Colorado Population Analysis

For this project I found data from the state's demography office, they are a part of the Department of Local Affairs for Colorado (AKA DOLA). I thought it was interesting that they provided projections for population growth by county. I decided an analysis of these predictions (and the resultant map) would be enlightening for regular citizens, as well as those who wish to plan expansion locations for their businesses, and/or services.

Here is the link for the data:

https://demography.dola.colorado.gov/assets/html/county.html

Methods:

1) Downloading and Uploading the data. I needed to convert the .xls file I had downloaded to .CSV. This is always a little touchy, and I ended up making a new .CSV copying out JUST the numbers with no formatting or field headers in order to get ArcGIS pro to take the file.
2) Bringing in ancillary layers for graphics. I retrieved the Colorado county shape file from a previous lab. (phew!) Then I made sure everything was in the same projection. I did end up using the **project tool** to get everything into NAD 1983 UTM Zone 13N. I chose "Lato" for my font, and chose a color scheme. (fun stuff first😉)
3) I joined the .CSV file of population prediction data to another .CSV of county center point coordinates using the **XY Table To Point** tool this made a point feature class which I then was able to **Join** to the old county shape file. I made separate feature classes for years 2020, 2030, 2040, and 2050. They contained the county names population (for the chosen year) center point xy coordinates, and an object ID.
4) I found the square mile data for each county online and created a .CSV for that data which I also joined to my 2020, 2030, 2040, and 2050 feature classes. Then I added a "Density" field, and used the **Calculate Field** function to fill it in.
5) THEN I was finally ready to use some spatial statistics tools! I used the **Mean Center** tool, weighted with the population of each county. (I had essentially assigned the population values to the center points of each county.) I did this for 2020, 2030, 2040, and 2050. This showed a little northerly migration.
6) I used the **Standard Distance** tool to determine if the populations were becoming more concentrated of dispersed around the state mean centers for my target years. This tool showed almost no change in the dispersion of the years.
7) Then I made my map, and exported it.

Conclusions and analysis:

The population in Colorado is most dense around the front range counties. The mean center for all the counties together (weighted by population or predicted population depending on the year) also lands in the front range every year. As the years go by you can see these mean centers migrate slightly to the north. I ran the dispersion tool for every year, 2020, 2030, 2040, 2050, though I only showed the 2020 dispersion on the map. This is because all the dispersions were nearly the same through the years. We are not predicted to spread out (or concentrate) around the mean centers as the years go by.