**Hexabin Chart**

**What is it about:**

This chart is for coupling some of the data points to others to make pairs in a shape we choose (Hexagon in this case) in dense dataset.

**Sheets used in Dashboard:**

* Hexabin with Mercator Distortion
* Hexabin without Distortion

**Data Densification:**

* Used padded technique, a part of data densification, using LOD calculations.

**Table Calculations used:**

|  |  |
| --- | --- |
| Table Calculation Names | Formula Used |
| Population | WINDOW\_SUM(SUM([2010 Census Population])) |
| Angle | (PI()/3)\*INDEX() |
| ToPad | if [Zip Code ZCTA]={ FIXED [HexLat],[HexLong]: min([Zip Code ZCTA])} then 1 else 6 end |
| HexLat | hexbiny([Longitude]\*[Hexabin Sizing],[Latitude]\*[Hexabin Sizing])/[Hexabin Sizing] |
| HexLongz` | HEXBINX([Longitude]\*[Hexabin Sizing],[Latitude]\*[Hexabin Sizing])/[Hexabin Sizing] |
| MapLat | WINDOW\_AVG(AVG([HexLat]))+(1/[Hexabin Sizing])\*SIN([Angle]) |
| MapLong | WINDOW\_AVG(AVG([HexLong]))+(1/[Hexabin Sizing])\*COS([Angle]) |
| MapLat Adjusted | DEGREES(2\*ATAN(EXP(((WINDOW\_AVG(AVG([HexLat Adjusted]))+SIN([Angle])\*[Hexbin Size (miles)])/[Earth Radius (miles)])))-PI()/2) |
| MapLong Adjusted | DEGREES((WINDOW\_AVG(AVG([HexLong Adjusted]))+COS([Angle])\*[Hexbin Size (miles)])/[Earth Radius (miles)]) |
| MercatorLat | [Earth Radius (miles)] \* LN(TAN((PI()/4) + (RADIANS([Latitude])/2))) |
| MercatorLong | [Earth Radius (miles)] \* RADIANS([Longitude]) |

**Parameters used:**

|  |  |  |
| --- | --- | --- |
| Parameter Name | Value | Datatype |
| Hexabin Sizing | 1 | Integer |
| Earth Radius (miles) | 3,959 | Integer |
| Hexbin Size (miles) | 50 | Integer |

**Bins used:**

|  |  |
| --- | --- |
| Bin Name | Size of Bin |
| Padded | 1 |
| Padded Adjusted | 1 |