**Muhammed ERENLER - GIS Lab Assignment 2**

**MAP-1- Selecting an IKEA location in Boston**

In this map; I will try to provide some possible IKEA locations in Boston to help IKEA decision makers to select one out of the most suitable locations. My first criterion is to select the most appropriate location in which relatively wealthy people live in this neighborhood. To accomplish this, I learned from the latest **U.S Census Bureau’s 2013 report** about household income **($72.907** in 2013) and median price of homes **($519.000**) in **Boston, Massachusetts.** And in ARCGIS I applied these two rules as two basic standards. I opened by opening Attribute Table/ Select by Attributes and put these phrases ("Median\_Inc" >= 72.907 AND "Med\_HH\_Val" >=519.000) into the dialog box. After application, I notice that only **129** location out of 707 was within the boundaries of my criteria. And I exported this data as a new shape file and layer naming “**Boston Affluent Counties**” map. I export this map as a new layer by data/export data command by right clicking the designed map.

My next step is to designate the non-residential ‘Land Use’ polygons by opening Attribute Table/ Select by Attributes and selecting the attributes leading us to non-residential areas. To do this I put these phrases ("LU\_Boston.LU05\_DESC" <> 'High Density Residential' AND "LU\_Boston.LU05\_DESC" <> 'Low Density Residential' AND "LU\_Boston.LU05\_DESC" <> 'Medium Density Residential' AND "LU\_Boston.LU05\_DESC" <> 'Multi-Family Residential' AND "LU\_Boston.LU05\_DESC"<> 'Very Low Density Residential') into the dialog box. Then I again export this map as a new layer by data/export data command by right clicking the designed map and named this new layer as **“All Non-Residential Areas”.**

Then my next step is to get ARCGIS give me their intersection areas that is the non-residential areas inside the affluent counties. I accomplish this purpose by using “Select by Location” command. I select “All Non-Residential Areas” as a target layer and “Boston Affluent Areas” as source layer with spatial selection method of “are completely within the source layer feature”. Then I again export this map as a new layer by data/export data command by right clicking the designed map and named this new layer as **“Combined LUCT”**. Now I have the **intersection** of both Affluent Boston Counties and non-residential polygon use maps.

My last criterion is a “suitable distance of a highway”. I select **one mile** distance because I believe it is very efficient when the huge malls like IKEA is very close (at most 1 mile for me) to highways. To do this, I select “Combined LUCT” as a target layer and “Boston highways” as source layer with spatial selection method of “are within a distance of the source layer feature” and entered 1600 meter (barely one mile) in the “apply a search distance” dialog box. Then I named this new layer as **“Possible IKEA Locations”**. Now I have a layer showing us the possible IKEA locations within our criteria to lead IKEA Executives make a clear decision.

Now in the map, **gray-colored** areas are **Possible IKEA Locations** and other dyads as “pink ->highways”, “blue->Affluent counties” and “green->all other Boston counties”.