



# **PREDICTING GUN VIOLENCE IN PHILADELPHIA**

**Sean McClellan**

# METHOD

---

Given insufficient gun violence data from only half of the city, predicting gun violence for the other half requires a prediction model.

---

This model was built on indicators proven to be correlated with incident locations in half of the city. These indicators are then visually compared to a crime density map and analyzed based on geographic similarities.

---

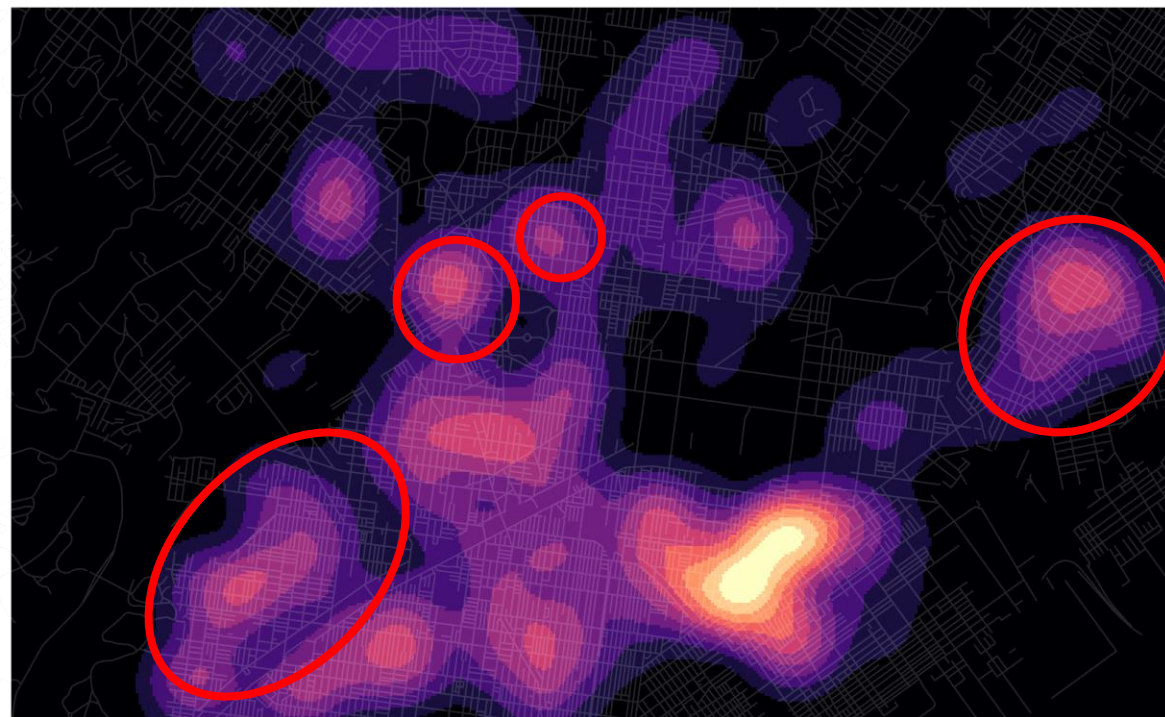
Using tools such as Inverse Distance Weighted Interpolation, Kernel Density Analysis, and Iso Clustering, this model was projected onto the 2<sup>nd</sup> half of the city, thus predicting likely locations of gun violence.

# VISUAL ANALYSIS - NORTH

Percent Black

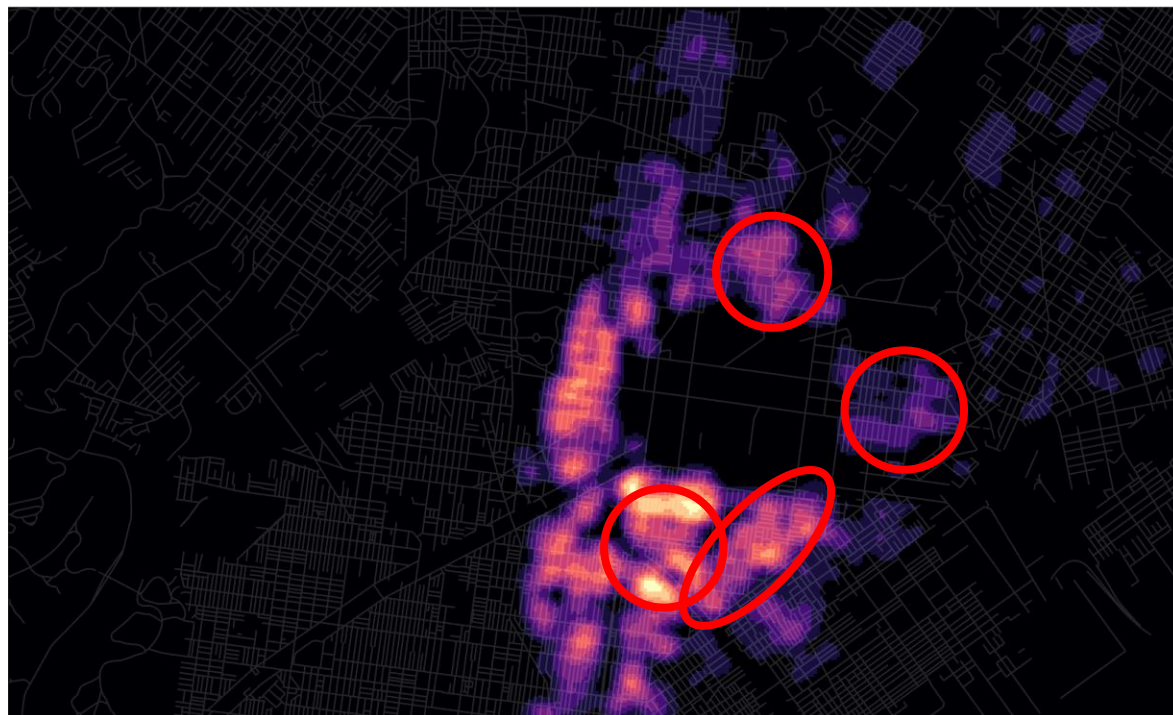


Crime Density

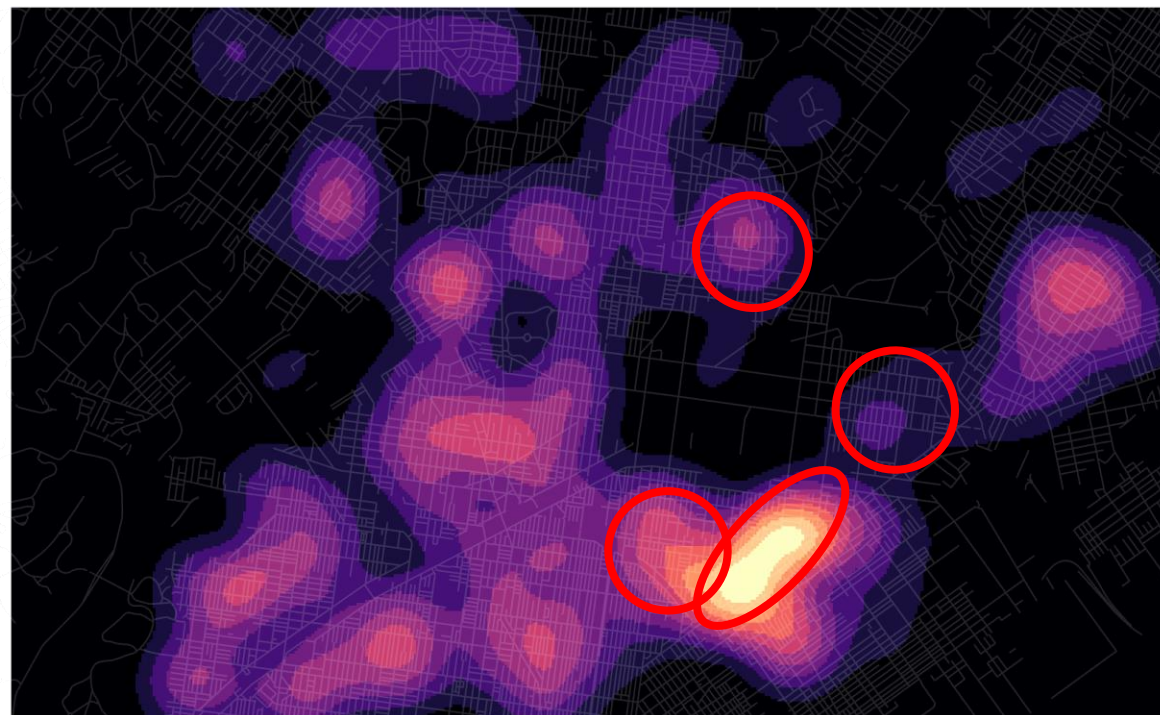


# VISUAL ANALYSIS - NORTH

Percent Hispanic

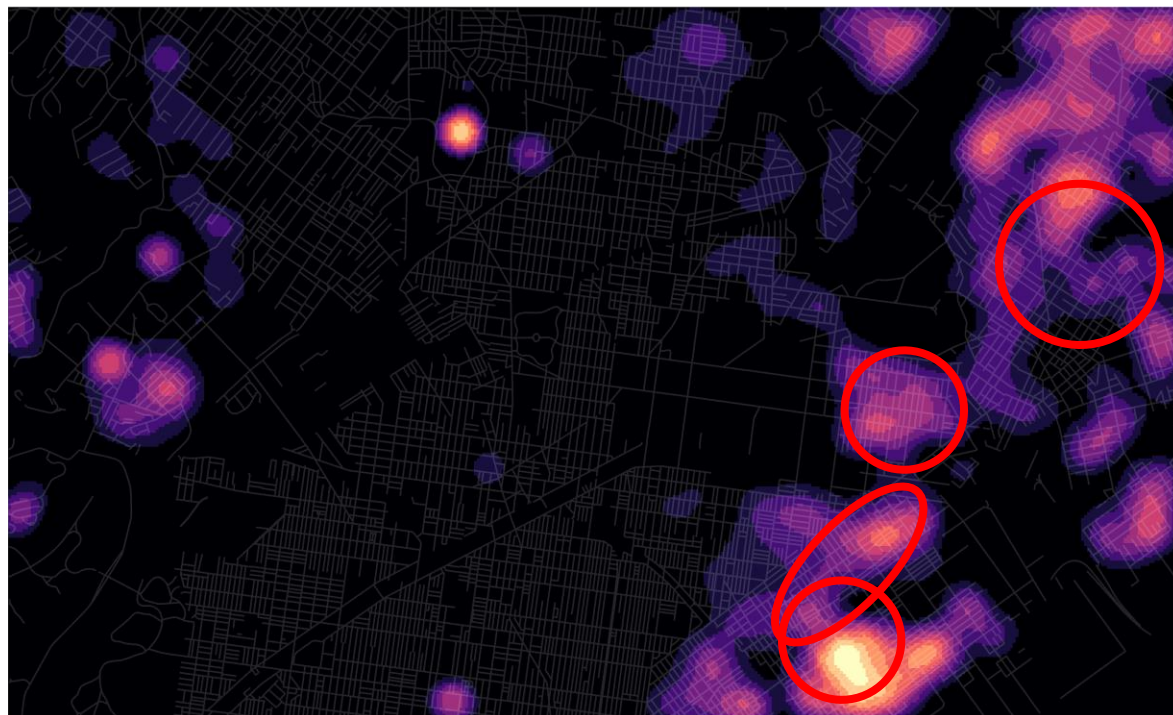


Crime Density

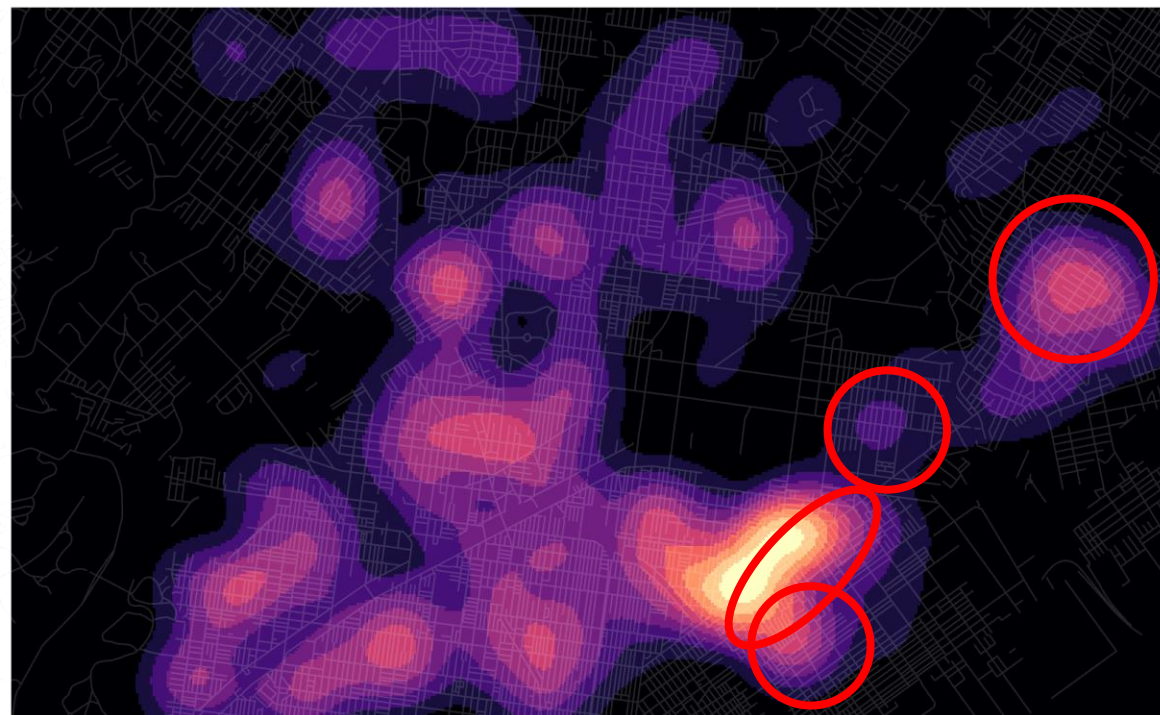


# VISUAL ANALYSIS - NORTH

Percent White

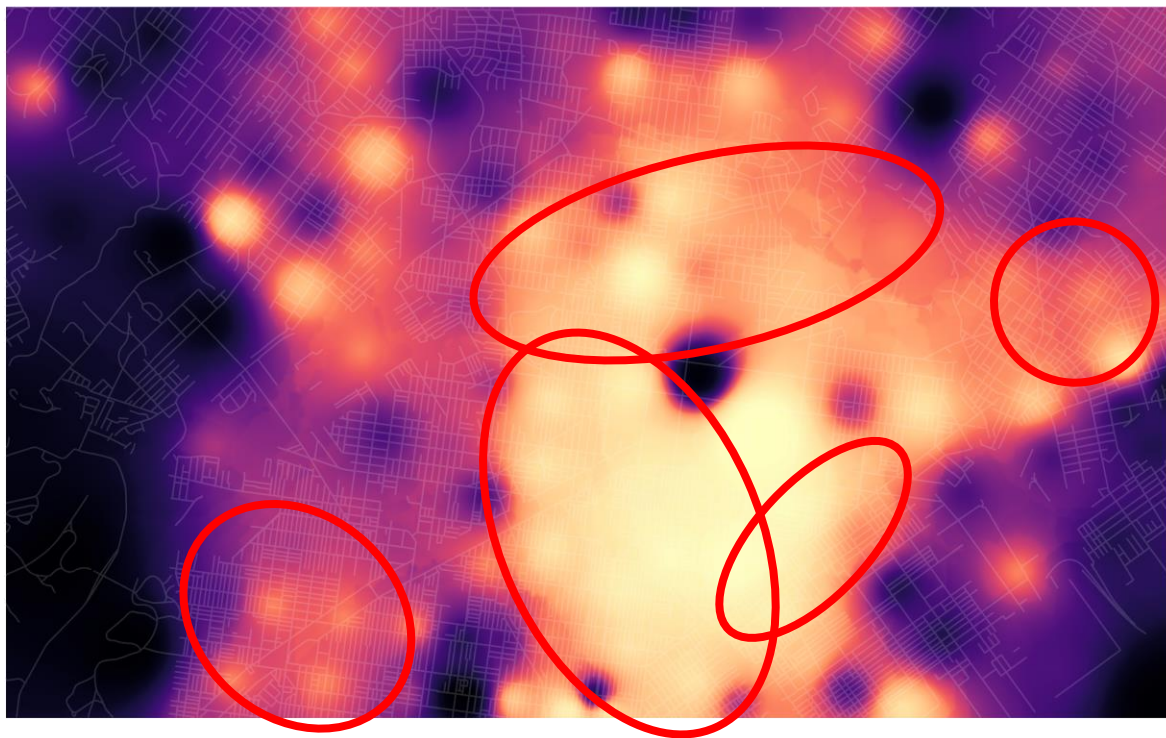


Crime Density

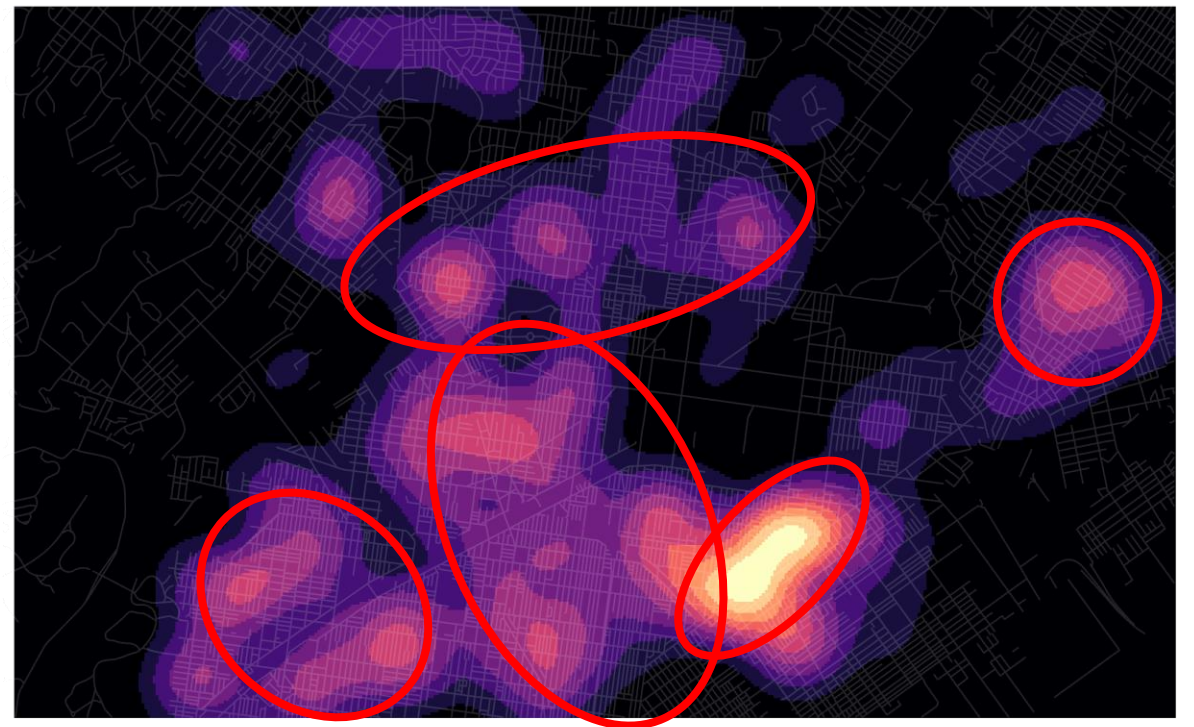


# VISUAL ANALYSIS - NORTH

Percent 2+ Years of College

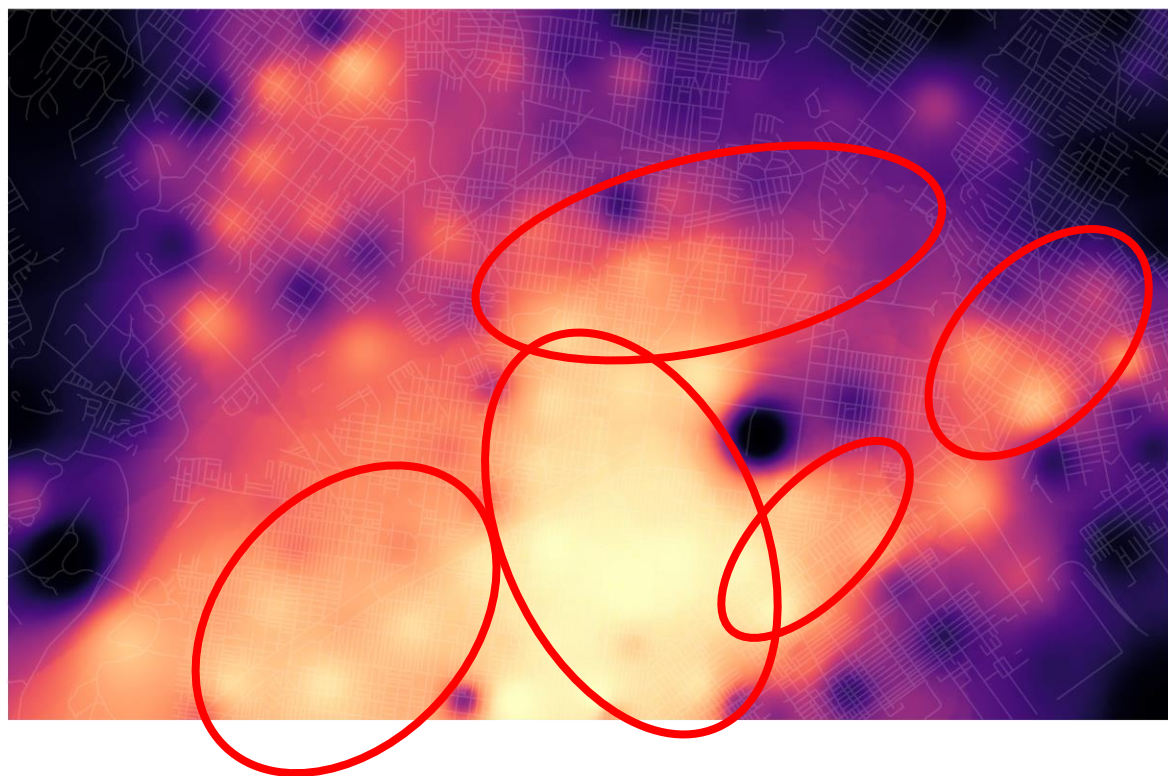


Crime Density

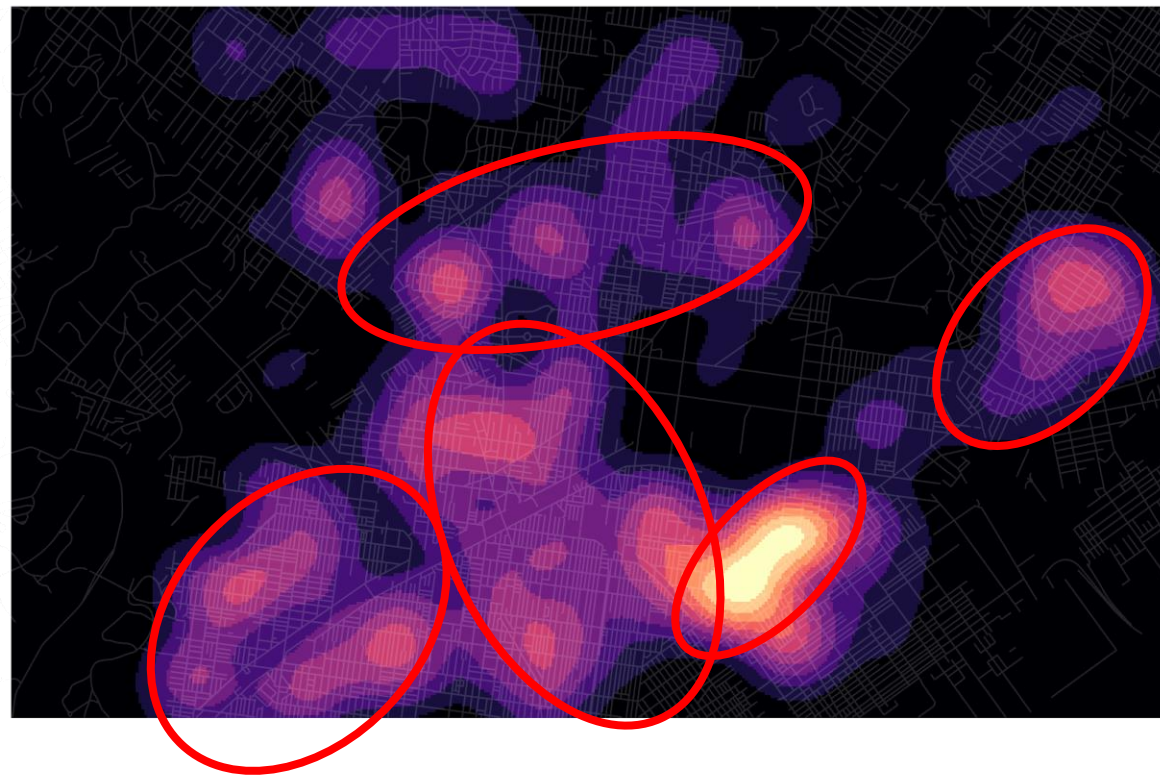


# VISUAL ANALYSIS - NORTH

Percent of Population in Poverty

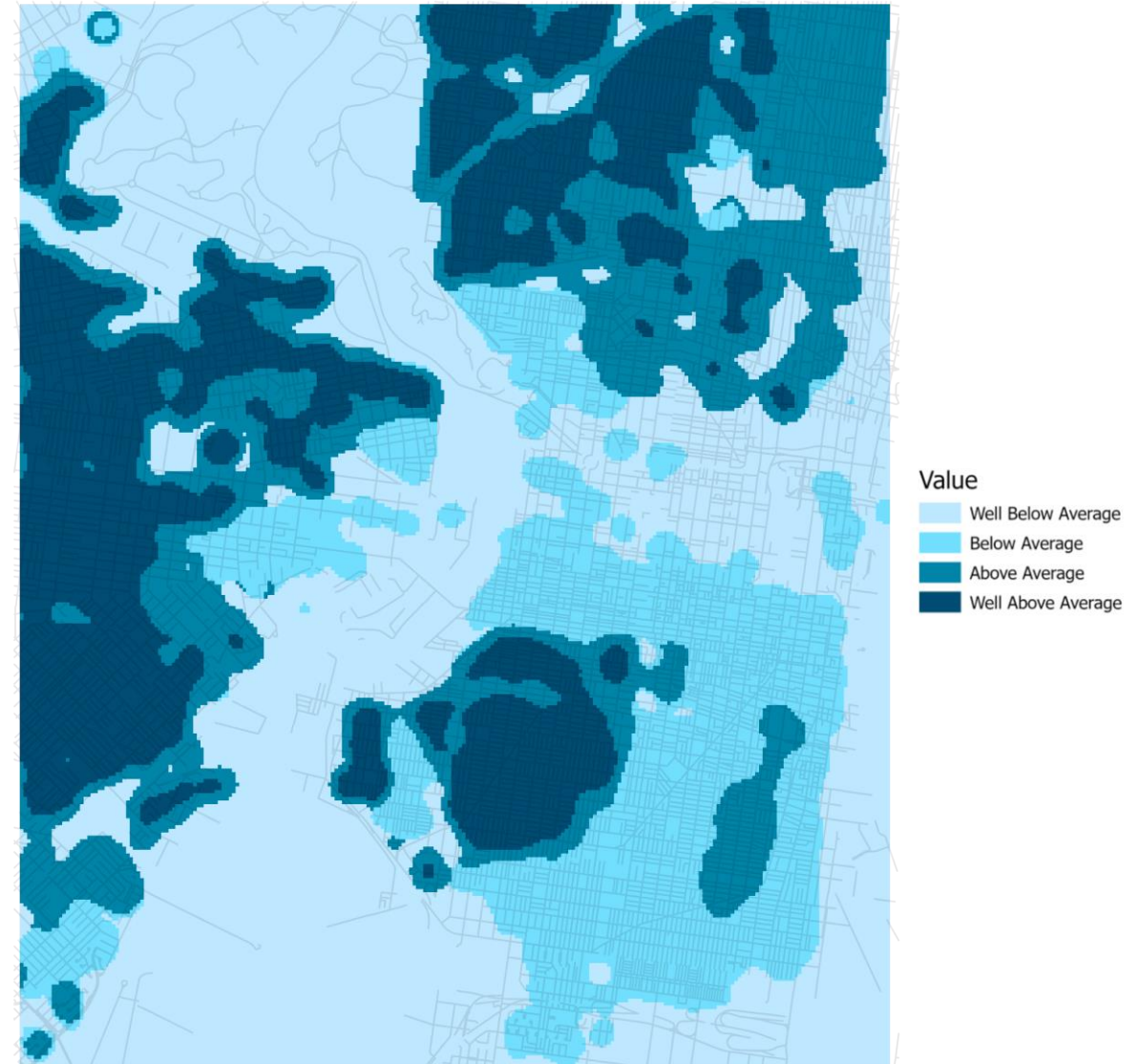


Crime Density



# PREDICTION OUTCOME

- Based on the prediction model built on North Philadelphia data, crime in Central and South Philadelphia was projected.
- This prediction is somewhat consistent with crime trends in Philadelphia.
- Parts of Southwest Philadelphia, West Philadelphia, and remaining parts of North Philadelphia were included in the highest level of gun violence.





# OVERALL

- Citywide gun violence, including projections from the prediction model, shows a general idea of where gun violence is concentrated in Philadelphia.
- The predictions line up well with real values from the North Philadelphia data.
- The only issue with the prediction model is an issue with Iso Clustering. Only four distinct classes could be found in the clustered data. The fifth would have allowed for an “Average” class.

