Most Favorable and Least Favorable Areas to Live Near Atlanta, GA

Where to Live after graduation?

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Introduction & Problem Formulation

After graduation, I plan to move near Atlanta, GA for a job opportunity. With a city as large and densely populated, finding the right place to live can be difficult. Therefore, I found it fitting to create a suitability map that will highlight the best areas of livability. The best livability areas will be based on these criteria: distance to job site, housing affordability, and safety. By analyzing each category, the final map could give me a better idea on what areas to focus on when I start apartment hunting.

My Big Question – In preparation to move to Atlanta, what areas are the best for livability and where should I begin to look for housing?

The Approach – In order to make a suitability map, I have identified my key factors that would influence livability and then made a chart to rank out the importance of the criteria into most favorable and least favorable. Based on this chart I will gather my data and then run my analysis.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Distance to Jobsite</th>
<th>Housing Affordability (Median Value of Owner Occupied Unit)</th>
<th>Safety (crime per capital) based on grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Least Favorable)</td>
<td>10 miles</td>
<td>355600-561500</td>
<td>Unsafe</td>
</tr>
<tr>
<td>2</td>
<td>7 miles</td>
<td>291200-355600</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>5 miles</td>
<td>211200-291200</td>
<td></td>
</tr>
<tr>
<td>4 (Most Favorable)</td>
<td>&lt; 3 miles</td>
<td>148900-2100</td>
<td>Safe</td>
</tr>
</tbody>
</table>

Data Collection & Processing

The Data Needed – I made a list of items needed to lay out my map and then a chart of primary data needed to make my analysis. All the data is projected to the GCS_WGS_1984.

To lay out the map:

- Georgia State Outline and Current County Subdivision (Shapefile)
- Georgia State Transportation and Roads

For criteria analysis:

<table>
<thead>
<tr>
<th>Primary Data</th>
<th>ArcGIS Processing</th>
<th>Needed Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Site Location</td>
<td>Make into a feature that can have buffers around it</td>
<td>Distance from point of interest</td>
</tr>
<tr>
<td></td>
<td>Convert to buffers into raster, reclassify values</td>
<td></td>
</tr>
</tbody>
</table>
### Housing Values

- Rank the medians into four different ranges. Convert to raster and reclassify values.
- Median Value of owner occupied unit

### Safety Map

- Convert to grid, reclassify
- Rank these areas into Safe and Unsafe

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**The Data Collected & Processed** – Below is the data I used, where I found it, and some processes for use

1. **Georgia State Outline and County Subdivisions:**
   
   From the US Census, this data was key to lay out my map. Available for download from Data.gov website (Fig. 1). The download was a TIGER/Line Shapefile that showed primary county subdivision.

   ![Data.gov](https://example.com/data-gov.png)

   **Figure 1. Downloading Georgia State Outline and County Subdivision**

2. **Georgia State Transportation and Roads:**

   Similarly to above, the Georgia primary and secondary roads were downloaded from the site Data.gov as a TIGER/Line Shapefile (Fig. 2). By reading the description of the website, the roads are classified by code (MTFCC). $S1100$ for primary roads and $S1200$ for secondary roads. Once the data is loaded onto the map in order to clearly visualize the different roads on ArcMap, you need to access the shapefile properties and in the symbology tab make sure to show my feature. In the Value Field pick the MTFCC and then rename and properly symbolize the roads to differentiate between primary and secondary roads (Fig. 3).
3. **Georgia Crime Grade Map and Cross-reference to Sub Counties:**

Since the immediate crime rate data for Georgia was a very dense and difficult to understand for use, I decided to use two a combination of two data sources to highlight the safest and most unsafe areas. The website [CrimeGrade.org](http://CrimeGrade.org) provides an interactive Mapbox that highlights the Safest and Most Dangerous Places in Atlanta Metro dependent on Overall Crime (crime per 1,00 Atlanta Metro Residents). The map categorizes the safest areas in green and the most dangerous in red. By cross-referencing the Georgia county subdivisions, guiding myself with roads, I was able to over simplify the Crime Stop into my own shapefile (Fig 4).

Using the Selection Tool, I picked all the safe areas and exported the data (selected features)
into a shapefile. I then did the same for the unsafe areas. Then using the Merge tool I combined both of these into one shapefile.

Figure 4. Selecting the Safest Areas in Georgia by referencing the Crime Stop Map (Light Purple as Safest and Dark Purple as Unsafe)

4. **Job Site Location:**
   Staying relatively close to the job site is important for finding the right place. In order to make a “job site” point on the map and create buffers around it, the exact job location needs to be a feature on the map. To do this:
   a. Search for the exact office location on Google Maps and get the coordinates: 33.92778, -84.21894
   b. In ArcMap, go to the XY Point, type in the coordinates to make a labeled graphic point
   c. From the Drawing Tool Bar use “Convert Graphics to Features” to turn the coordinates point into a shapefile feature (making sure its in the same data frame)

5. **Affordability based on Median Housing Values:**
   The Georgia Association of Regional Commissions has data available in ARC (opendata.atlantaregional.com) for Housing Values from 2019. This data includes various attributes such as planning region, # of owner-occupied units by value and value percentages. The most useful attribute for by analysis was the “Medium Value of Owner-Occupied Unit”
since it gave me ranges to be able to give favorable ranks to. This allowed me to focus on what the most affordable areas can be.

Figure 5. Data Source (left) of Housing Values in Georgia and Categorizing the data by Median Values in ArcMap (right)

ArcGIS Processing & Analysis

1. Analyzing Distance to Job site:
   a. Use the Multiple Ring Buffer with the job site as the “Input Feature” and add the distances considered for suitability (3 mi, 5 mi, 7 mi, and 10 mi).
   b. Use the Polygon to Raster Conversion Tool to make the Buffers into raster data. Then you can reclassify the old values to have the new values with 4 as the most favorable and 1 as the least favorable
2. **Analyzing Safety:**
   a. Since there are two different shapefiles made of the safe and unsafe areas, use the *Merge* tool to combine multiple input datasets into a single new output dataset.
   b. In the attribute table, choose *Add Field* to create a “New_Value” category. Go into editing mode to give the safe areas a value of 4 and the unsafe areas a value of 1.
   c. Then convert Polygon to Raster based on the “New_Value” for Value Field and save the Output Raster.
   d. Note the cell size is in decimal degrees, this roughly translates to about 1/3 of a km.

3. **Analyzing Affordability:**
   a. Since the data gathered is for the whole state of Georgia, I exported a smaller shapefile of the most prominent surrounding areas.
   b. This data was turned into raster data by using the previous tool *Polygon to Raster* and then reclassified to rank the different housing values.
   c. In my reclassification, the most affordable housing values were the most favorable and the least favorable were homes valued at 350k or more.
4. **Combine Data Sets for End Result:**
   
a. Use the *Raster Calculator (Spatial Analyst)* to treat the factors of distance, affordability, and safety equally to create a composite ranking layer.

b. The resulting raster output was then Symbolized by Unique Values of “Livability” and displayed by the Red to Green Color Scheme. Where Green is the most favorable places to leave and Red are the least favorable areas.
Map & Final Takeaways

Making this suitability map really helped me narrow down potential areas to live in as I plan to make the move to Georgia. According to the map, the best area would be the Liburn area in the green.

Most Favorable and Least Favorable Areas to Live Near Atlanta, GA
Based on Distance from Jobsite, Housing Value (Affordability), and Area Safety

Limitations

The Atlanta outline and county subdivisions were based from 2019 data (the latest available) and the Housing Value data was also based from 2019. As I make my map nearing 2022, these years apart may have some missing information due to the close to three-year difference. However, because it’s relatively a short amount of time I thought there wouldn’t be a large amount of missing information so the data still holds valuable.

Finding the safest areas to live in wasn’t based on quantifiable data. By cross-referencing the Crime Grade map the areas may not be as specific and could have some bias to the analysis. The data Atlanta
Neighborhood shapefile also over simplifies some large areas that can also influence and diminish some of the total crime in certain places. Yet with the amount of data that I had, the analysis could still be done.

Lastly, another category I would’ve liked to consider was distance to Downtown Atlanta or distance to city attractions. I hope in the future I can find tools to make this analysis possible, perhaps the Euclidean Distance Tool. Further work and more details can definitely be considered but overall, I’m very happy with the results.
According to our data, the best areas to live in would be around the subcounty Liburn and its surrounding cities.