMap and the Layout Tab. We created labels using the textboxes, a legend, a north arrow, a scale bar, and a zoomed in view of areas that had a higher number of resulting cities in the area. This gives the viewer the ability to see the spatial relationship of the areas, how large the zip codes areas were, and to understand the results with ease.

The following maps show the progression of our data grouped into 2 criteria each.







*The last two progression maps of California and Florida also display the criterion of proximity of the coast

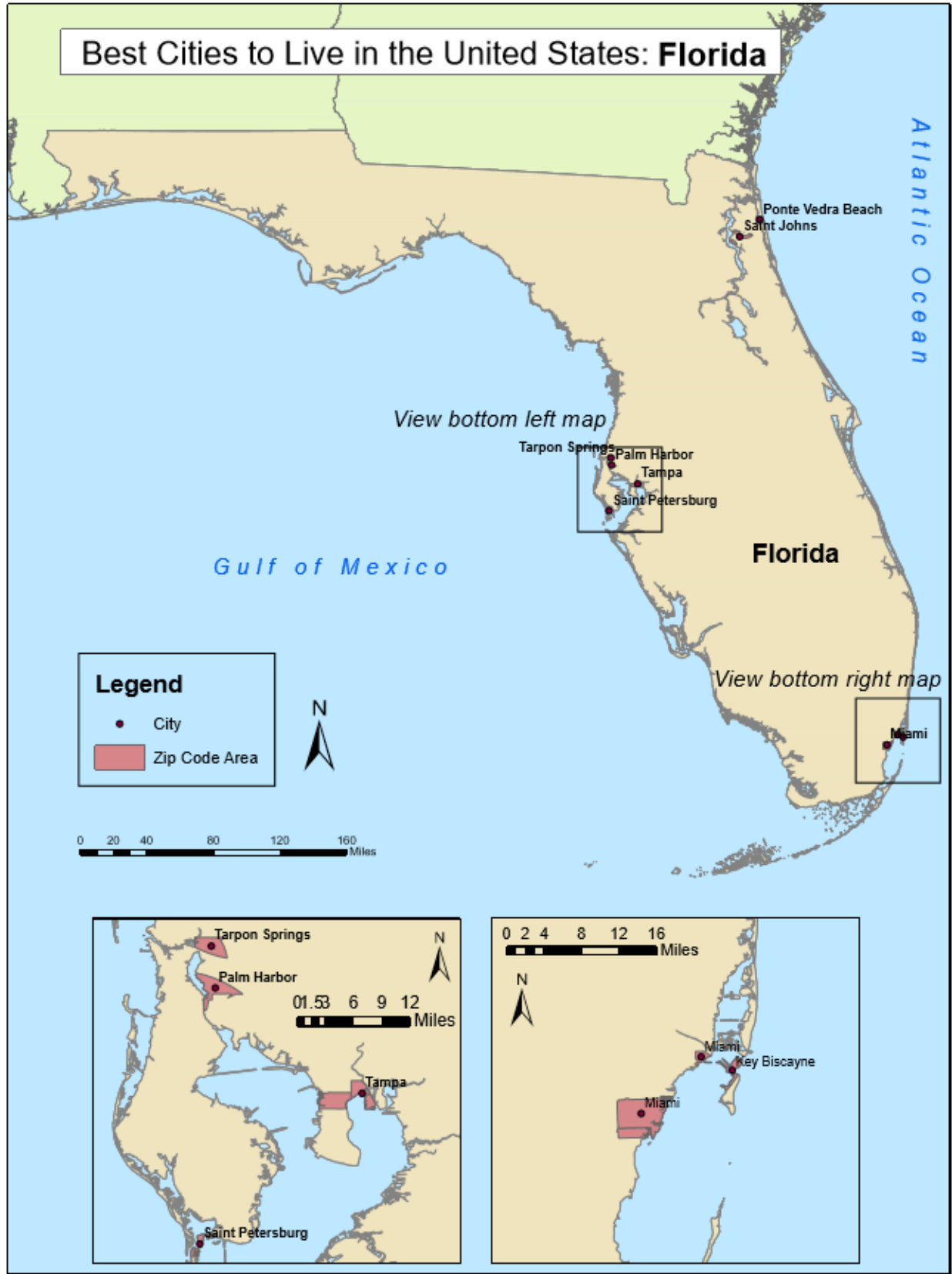
Results and Discussion:

After looking at ten criteria within Florida and California, twenty-six cities remained. In Florida, Ponte Verde Beach, Saints Johns, Tarpon Springs, Palm Harbor, Tampa, St. Petersburg, Miami, and Key Biscayne are the best cities to live in for a young, college-educated individual interested in starting a family. In California, Brisbane, Pacifica, Half Moon Bay, Burlingame, Moss Beach, San Mateo, Redwood City, Menlo Park, Palo Alto, Mountain View, Pebble Beach, Carmel, Santa Barbara, Carlsbad, Encinitas, La Jolla, San Diego, and Coronado are the best cities to live in for a young, college-educated individual interested in starting a family. These cities are a base for someone who is beginning to look into a place to live. We could have further narrowed our search down by tightening our criteria parameters or including more criteria but we wanted to give an individual the freedom to choose their new location. It is meant to apply to a wide variety of people who can then narrow it down based on personal preference. Examples of personal preferences include wanting to be in close proximity to a national sports team, or wanting to live on one coast versus the other.

Conclusion:

Our group's goal was to find the best place to live in the United States for a young, college-educated individual interested in starting a family. We feel like we've met this goal by narrowing down our search to 26 cities. These 26 cities leave an individual to have freedom personalizing his choice. The 26 cities also give cushion if the individual can't find a job in some of them. Just because a city is deemed the best city to live in, doesn't mean a job opportunity will exist there. With 26 cities, there is a high chance an individual will be able to find a job in at least one of the 26 cities. To conclude, the best city to live in is one of the following: Ponte Verde Beach, Saints Johns, Tarpon Springs, Palm Harbor, Tampa, St. Petersburg, Miami, Key Biscayne, Brisbane, Pacifica, Half Moon Bay, Burlingame, Moss Beach, San Mateo, Redwood City, Menlo Park, Palo Alto, Mountain View, Pebble Beach, Carmel, Santa Barbara, Carlsbad, Encinitas, La Jolla, San Diego, and Coronado.

Best Cities to Live in the United States: **Florida**



Best Cities to Live in the United States: **California**



Conclusion: