

# Hotel Development in Philadelphia



Photo: [https://unsplash.com/@gibson\\_hurst](https://unsplash.com/@gibson_hurst)

# Introduction

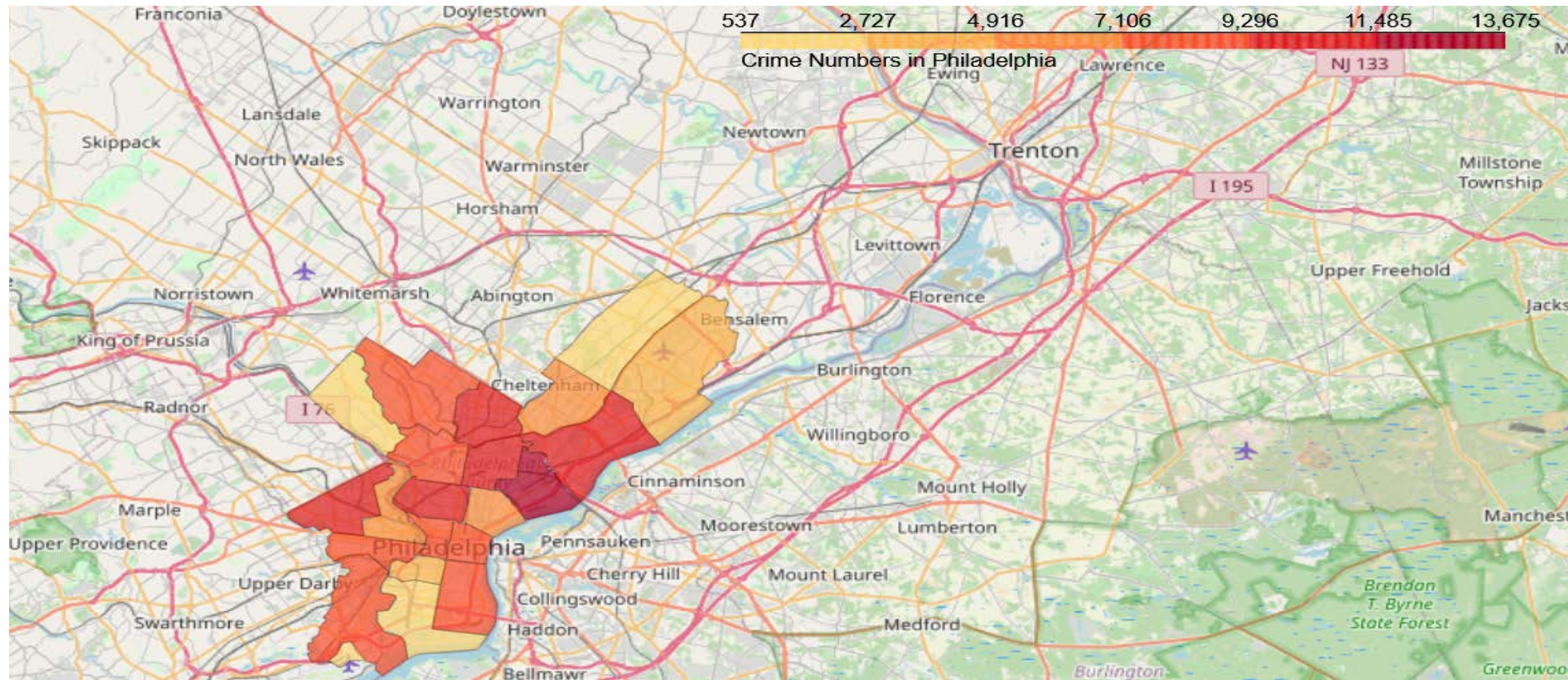
There are 22 police districts in Philadelphia. This is an analysis of crime numbers together with the common venues per district in Philadelphia to provide information to hotel investors. Districts are clustered in terms of common venues so that investors can use safety as a parameter given cluster while making a decision over location.

# Data Resources

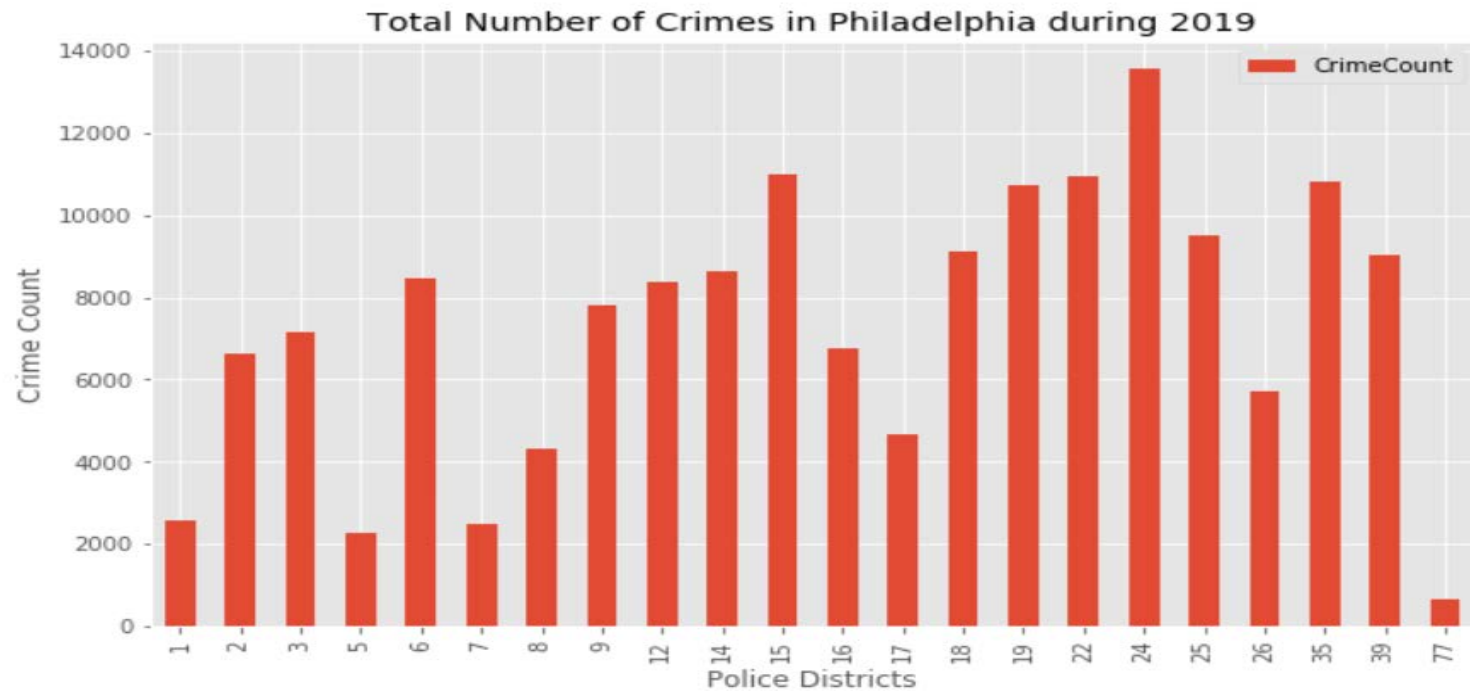
- Crime Data: Crime incidents data-set for 2019 from the website <https://www.opendataphilly.org/> and the link for the data set is <https://www.opendataphilly.org/dataset/crime-incidents>
- Geo Data: Geojson file of police districts from the website <https://www.opendataphilly.org/> and the link for the data set is [http://data.phl.opendata.arcgis.com/datasets/62ec63afb8824a15953399b1fa819df2\\_0.geojson](http://data.phl.opendata.arcgis.com/datasets/62ec63afb8824a15953399b1fa819df2_0.geojson)
- Venue Data: Common venues of Philadelphia from Foursquare API <https://foursquare.com/>



# Crime in Philadelphia (2019)



# Crime in Philadelphia (page 2)

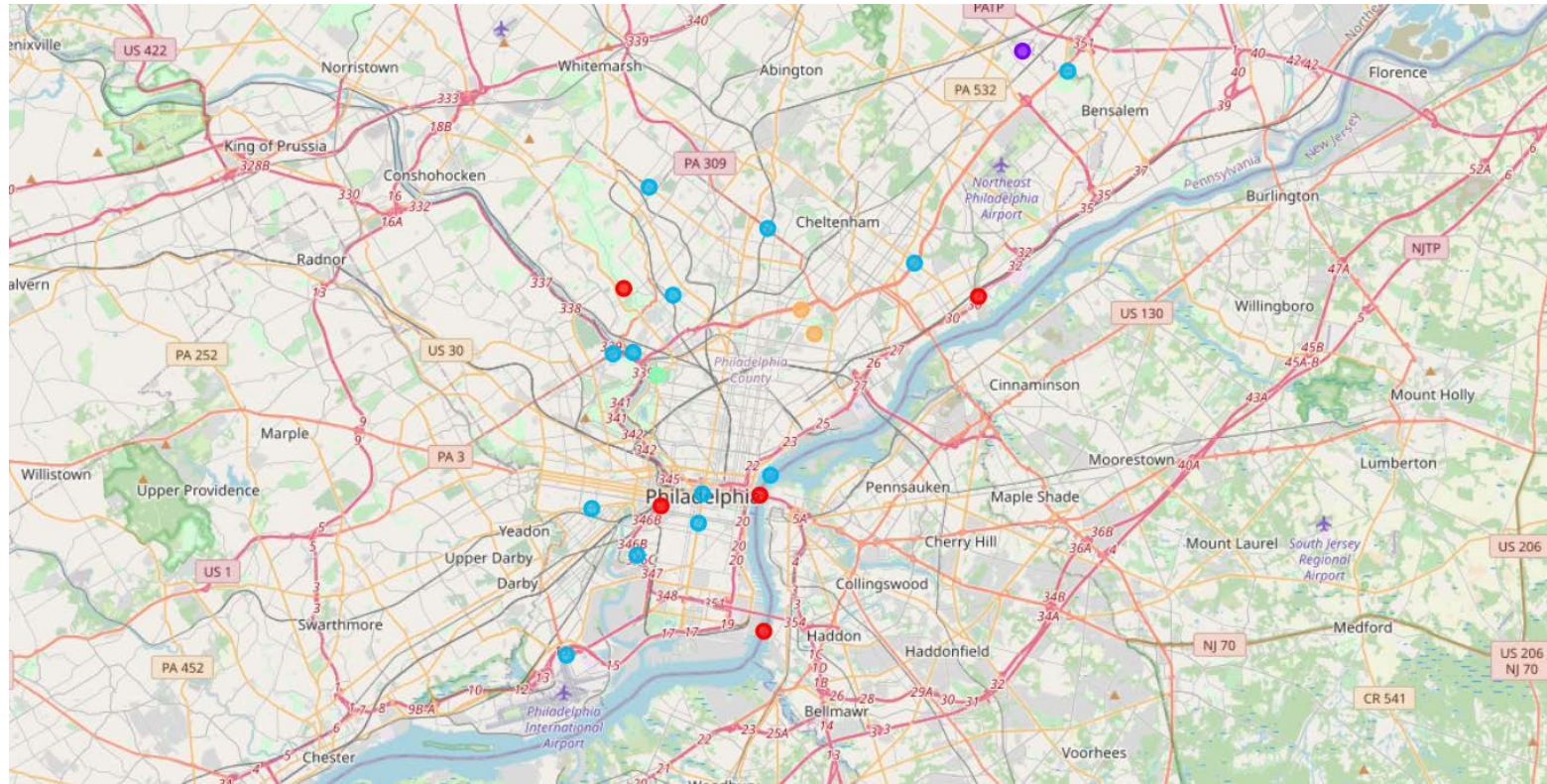


# Top Ten Venues per District

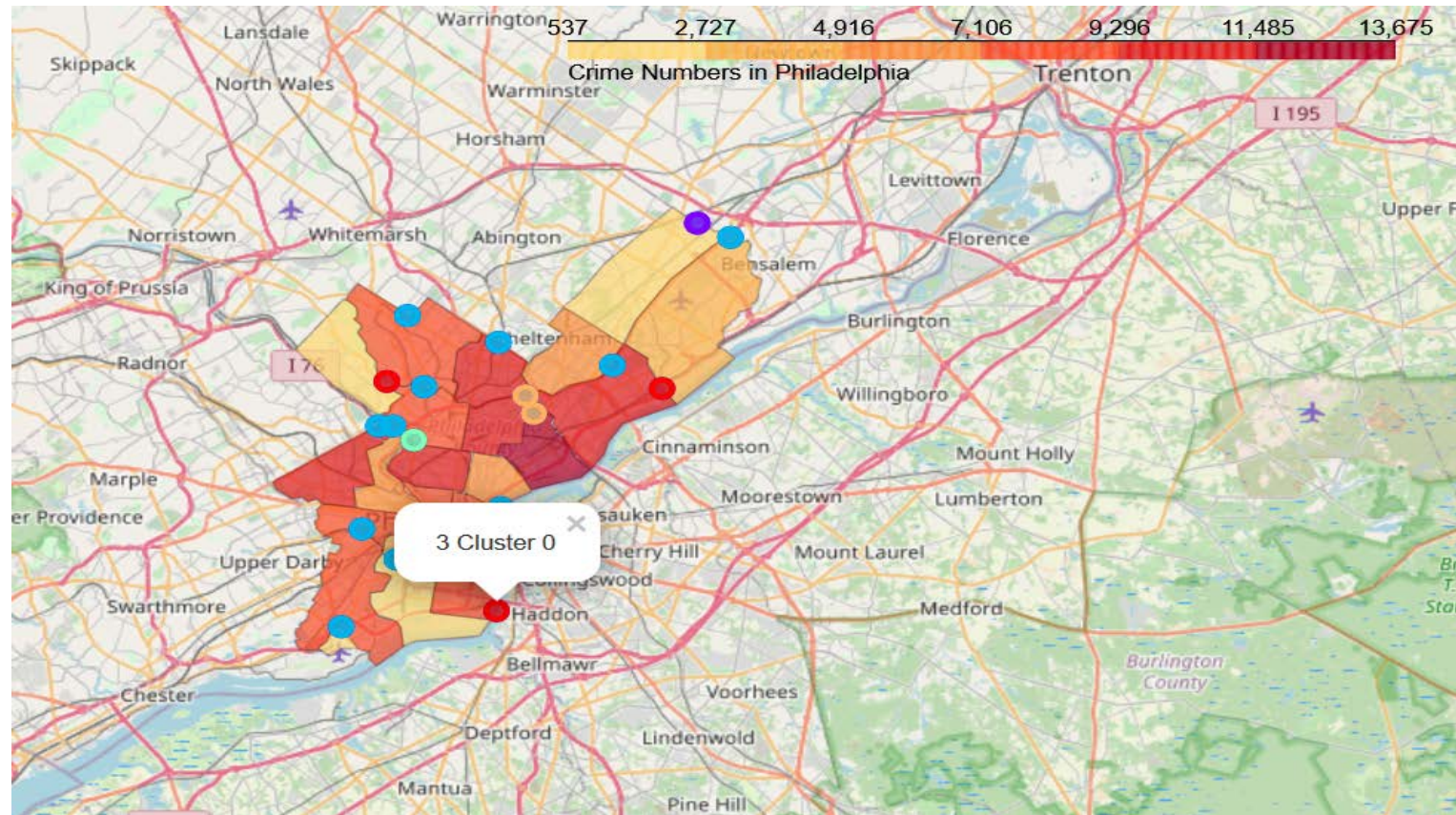
| district | CrimeCount | Latitude | Longitude | Cluster Labels | 1st Most Common Venue | 2nd Most Common Venue | 3rd Most Common Venue | 4th Most Common Venue | 5th Most Common Venue | 6th Most Common Venue | 7th Most Common Venue | 8th Most Common Venue       | 9th Most Common Venue | 10th Most Common Venue |                               |
|----------|------------|----------|-----------|----------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------------|-----------------------|------------------------|-------------------------------|
| 0        | 1          | 2560     | 39.929437 | -75.197240     | 2                     | Baseball Field        | Arcade                | Hookah Bar            | Grocery Store         | Bar                   | Ethiopian Restaurant  | Flea Market                 | Fish Market           | Film Studio            | Fast Food Restaurant          |
| 1        | 2          | 6611     | 40.044541 | -75.054444     | 2                     | Men's Store           | Shopping Mall         | Clothing Store        | Mobile Phone Shop     | Optical Shop          | Shoe Store            | Sandwich Place              | Pharmacy              | Deli / Bodega          | Paper / Office Supplies Store |
| 2        | 3          | 7160     | 39.899322 | -75.132053     | 0                     | Park                  | Historic Site         | Harbor / Marina       | Donut Shop            | Fish Market           | Film Studio           | Fast Food Restaurant        | Farmers Market        | Falafel Restaurant     | Ethiopian Restaurant          |
| 3        | 5          | 2260     | 40.034678 | -75.204300     | 0                     | Park                  | Scenic Lookout        | Beach                 | Bridge                | Dive Bar              | Trail                 | Eastern European Restaurant | Baseball Field        | Fish Market            | Film Studio                   |
| 4        | 6          | 8482     | 39.952940 | -75.134366     | 0                     | Japanese Restaurant   | Bar                   | Park                  | Boat or Ferry         | Trail                 | Other Great Outdoors  | Beer Garden                 | Falafel Restaurant    | Flea Market            | Fish Market                   |



# Venue Clusters in Philadelphia

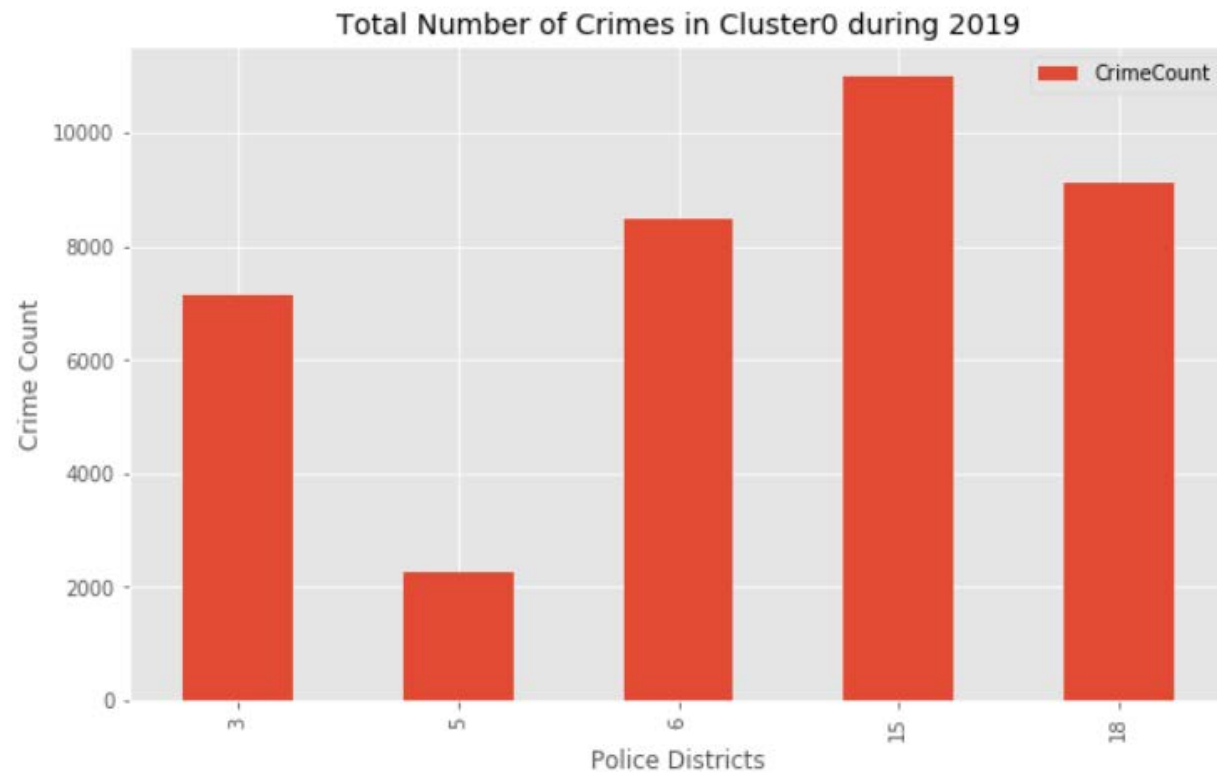


# Venue Clusters together with Crime Numbers

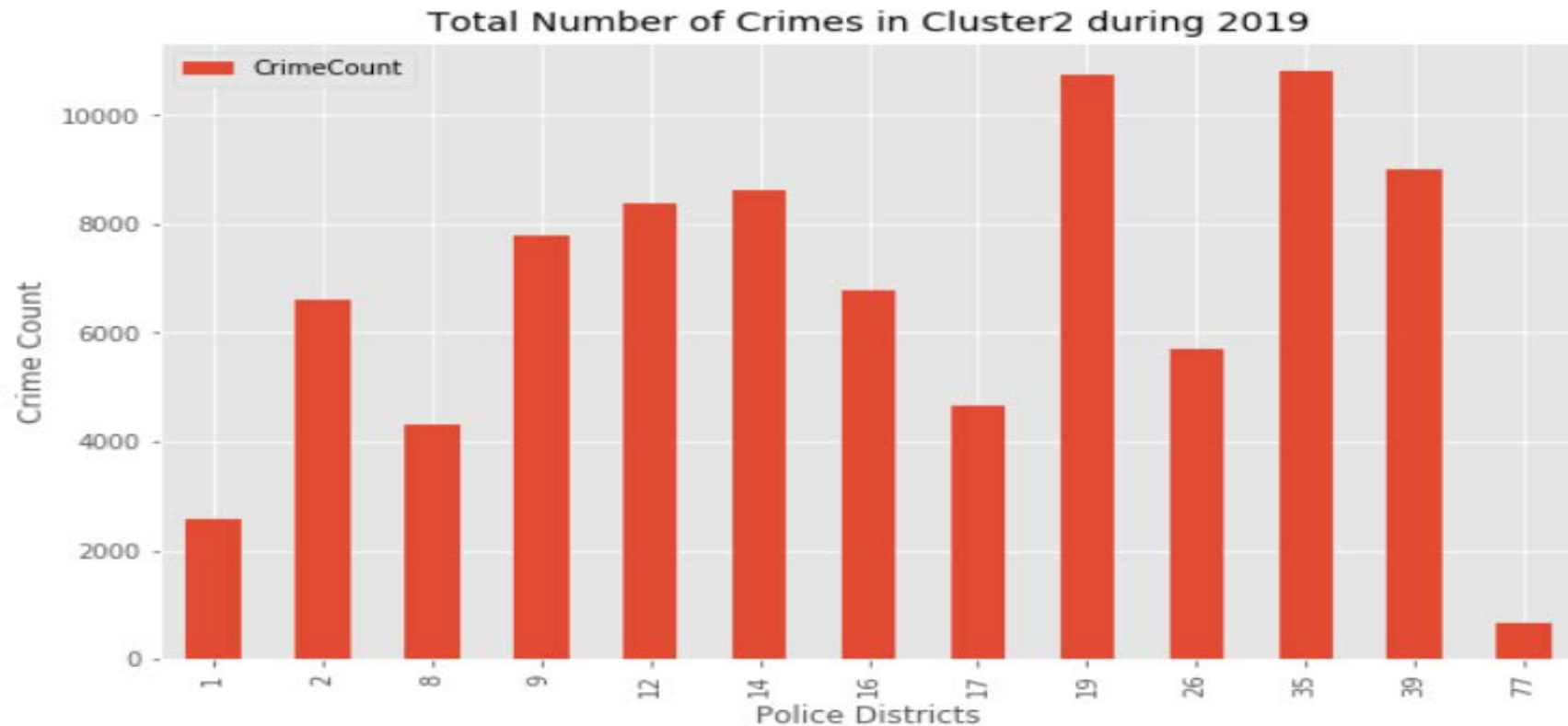




# Crime in Districts with Recreation Venues



# Crime in Districts with Entertainment Venues



# Discussion

- Longitude/ Latitude selection could be revised.
- Connection with districts and neighborhoods could be investigated.
- K-means algorithm could be repeated with different k values.
- Common venues could be recategorized.
- Population data per district could improve the safety index.



# Conclusion

- Hotel Investors
- Travelers
- House Renters/Buyers

would benefit from the final cumulative map and the safety data provided by the charts.