

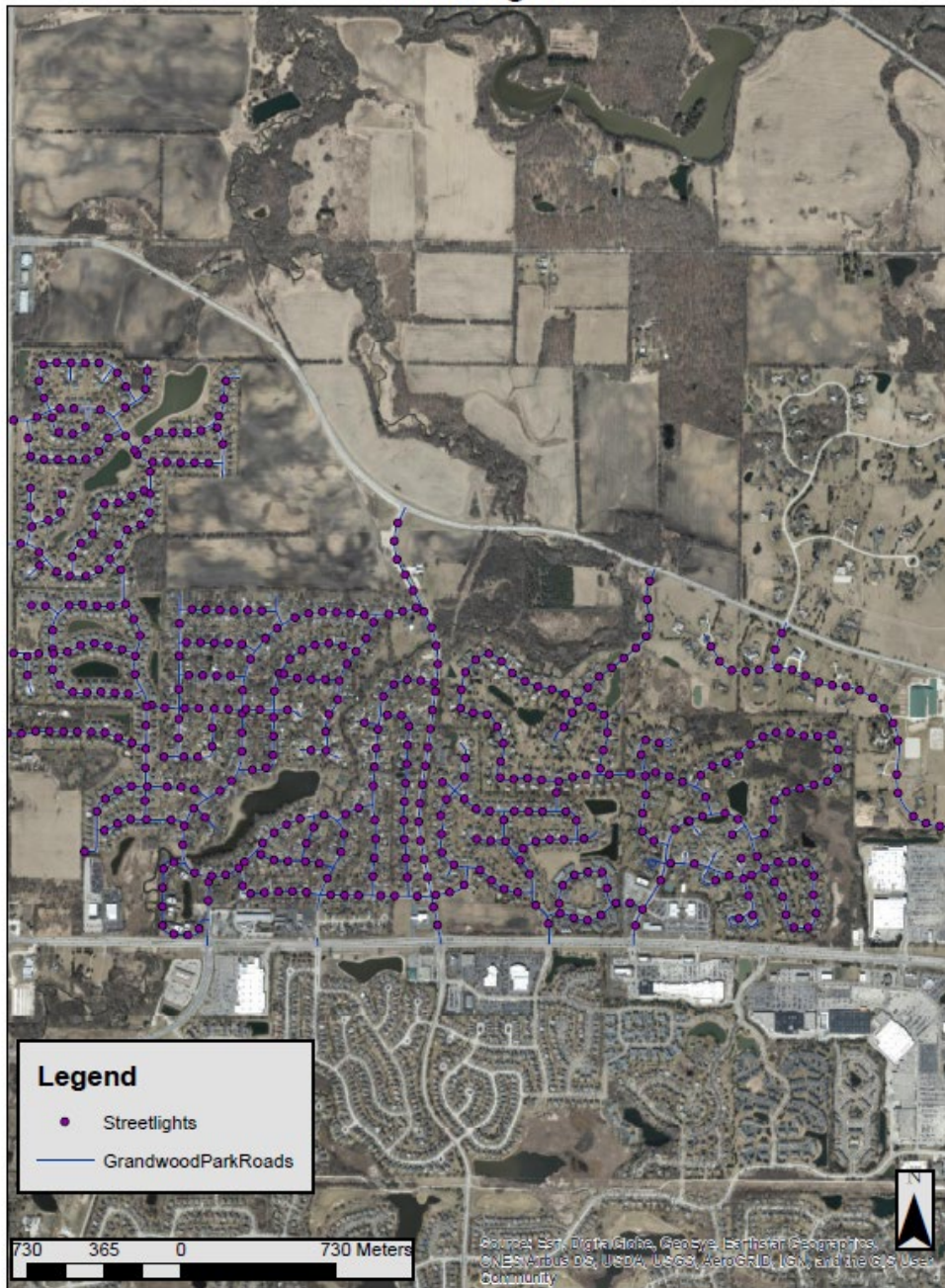
My project is meant to create a tentative streetlight plan for neighborhoods who are looking to put them up. I chose this because my own neighborhood back home does not have streetlights. I always thought this was strange, since the surrounding neighborhoods had them. This model is helpful compared to traditional tools because it provides an answer to a very niche topic. It is also customizable in the sense that all you need are street shapefiles of the neighborhood you'd like to put streetlights in. The geoprocessing tools used here are the Generate Points Along Lines tool (Used to create streetlight placements with a default distance of 200 ft.) and the Select Layer By Attributes tool (Used to select the streetlights layer so that they are able to be zoomed into. This can be used in any local government who is looking to brighten their town. The result is an .mxd file of the streetlights and a PDF file.

INPUT Map:



Output PDF:

Streetlights



CODE

```
#importing arcpy and setting workspace env. INPUT YOUR WORKSPACE HERE

import arcpy

arcpy.env.workspace = "C:\Users\romeo\Documents\Class\GEOG 380\Final Project"


#creating a variable for the map document. INPUT YOUR MAP DOC HERE

mxd = arcpy.mapping.MapDocument("CURRENT")


#listing dataframes

df = arcpy.mapping.ListDataFrames(mxd,"*")[0]


#insert your INPUT:Street Center Lines shp here

#creates shp variable and adds the Streets as a layer to mxd

Streetsshp = "GrandwoodParkRoads\GrandwoodParkRoads.shp"

Streets = arcpy.mapping.Layer(Streetsshp)

Streetsfc = arcpy.mapping.AddLayer(df,Streets,"TOP")


#generating points along every street, 200 ft apart.

arcpy.GeneratePointsAlongLines_management("GrandwoodParkRoads", "Streetlights", "DISTANCE",
"200 Feet", "", "")


#adding Streetlights as layer

streetlights = arcpy.mapping.Layer("Streetlights")

arcpy.mapping.AddLayer(df,streetlights,"TOP")


#Zooming to the Selected features (Streetlights)

expression = "'Shape' = 'Point'"

arcpy.SelectLayerByAttribute_management(streetlights,"NEW_SELECTION",expression)

df.extent = streetlights.getSelectedExtent()
```

```
arcpy.RefreshActiveView()
```

```
#Adjusting Legend Elements.
```

```
#Turning auto add on so that the streetlights and streets are added to legend.
```

```
#If contents of legend are overflowing, increase width by .1 pixel until it's not.
```

```
legend = arcpy.mapping.ListLayoutElements(mxd,"LEGEND_ELEMENT", "Legend")[0]
```

```
legend.autoAdd = True
```

```
while legend.isOverflowing:
```

```
    legend.elementWidth = legend.elementWidth + 0.1
```

```
#Saving a copy to results folder
```

```
#INPUT YOUR OWN FILE PATH
```

```
mxd.saveACopy(r"C:\Users\romeo\Documents\Class\GEOG 380\Final Project\results\\Grandwood Park  
Streetlights.mxd")
```

```
#Saving layout as PDF
```

```
#INPUT YOUR OWN FILE PATH
```

```
arcpy.mapping.ExportToPDF(mxd, r"C:\Users\romeo\Documents\Class\GEOG 380\Final  
Project\results\Grandwood Park Streetlights.pdf")
```