Police Use of Force: Implications for Policing and Neighborhood Policy

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Personal Background

- Frank Romo is a community activist turned GIS technician. His company RomoGIS works on projects that advance social justice through collaborative research and community action.

- Harley Etienne is an associate professor of urban and regional planning in the Taubman College of Architecture and Urban Planning. He specializes in neighborhood change, dynamics and social justice in planning.

Our Research: Policing, Planning, and Injustice

- Our goal is to leverage the power of GIS and our commitment to social change and neighborhood improvement to provide valuable insights that can help communities organize and fight for justice.

- We acknowledge the negative influences of over-policing, systemic racism and urban planning as public safety concerns for communities of color.

- Our team would like to gain a better understanding of this urban phenomenon by creating one of the most comprehensive neighborhood analyses on this topic to date.

Community Engaged Research

Our hope is that our research can lead to engagement with community members and local organizations to help educate and provide policy solutions and recommendations.

Police Use of Force

- The goal of this project is to examine the incidence and geographic context of fatal police encounters (FPEs).
- Using publicly available and secondary data we examine frequencies and agglomerations of FPEs through statistical tests and modeling to determine where FPEs have, and are most likely, to occur.
- By examining the geospatial distribution of these incidents, as well as the neighborhood context, we hope to provide analysis and recommendations that can help create safer communities.

Why is Use of Force Data So Difficult to Capture?

- Poor Data Quality & Lack of Standardized Reporting
  - Due to the multiple jurisdictions, agencies and legal authorities involved in these incidents it can be difficult to find standardized, verifiable data.
  - Without a national standard, database or protocol for reporting these incidents it is very easy for data to be underreported and overlooked.

- Political & Social Concerns
  - Due to the highly contentious nature of these incidents, data surrounding these altercations can often take months/years to be resolved and verified.
  - Other legal issues also play a role such as information about the incident, the victim and the officer due to ongoing legal proceedings.

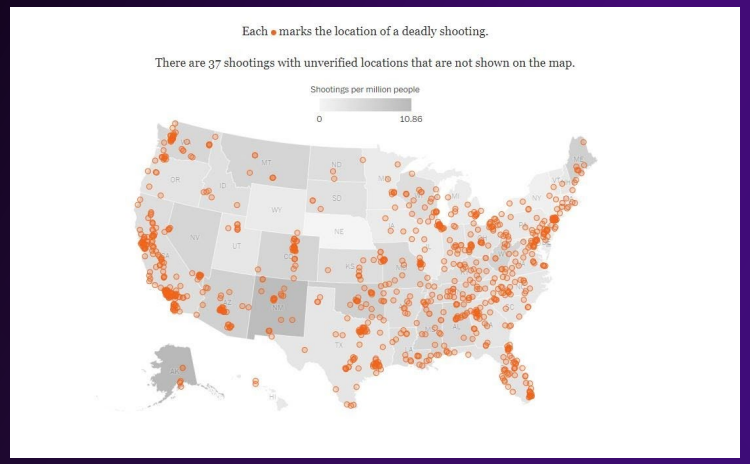
Project Timeline

History of the Project

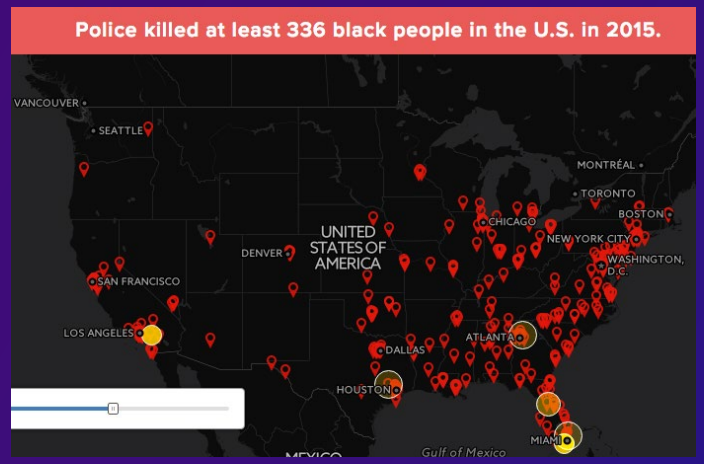
- Project originally began in 2016 as a shared research project titled "*Race and Policing in America*".
- The initial analysis researched fatal police encounters between the years of 2013 – 2015.
- This exploratory analysis helped us better understand the key issues at play with collecting, documenting and verifying policing data.
- We began by examining three core datasets: *Fatal Force, Mapping Police Violence and Fatal Encounters.*

Examining Existing Resources

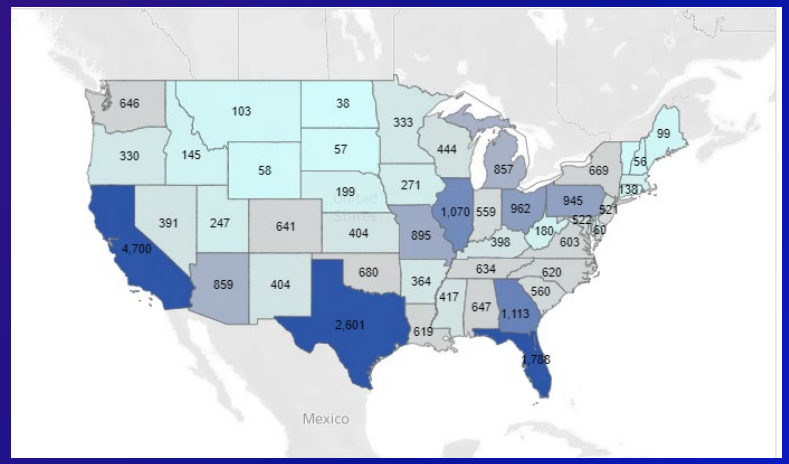
Fatal Force



Mapping Police Violence



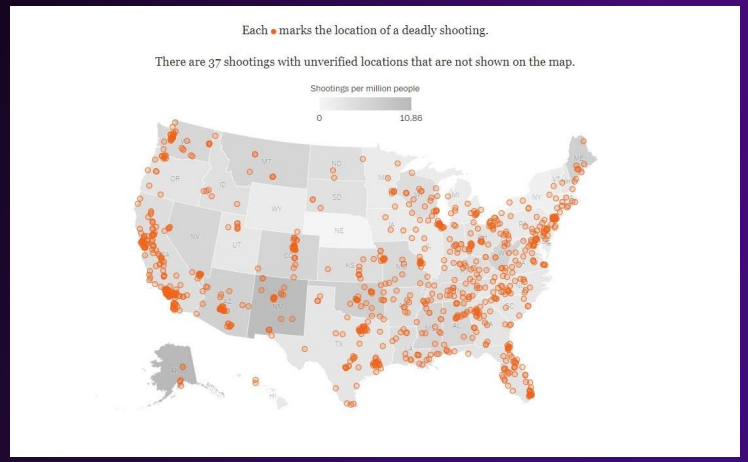
Fatal Encounters



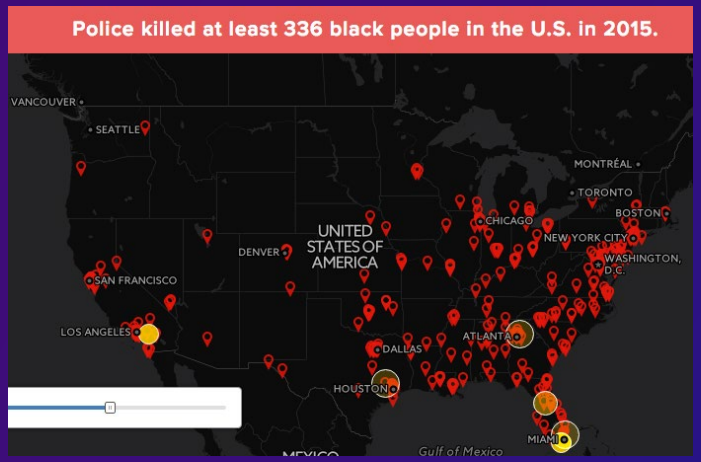
After examining multiple datasets our team settled on these three datasets as the primary resources for our research on fatal police encounters.

Examining Existing Resources

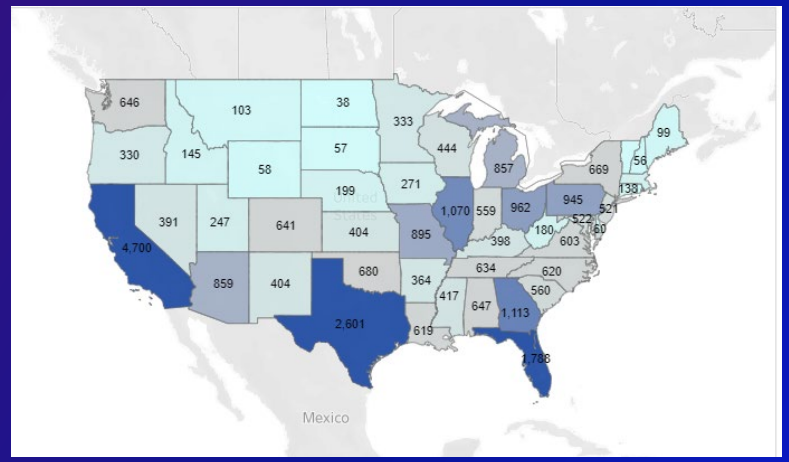
Fatal Force



Mapping Police Violence



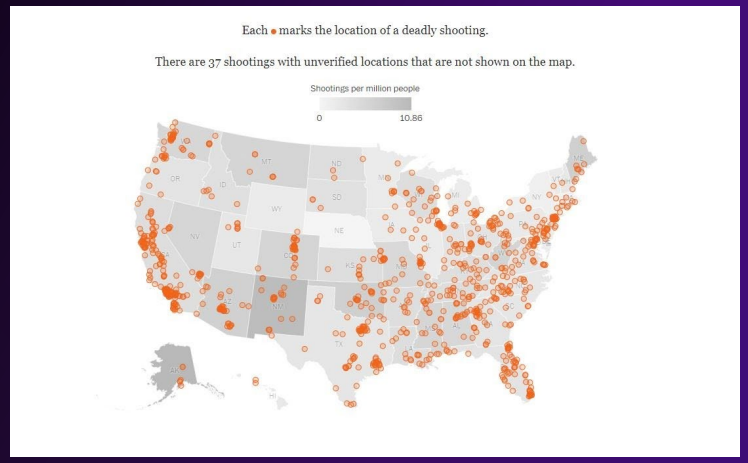
Fatal Encounters



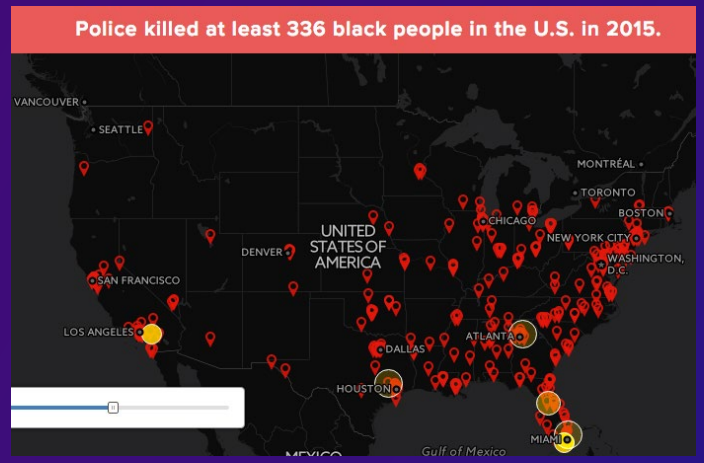
We recognized that each of these datasets posed its own benefits and drawbacks when mapping and analyzing the data.

Examining Existing Resources

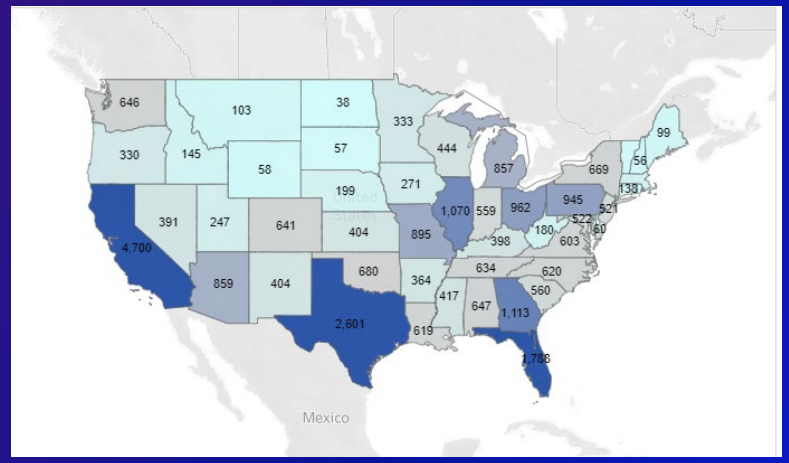
Fatal Force



Mapping Police Violence



Fatal Encounters



After thoroughly investigating the methods and data from each of these sources we were able to confidently proceed with our research.

Initial Project Findings

Fatal Encounters with Law Enforcement 2013 - 2015

3485
TOTAL
people killed by police 2013-2015

Race	Total Fatalities
White	1522
Black	949
Latino	571
Unknown	335
Asian	68
Native American	27
Pacific Islander	13

Law Enforcement Agency	Total Fatalities
Los Angeles Police Department	65
New York Police Department	49
Chicago Police Department	45
Phoenix Police Department	42
Houston Police Department	36

Police Related Fatalities: County Level Analysis 2013 - 2015

Los Angeles County
California

Population: 10.2 Million
Area: 4,751 Square Mi.
Total Fatalities:
L.A. County - 167 People
City of L.A. - 63 People

Maricopa County
Arizona

Population: 4.0 Million
Area: 9,224 Square Mi.
Total Fatalities:
Maricopa County - 85 People
City of Phoenix - 48 People

Cook County
Illinois

Population: 5.2 Million
Area: 690 Square Mi.
Total Fatalities:
Cook County - 59 People
City of Chicago - 44 People

Harris County
Texas

Population: 4.3 Million
Area: 1,703 Square Mi.
Total Fatalities:
Harris County - 58 People
City of Houston - 50 People

Miami-Dade County
Florida

Population: 2.6 Million
Area: 1,946 Square Mi.
Total Fatalities:
Dade County - 49 People
City of Miami - 27 People

The counties listed above accounted for a total of 418 incidents of police related deaths between 2013 and 2015. These counties vary in geographic size and population size, making it difficult to draw statistical conclusions on a county by county comparison. Each of these counties were examined individually to determine which populations were affected the most by police violence. Despite the differences in geographic size, each of these counties is home to a major metropolitan city, which in most cases, accounts for more than half of all fatal encounters within the county. For instance, over 90% of all incidents in Harris County, Texas occurred within the Houston city limits. Aside from the City of Los Angeles, every other county's major metropolitan city represented for an overwhelming amount of the reported deaths within the county. This finding reveals that the use of fatal force by police officers is primarily an urban phenomenon that occurs in dense, highly urbanized areas.

Large metropolitan areas like these often have larger populations and, on average, many more emergency response situations which often results in a substantially large police force. However, a sizeable police force should not automatically translate to higher rates of officer involved fatalities. This analysis seeks to offer additional data points about like racial segregation and diversity to better understand how these external factors may contribute to the high rates of police violence in these counties. In order to learn more about the spatial distribution of police violence in each of these counties, an in-depth analysis was performed to examine the population demographics and racial segregation in each of these counties. The following analysis documents incidents of police violence for each county and examines the spatial distribution of this phenomenon in relation to racial segregation.

Initial Project Findings

Los Angeles County, CA

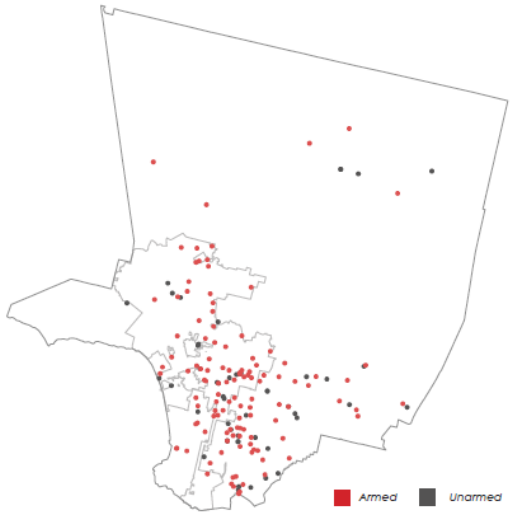
Los Angeles County is the largest metropolitan area in Southern California, with a population of over 10 million people. Los Angeles County is made up of 88 cities and 137 non-contiguous unincorporated areas that span over 4,000 square miles. Compared to the other counties in this study, Los Angeles County is substantially larger in both population and geographic size.

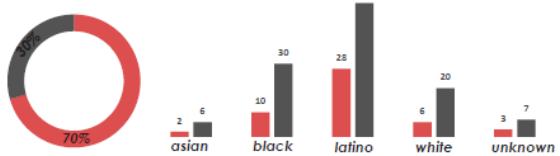
Between the years 2013 and 2015, **Los Angeles County accounted for a total of 167 police-related fatalities, the highest count within the United States.** Los Angeles County was the only municipality in the U.S. to report over 100 incidents of police violence within the three-year period. Approximately 62% of all the reported incidents in L.A. County occurred outside of the Los Angeles city limits. Los Angeles County is the only county in this study whose major metropolitan city (L.A. City Proper) did not account for a majority of the police-related deaths.

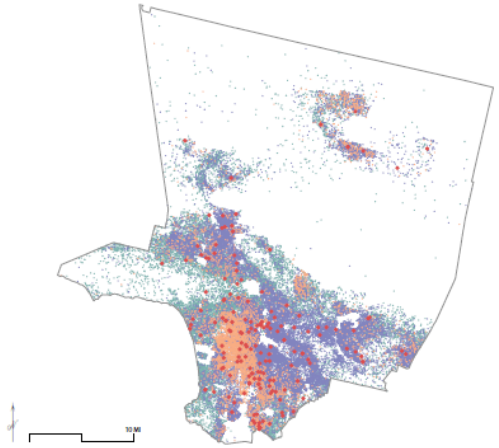
According to this dataset, 118 of the 167 or approximately 70% of victims in Los Angeles County were armed at the time of death. This statistic is slightly less than the national average of 77% of victims being armed at the time of death. Diverging from national trends, **Latinos accounted for over 50% of lethal force incidents in L.A. County.** Although Latinos represent a large portion of the county's racial demographic, these statistics still exhibit an overrepresentation of Latinos as victims of lethal force.

There were three law enforcement agencies that accounted for approximately 82% of the total number of police related deaths in Los Angeles County. The three law enforcement agencies with the greatest number of fatalities were the Los Angeles Police Department (65 total fatalities), the Los Angeles Sheriff's Department (58 total fatalities) and the Long Beach Police Department (14 total fatalities) over the same three-year span.

In L.A. County Latinos accounted for over 50% of lethal force victims

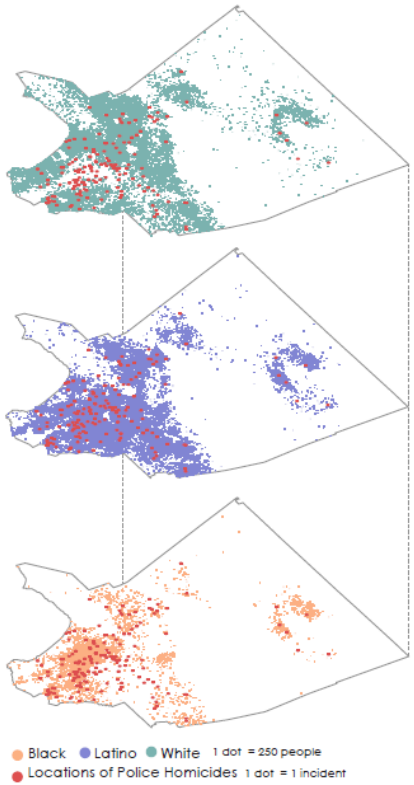






Racial Segregation and Police Violence

Examining racial segregation in L.A. County reveals key relationships between the spatial distribution of police related fatalities and communities of color. These maps show the extreme racial segregation in L.A. County and reveals that **most fatal encounters occurred in black and Latino neighborhoods.** While most of the incidents are dispersed throughout the county, there tends to be a clustering of incidents in the south and south eastern parts of Los Angeles County where there are majority Black and Latino residents. The clustering of incidents in South Los Angeles includes **an overrepresentation of police fatalities in the majority minority cities of Compton and Long Beach.** Both municipalities are majority minority cities, meaning that an overwhelming majority of their population identify as non-white. In fact, 80% Compton's residents and over 50% of Long Beach's residents identify as either Latino or African American. These findings show that diverse, urban communities of color are disproportionately affected by incidents of lethal force in L.A. County.



Initial Findings of the Project (2013 – 2015 Data)

Maricopa County, AZ

Maricopa County is the most populous county in the State of Arizona, with an approximate population of 4 million people. Maricopa County is made up of 24 cities and towns, that spans over 9,000 square miles, making it the largest land area of all the counties compared in this analysis.

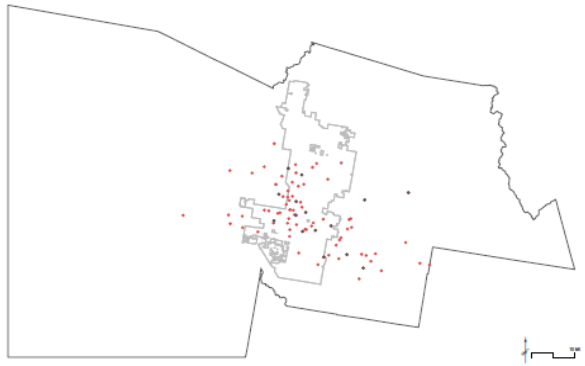
Between the years of 2013 and 2015, Maricopa County reported 85 total fatal incidents, the second highest count in the nation. Different than most counties in this analysis, **an overwhelming percentage of victims or about 82% of people killed by police were armed at the time of death.** The number of armed victims in Maricopa county was substantially higher than the national average of 77%. This finding might indicate a direct connection with Arizona's liberal gun laws and its affiliation as an open carry state.

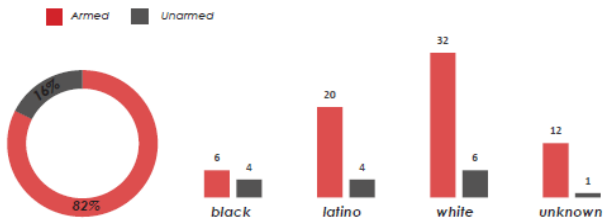
Most of the incidents occurring in Maricopa County are concentrated within the Phoenix city limits. In fact, **the City of Phoenix accounted for 48 of the 85 total fatalities between 2013 and 2015, or about 56% of the total deaths within the entire county.** In Maricopa County, one police agency accounted for about 50% of all the total deaths. The Phoenix Police Department killed 42 of the 85 people in Maricopa County, causing some concern about the level of force used within the city limits and by the local police department.

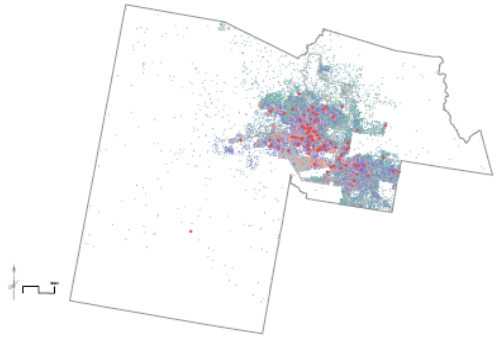
Fatalities by Police Deptartment

Phoenix Police Department - 42
Mesa Police Department - 7
Maricopa County Sheriff - 5

The Phoenix Police Department accounted for about 50% of all deaths within Maricopa County.





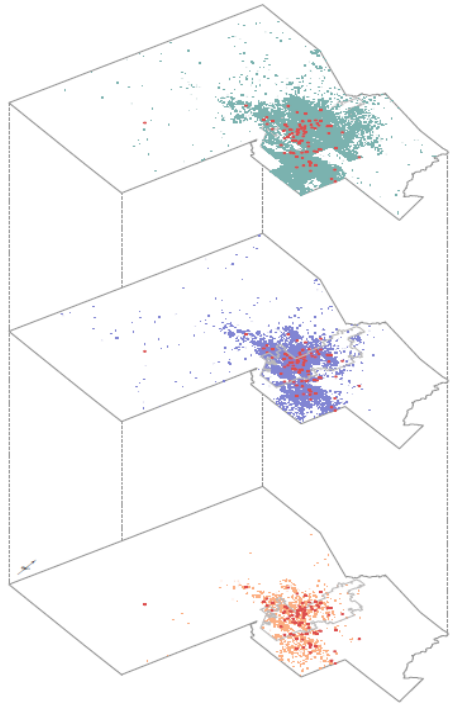


42 of the 85 deaths in Maricopa County, or about 56%, occured within the city of Phoenix.

Racial Segregation and Police Violence

Examining the racial makeup of Maricopa County reveals interesting spatial arrangements as it pertains to incidents of police related fatalities. Unlike many counties in the United States, Maricopa County does not show extreme or distinct racial segregation. Thus, it is difficult to assess if there is a strong relationship between neighborhoods of color and police violence.

Maricopa County is an outlier when compared to the other counties in this analysis. The map series reveals that there is a substantially larger white population living in Maricopa County. **In fact, the white population comprises 70% of the county population but only accounts for 44% of people affected by police violence.** While the maps do not provide insight on the relationship between racial segregation and incidents of police violence, they may lend insight on how minority communities still overrepresented the number of victims killed by



Initial Findings of the Project (2013 – 2015 Data)

Cook County, IL

Cook County is the second largest county in this analysis with a population size with over 5.2 million residents. Cook County consists of 135 municipalities that span a land area of 690 square miles.

Between the years 2013 and 2015, **Cook County accounted for a total of 59 police-related fatalities.** Of these 59 incidents, about 77% of them were of armed victims. This statistic is reflective of the national level dataset, which also indicates that approximately 77% of all victims were armed at the time of death.

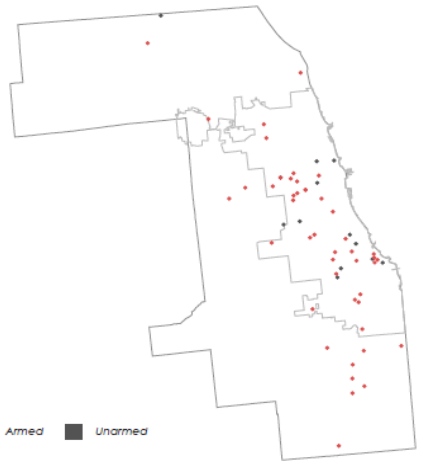
The majority of deaths within Cook County occur within the city boundaries of Chicago. In fact, **the City of Chicago accounts for approximately 75% of the total number of incidents in Cook County, with a count of 45 total fatalities.** This finding is on par with many other metropolitan cities and may be attributed to increased gang-related activity, over-policing and racial profiling in the city. Like many other cities, further contextual analysis is required to better understand the nuances of fatal force in Chicago.

In Cook County, African-Americans accounted for 36 out of the 59 fatalitites or approximately 61% of all police related fatalities.

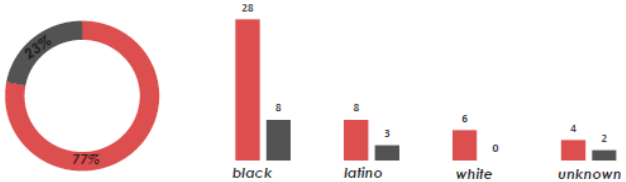
Fatalities by Police Deptartment

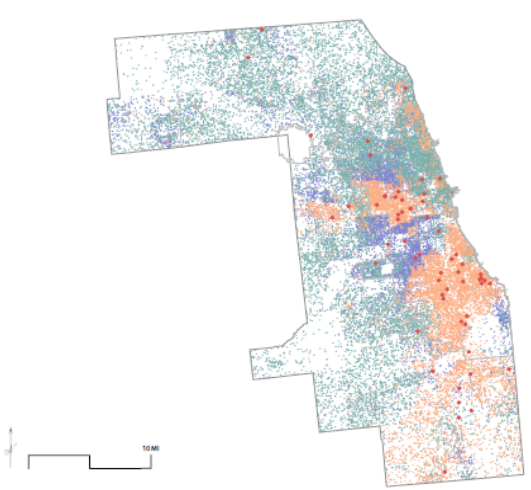
Chicago Police Department - 42

The City of Chicago accounted for approximately 75% of all deaths within Cook County.



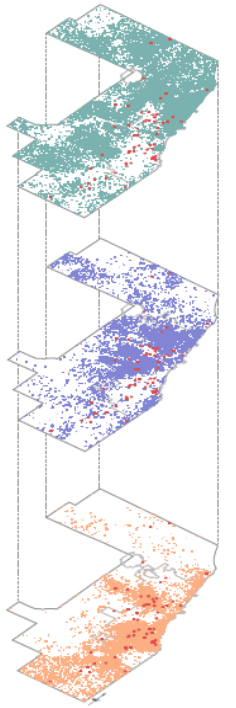
Armed Unarmed





Racial Segregation and Police Violence

Examining the maps of Cook County reveals key relationships between the spatial distribution of police violence and communities of color. Investigating these maps shows that the distribution of **incidents of police violence often cluster in primarily Black and Latino neighborhoods on the south side and west side of the county.** There are a minimal number of incidents that occur in predominately white communities. The incidents that do occur in predominately white neighborhoods appear to be outliers, and isolated incidents that are not representative of the overall pattern in Cook County. These maps reveal the intense racial segregation in Cook County and demonstrate how police related fatalities often co-locate in and near communities of color.



Black Latino White 1 dot = 250 people
Locations of Police Homicides 1 dot = 1 incident

Initial Findings of the Project (2013 – 2015 Data)

Harris County, Texas

Harris County is the largest metropolitan area in Texas, hosting a population of approximately 4 million. Harris County consists of 34 incorporated municipalities and 29 unincorporated areas, and covers a total land area of about 1,703 square miles. The major city located in Harris County is Houston, Texas. However, unlike all the other counties in this analysis, the Houston city boundaries expand outside of the county's municipal limits making it difficult to identify the specific geography of fatal encounters.

Between the years 2013 and 2015, Harris County experienced a total of 58 total police-related fatalities. **The City of Houston accounted for approximately 86% of all total deaths within the county.**

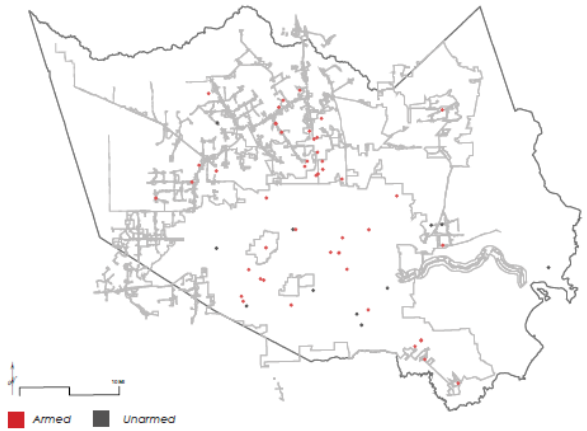
According to this dataset, 47 of the 58 victims in Harris County were armed at the time of death. This statistic (81%) is only slightly higher than the national dataset level which indicates that approximately 77% of all victims were armed at the time of death.

There were two law enforcement agencies that accounted for a majority (or about 77%) of the total number of police related deaths in Harris County.

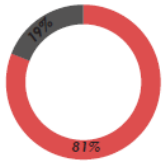
Fatalities by Police Deptartment

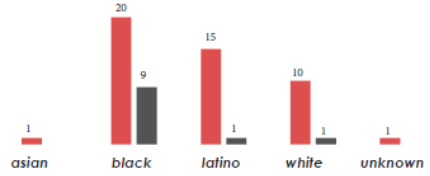
Houston Police Department - 35

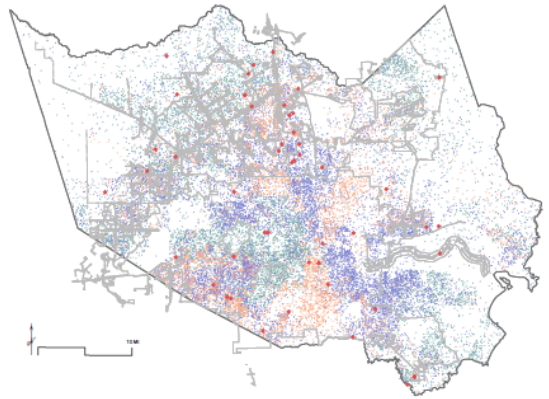
Houston Sheriff Office - 10



Between the years of 2013 - 2015, the City of Houston accounted for a total of 50 police related deaths, the highest of any city in America.

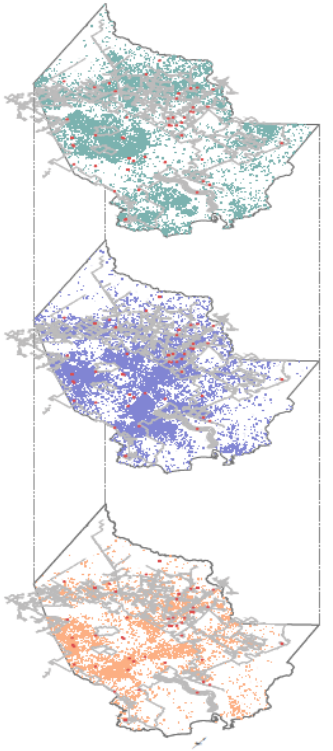






Racial Segregation and Police Violence

The sprawling nature of Harris County makes it difficult to identify key spatial relationships between police use of force and racial segregation. Although the Harris County geography is vast, there are still areas that show intense racial segregation along municipal boundaries. Although most incidents are spread throughout Harris County the same communities seem to be overwhelmingly affected by police violence. Examining the map series shows concentrations of incidents occurring in predominately Black and Latino communities and not as much in white neighborhoods in Harris County. Furthermore, **approximately 77% or 45 out of the 58 total victims were Black and Latino people.** This overwhelming statistic shows that regardless of the county's sprawling geography, Black and Latino people remain overrepresented as victims of police use of deadly force.



Initial Findings of the Project (2013 – 2015 Data)

Miami-Dade County, FL

Miami-Dade County is the largest metropolitan area in Southern Florida, hosting a population of over 2 million residents. Miami-Dade County is made up of 34 incorporated areas, that span over a land area of 1,946 square miles.

Between the years 2013 and 2015, **Miami-Dade County reported a total of 49 police-related deaths.** Of these 49 fatal encounters, approximately 73% of the victims were armed. This means that about 26% of victims were unarmed making the Miami-Dade county ratio of incidents on par with the natinal level statistics.

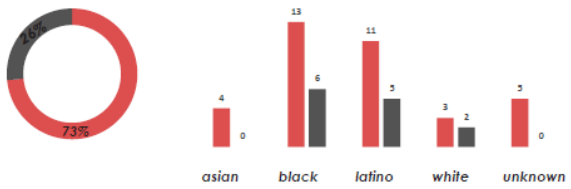
The City of Miami proper accounted for a total of 27 out of the 49 incidents or about 55% of the total deaths within the county. The racial groups that were affected the most in Miami-Dade County were African Americans and Latinos with total counts of 19 and 16 fatalities respectively. Overall, this means that **Latinos and African-Americans accounted for approximately 71% of all police related deaths in Miami -Dade County.**

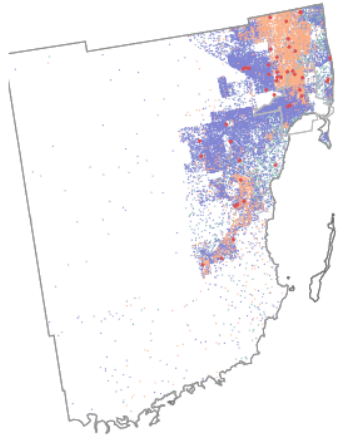
Miami, similar to other counties in this analysis, had one primary law enforcement agency responsible for the majority of these incidents. The Miami-Dade Police Department accounted for 71% of the total homicides within the county.

Fatalities by Police Deptartment

Miami-Dade Police Department - 35

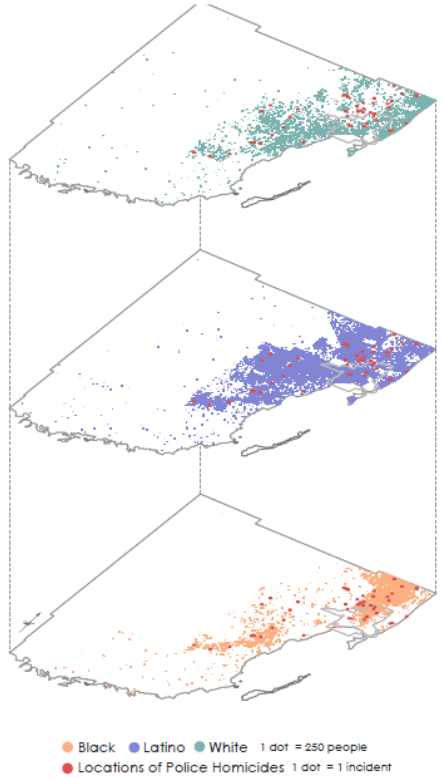
Latinos and African-Americans accounted for approximately 71% of all police related deaths.





Racial Segregation and Police Violence

Like many other metropolitan areas in the United States, Miami-Dade County is highly segregated based on racial and socio-economic lines. This series of maps shows the extreme racial segregation in Miami-Dade County and highlights that **a majority of fatal encounters with law enforcement occurred in predominately Black and Latino communities.** For instance, in the northeast part of the county, where there is a high concentration of Latino and Black people, there seems to be a clustering of incidents that is not equally represented in majority white neighborhoods. Similarly, in the southern part of the county, where the black population is more prominent there tends to be another group of clustered incidents demonstrating a trend that deadly police activity often follows urban minority populations across the county.



Advancing Research & Engaging in Dialogue

- Updated our data to include incidents from 2015 – 2020
- Added American Community Survey demographic data
- Improved our methodology for quality checking and cleaning data
- Built dashboards for public use and launched website www.raceandpolicing.com

"One of the things that the news media outlets do very well is enumerate and get statistics by race, by gender, whether the victim was armed or unarmed. And those are all very important statistics. But one of the things I've found in my research is that, that doesn't tell the whole story."

Our Methodology

- The project relies on data from the three leading datasets on police violence. Each relies on a “web-scraping” of news and social media posts about fatal police encounters.

- To be able to compare the three data sets with one another and align with Census Data we from focused on a five year span from 2015-2020:

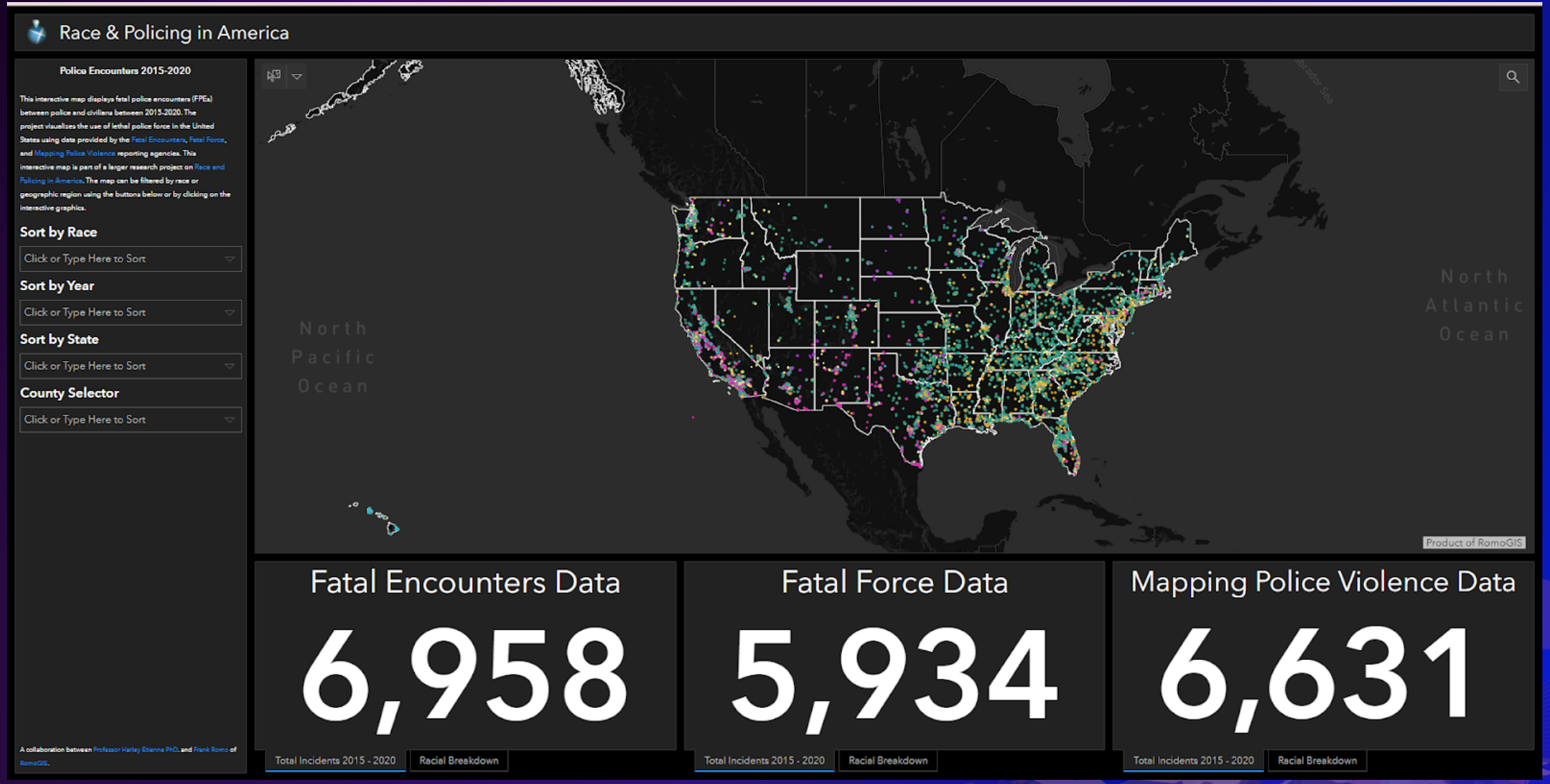
- Fatal Encounters: 6,958 Total Incidents
- Fatal Force: 5,934 Total Incidents
- Mapping Police Violence: 6,631 Total Incidents

Quality Assurance & Data Cleaning

- We compared all three datasets in order to:
  - Examine data quality and shared attributes
  - Identify key methodological differences
  - Perform quality checks on geocoding, address/city locations, and racial classifications

- Key Issues across datasets
  - Number of reported incidents
  - Geocoding errors
  - Racial classification discrepancies

A Comparative Representation



Race & Policing in America

Police Encounters 2015-2020

This interactive map displays fatal police encounters (FPEs) between police and civilians between 2015-2020. The project visualizes the use of lethal police force in the United States using data provided by the Fatal Encounters, Fatal Force, and Mapping Police Violence reporting agencies. This interactive map is part of a larger research project on Race and Policing in America. The map can be filtered by race or geographic region using the buttons below or by clicking on the interactive graphics.

Sort by Race

Click or Type Here to Sort

Sort by Year

Click or Type Here to Sort

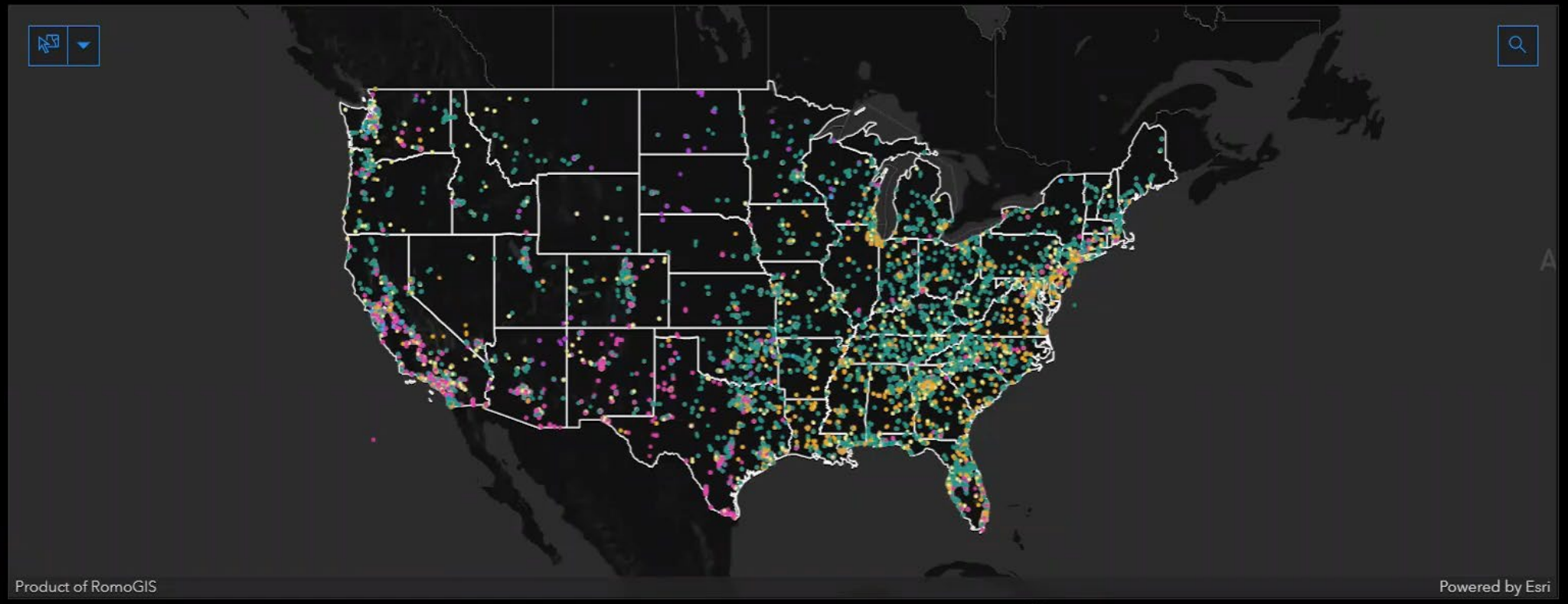
Sort by State

Click or Type Here to Sort

County Selector

Click or Type Here to Sort

A collaboration between Professor Harley Etienne PhD. and Frank Romo of RomoGIS.



Fatal Encounters Data

6,958

Total Incidents 2015 - 2020 | Racial Breakdown

Fatal Force Data

5,934

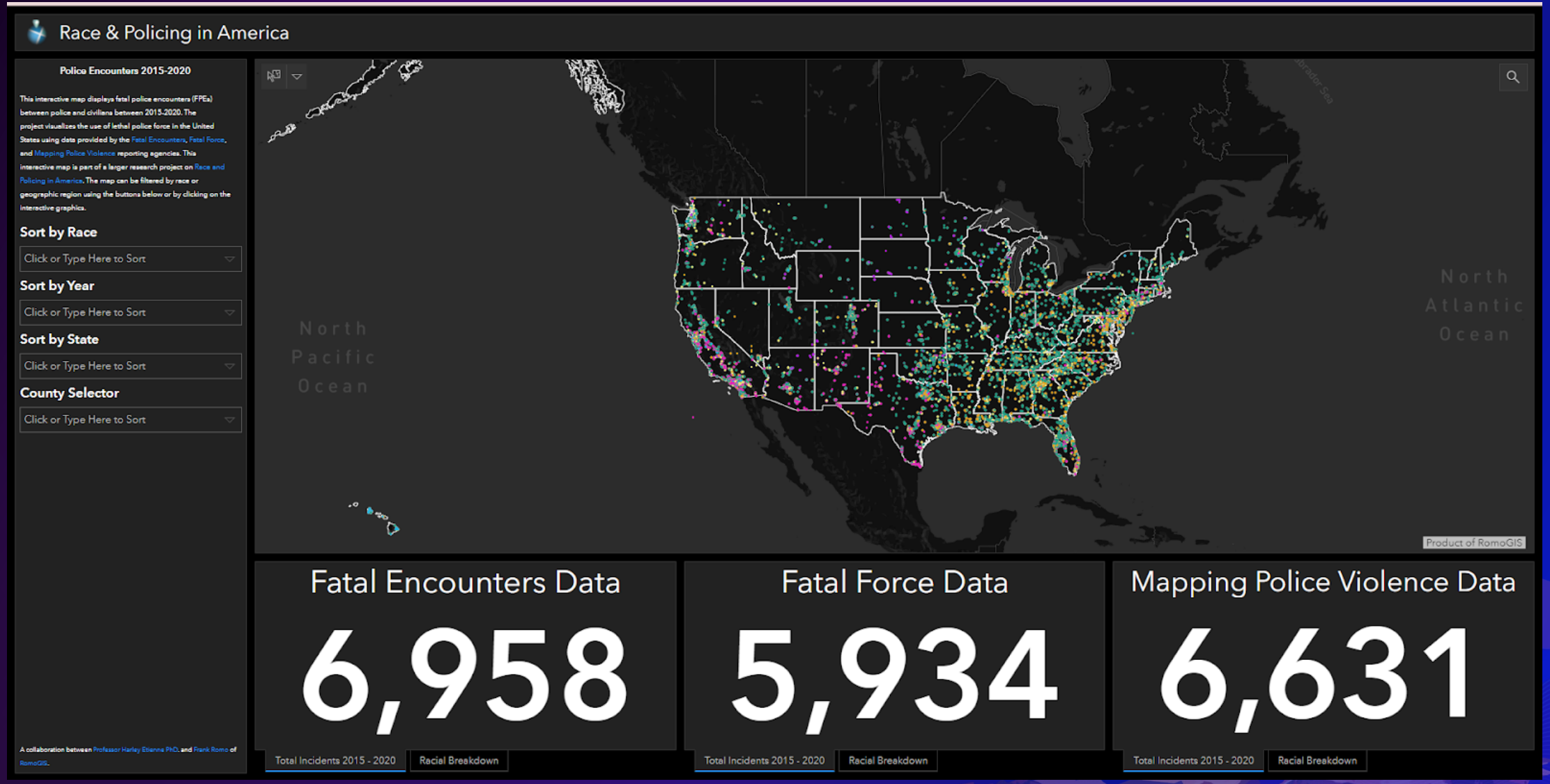
Total Incidents 2015 - 2020 | Racial Breakdown

Mapping Police Violence Data

6,631

Total Incidents 2015 - 2020 | Racial Breakdown

A Comparative Representation

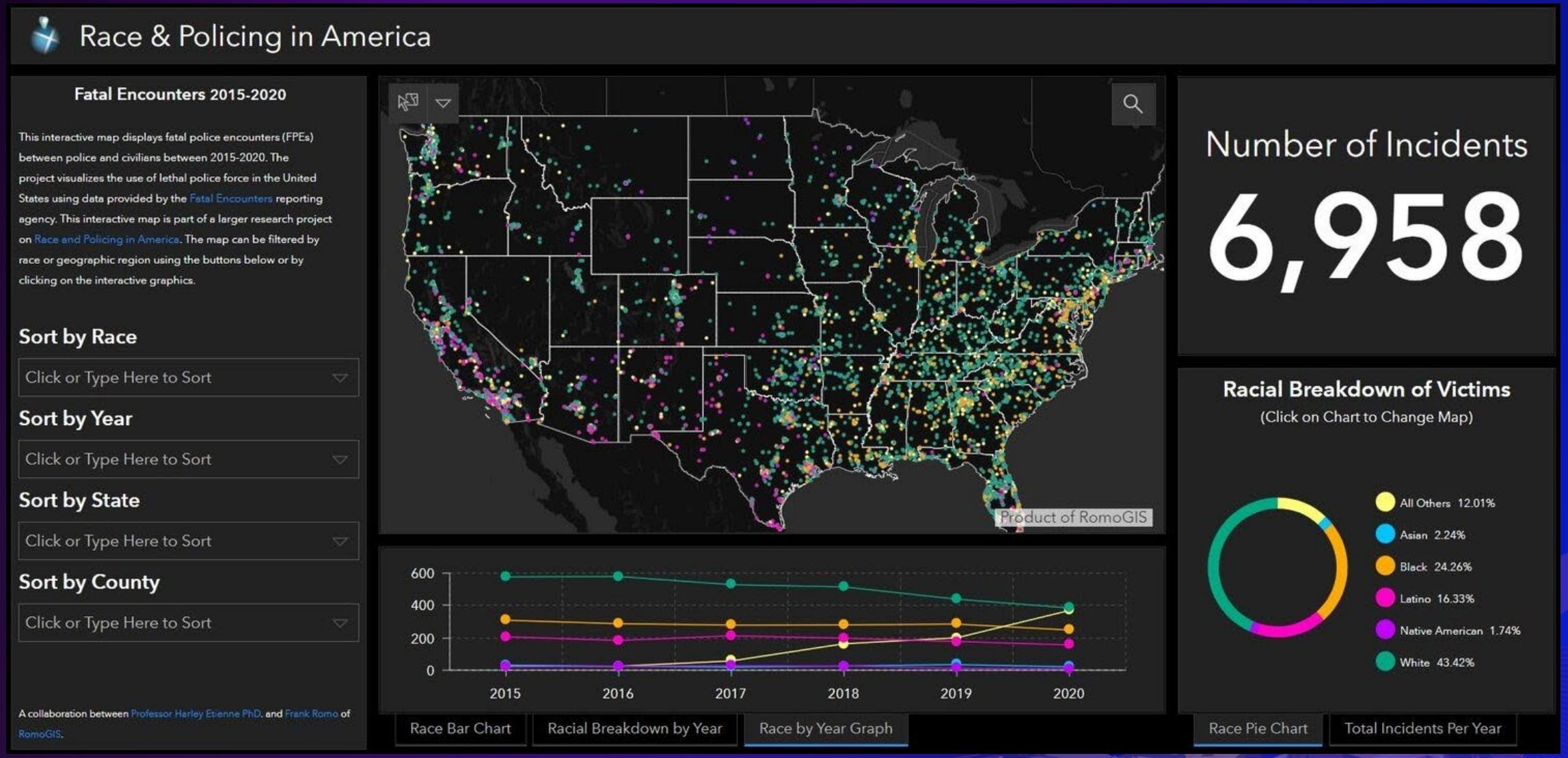


Fatal Encounters

Fatal Encounters

- Fatal Encounters is an independent project that is managed by journalists and data scientists.
- This dataset combines incidents from various other web scrapers to put together a comprehensive list of all incidents that occur regardless of cause of death.
- Fatal Encounters is the largest dataset for the years we compared (2015-2020) due to its inclusion of various modes of police violence which include not just firearms but other instances such as tasers and people who died in custody.

Fatal Encounters Dashboard

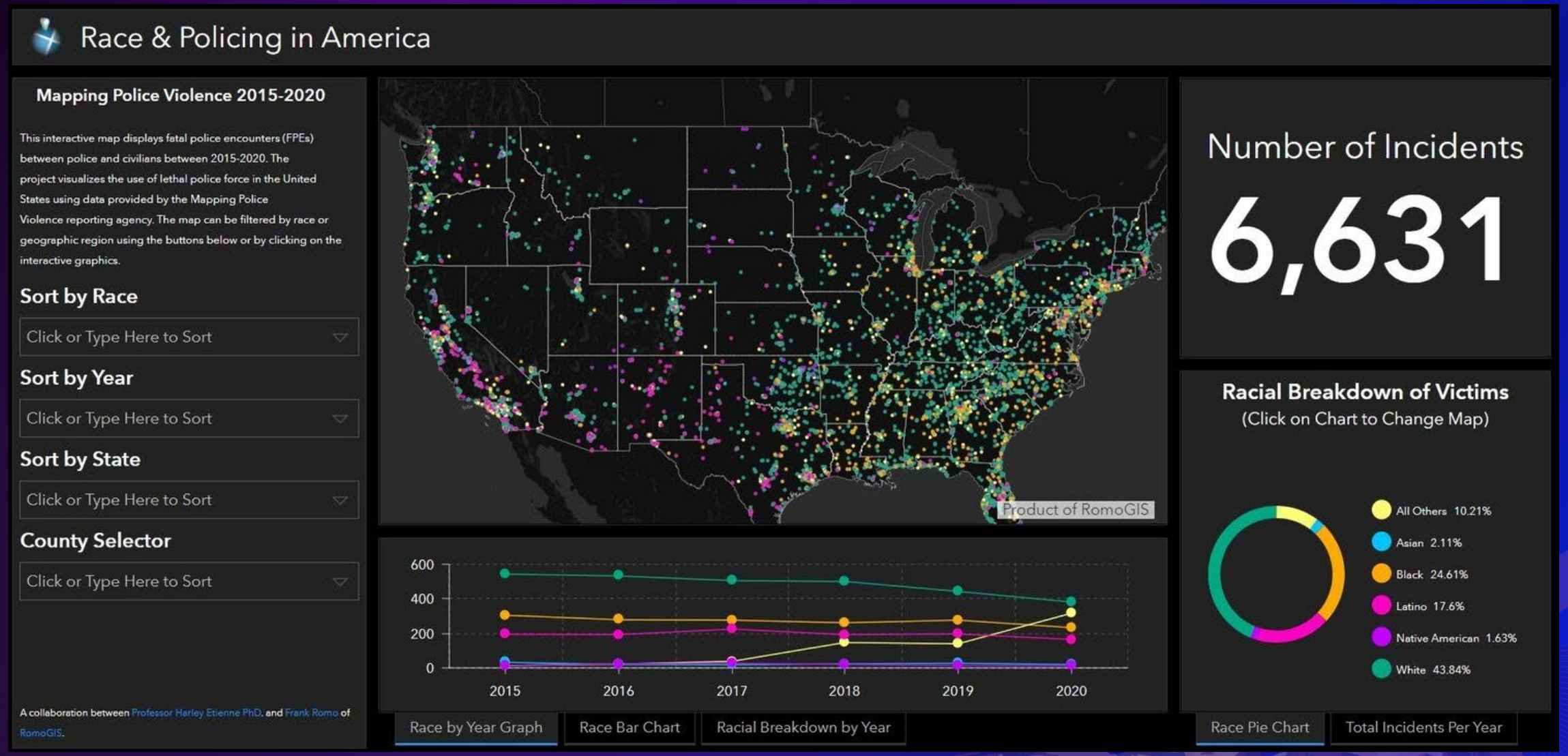


Mapping Police Violence

Mapping Police Violence

- Mapping Police Violence is a collaborative effort by researchers, journalists and activists to enumerate the overall impact of police violence in communities of color.
- This database is created by scraping news articles and interacting with existing databases to perform quality checks and update records.
- This dataset includes more data points of people who were killed by police during pursuit or in custody making it a very robust dataset.
- One of the drawbacks of this dataset is that it may be too inclusive of data that is not representative of police killings of unarmed individuals.

Mapping Police Violence Dashboard

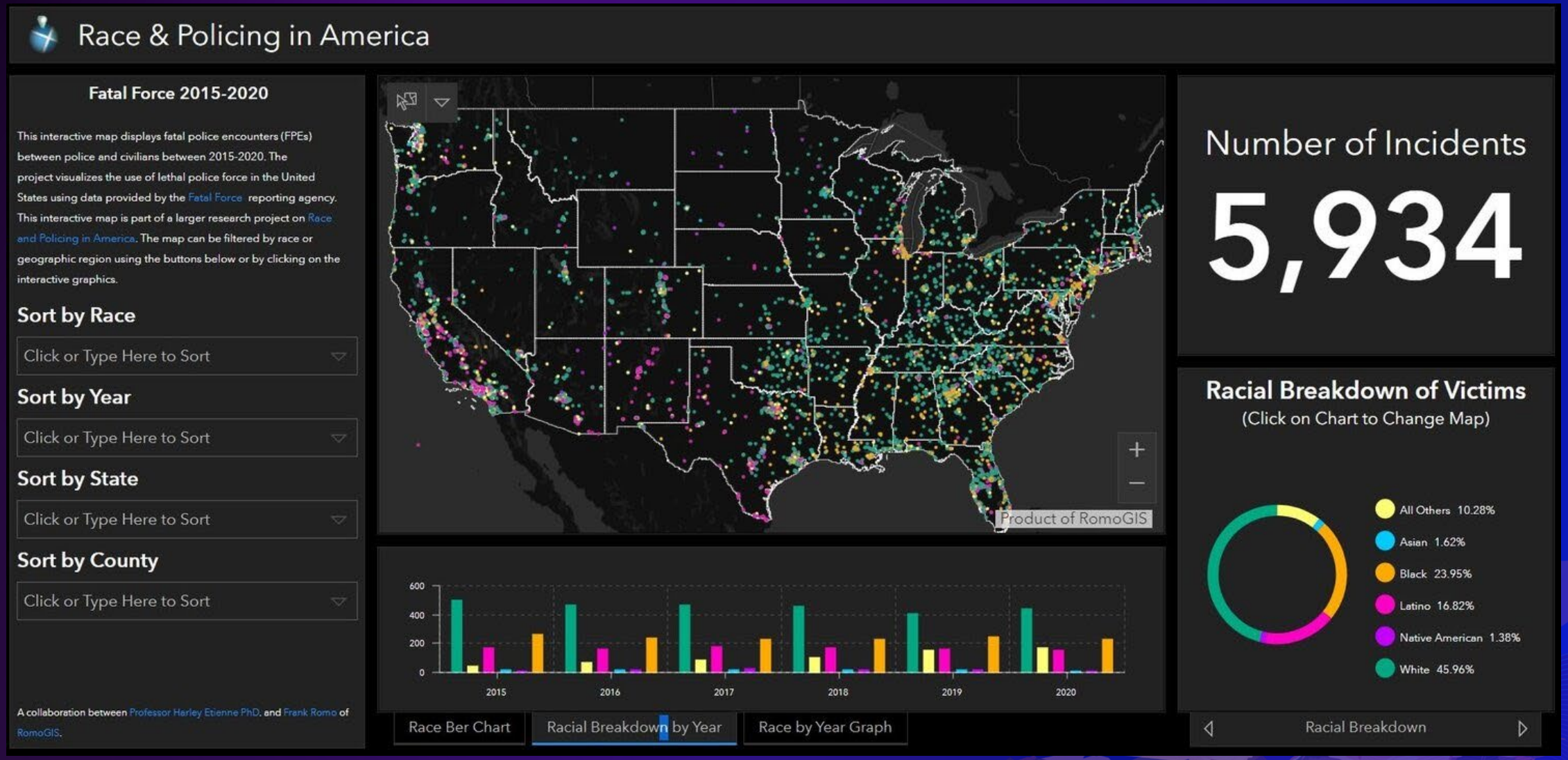


Fatal Force

Fatal Force

- The Washington Post has been cataloging FPEs since 2015 under the banner “Fatal Force.”
- Unlike the other databases, Fatal Force only tracks fatal police-involved shootings that occur while the involved police were on duty.
- As a result, Fatal Force does not include deaths of civilians while they are in police custody, or fatal shootings by off-duty officers or non-shooting deaths.
- Overall, this omission of “non-shooting” related deaths leads to this dataset reporting the least amount of incidents during the five year time span.

Fatal Force Dashboard



A Closer Look at the Data

Fatal Encounters Selected as Best Dataset

- After reviewing all three datasets our team settled on using the Fatal Encounters dataset to perform our analysis.

- Fatal Encounters Dataset
  - Provided better address level data than any other datasets.

  - Included thorough documentation on racial categories and provided additional metadata specific to the incident.

  - Contained more verifiable records than any other dataset when compared to other existing data sources.

Race & Policing in America

Fatal Encounters 2015-2020

This interactive map displays fatal police encounters (FPEs) between police and civilians between 2015-2020. The project visualizes the use of lethal police force in the United States using data provided by the Fatal Encounters reporting agency. This interactive map is part of a larger research project on Race and Policing in America. The map can be filtered by race or geographic region using the buttons below or by clicking on the interactive graphics.

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Sort by County

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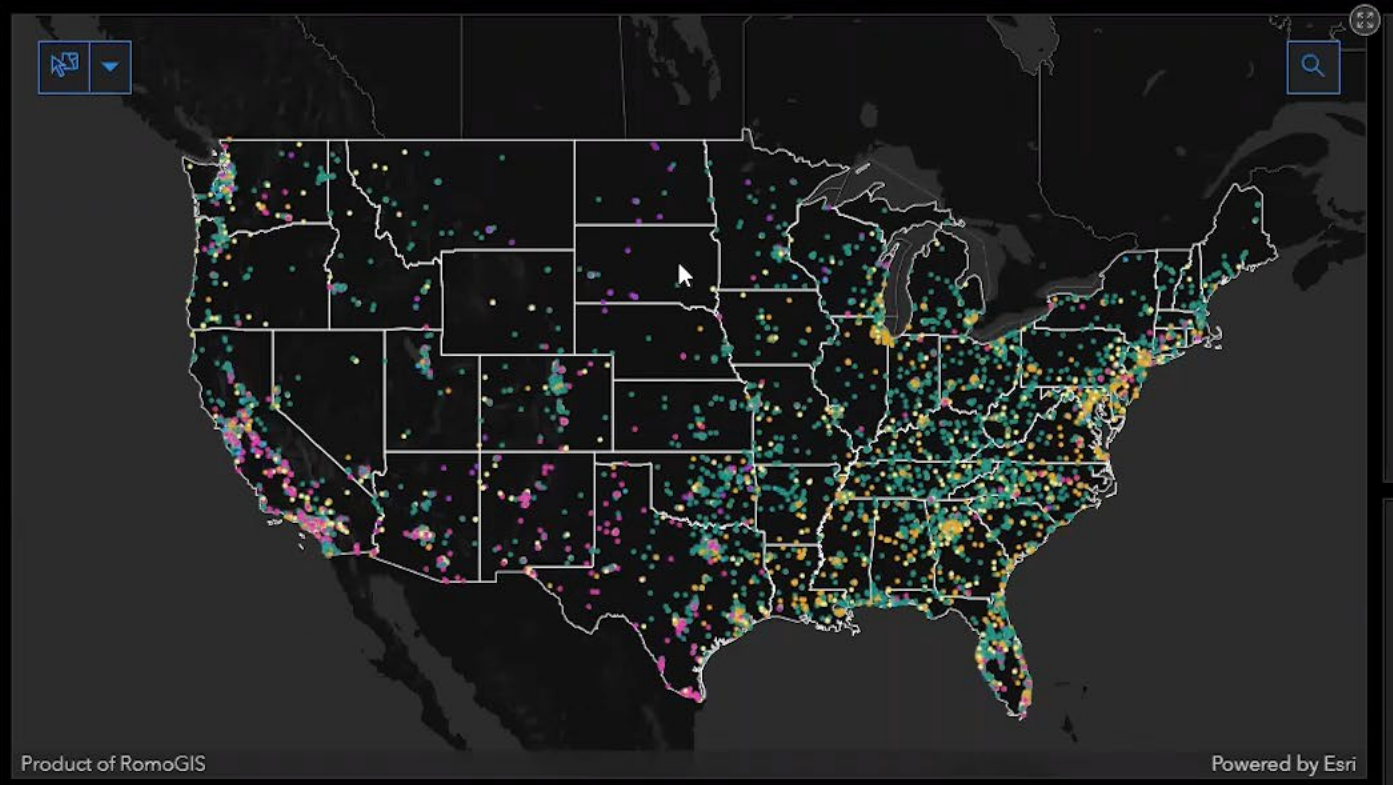
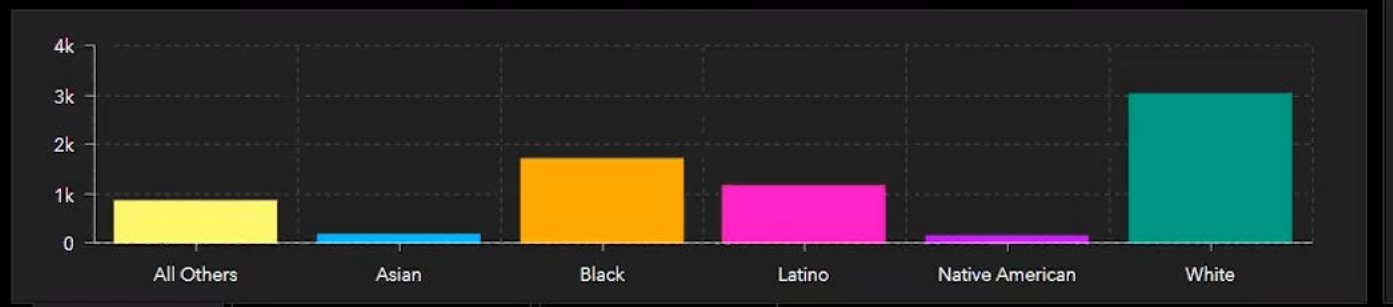
A collaboration between Professor Harley Etienne PhD. and Frank Romo of RomoGIS.





Race Bar Chart | Racial Breakdown by Year | Race by Year Graph

Number of Incidents

6,958

Racial Breakdown of Victims

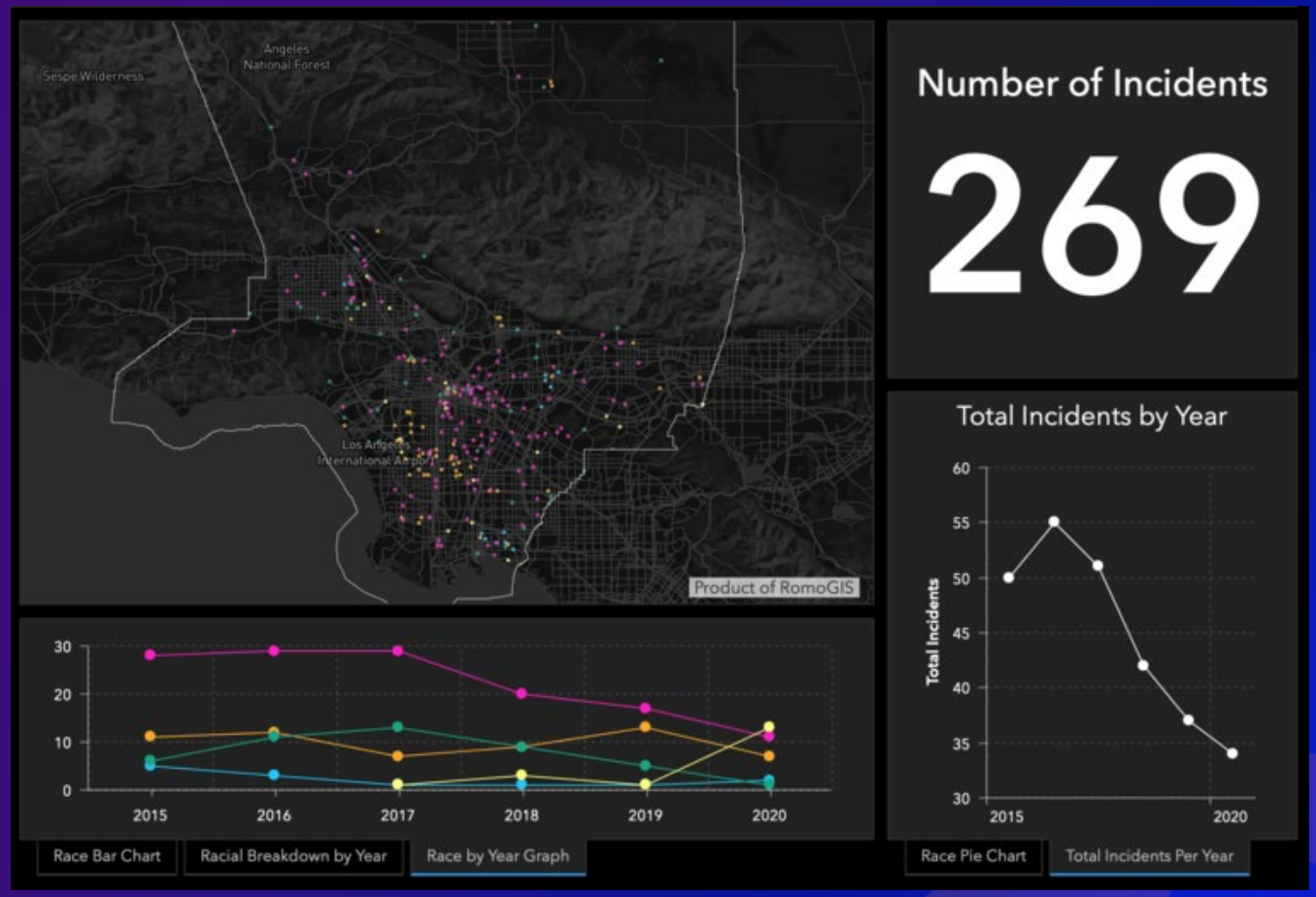
(Click on Chart to Change Map)

Race Pie Chart | Total Incidents Per Year

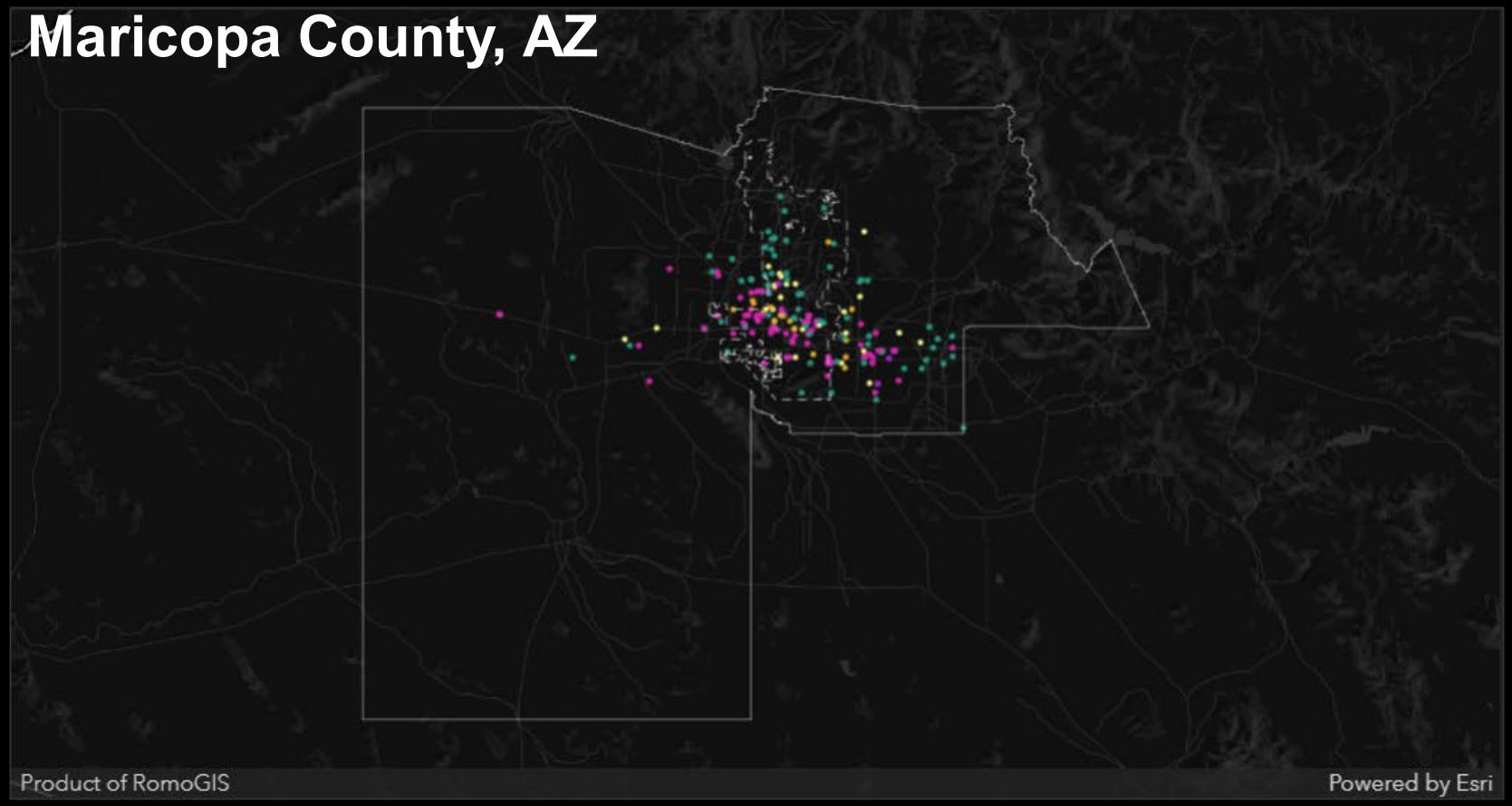
Top 10 Counties

Rank	County	Count of FPEs
1	Los Angeles County, CA	269
2	Maricopa County, AZ	184
3	Harris County, TX	105
4	San Bernadino County, CA	93
5	Clark County, NV	81
6	Cook County, IL	72
7	Riverside County, CA	63
8	Orange County, CA	62
8	San Diego County, CA	62
10	Bexar County, TX	61
10	Miami-Dade County, FL	61

Los Angeles, CA



Maricopa County, AZ

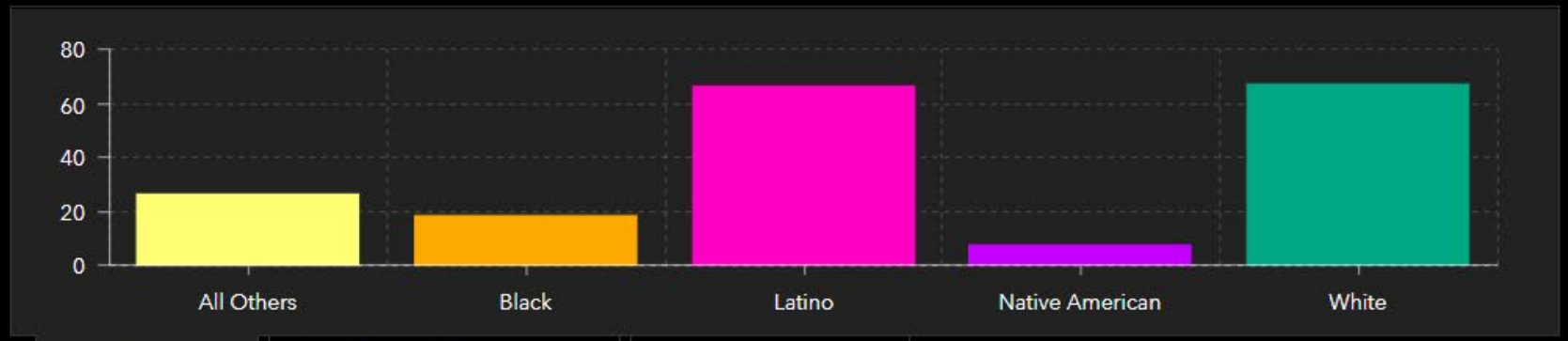


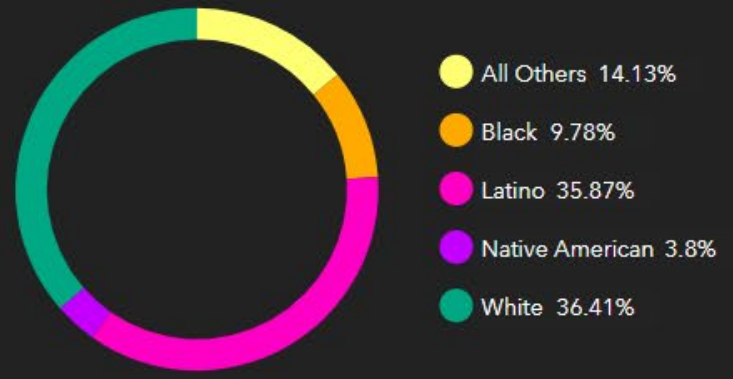
Number of Incident

184

Racial Breakdown of Victims

(Click on Chart to Change Map)

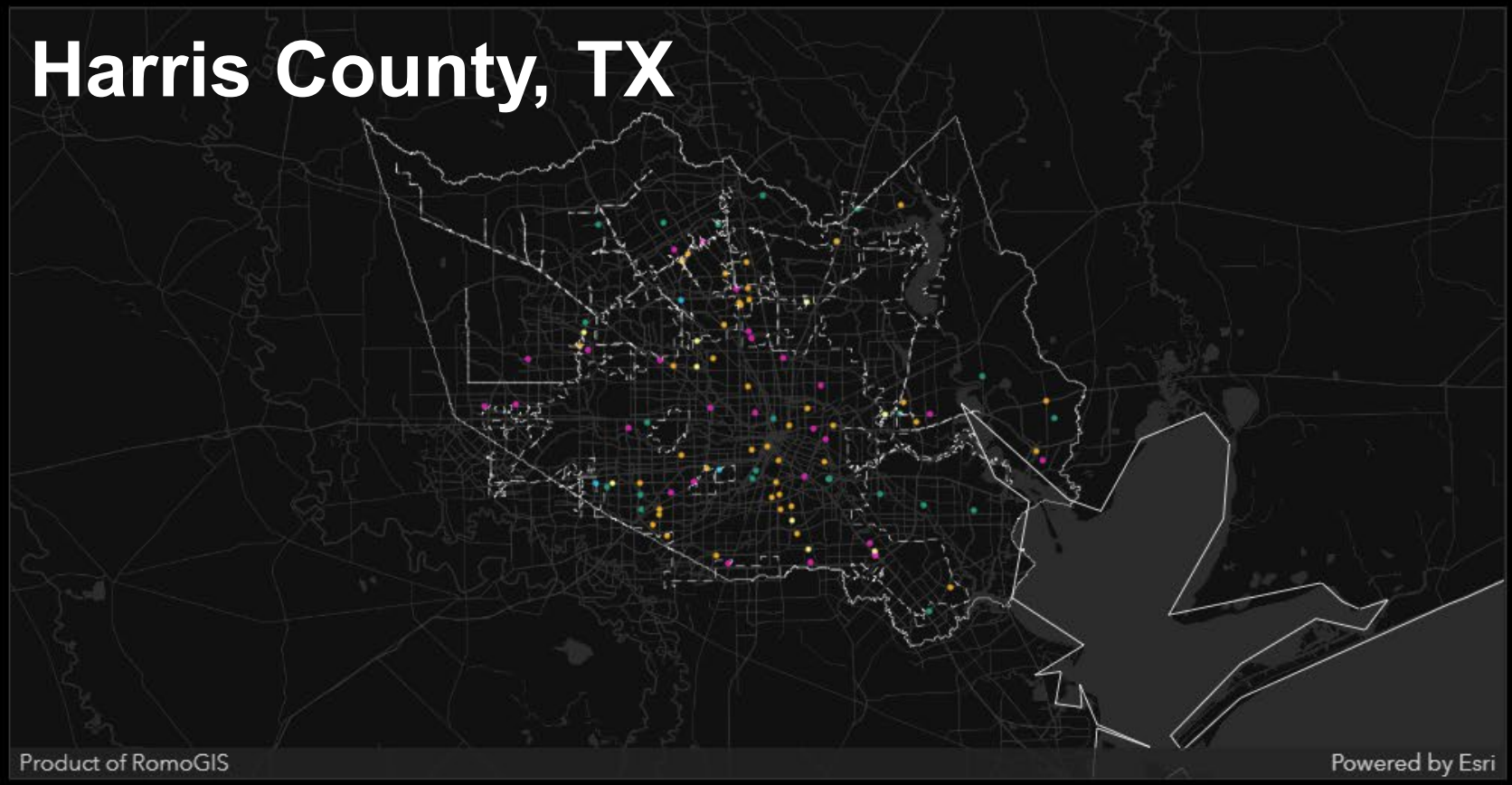




Race Bar Chart | Racial Breakdown by Year | Race by Year Graph

Race Pie Chart | Total Incidents by Year

Harris County, TX

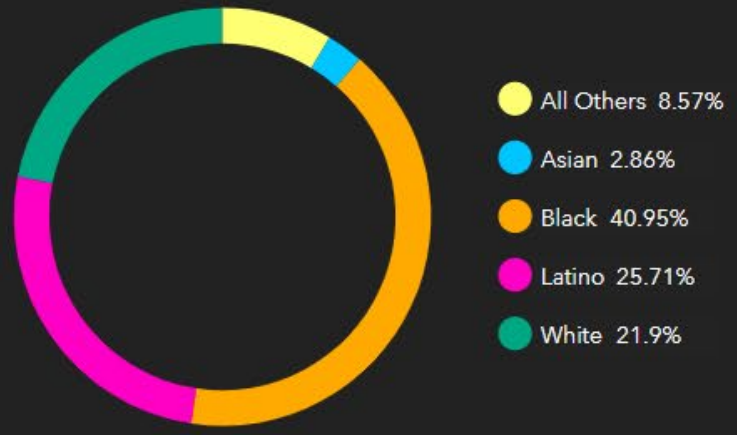


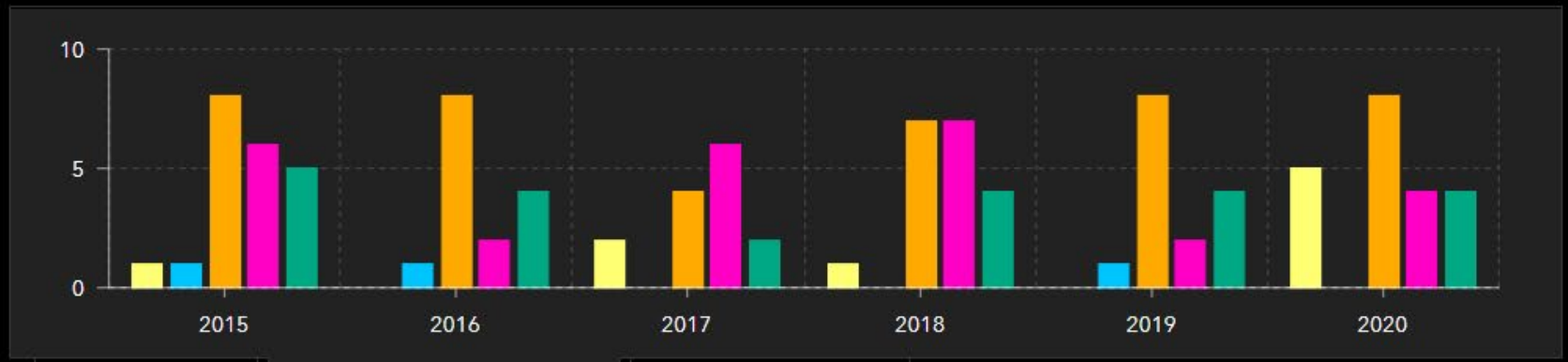
Number of Incident

105

Racial Breakdown of Victims

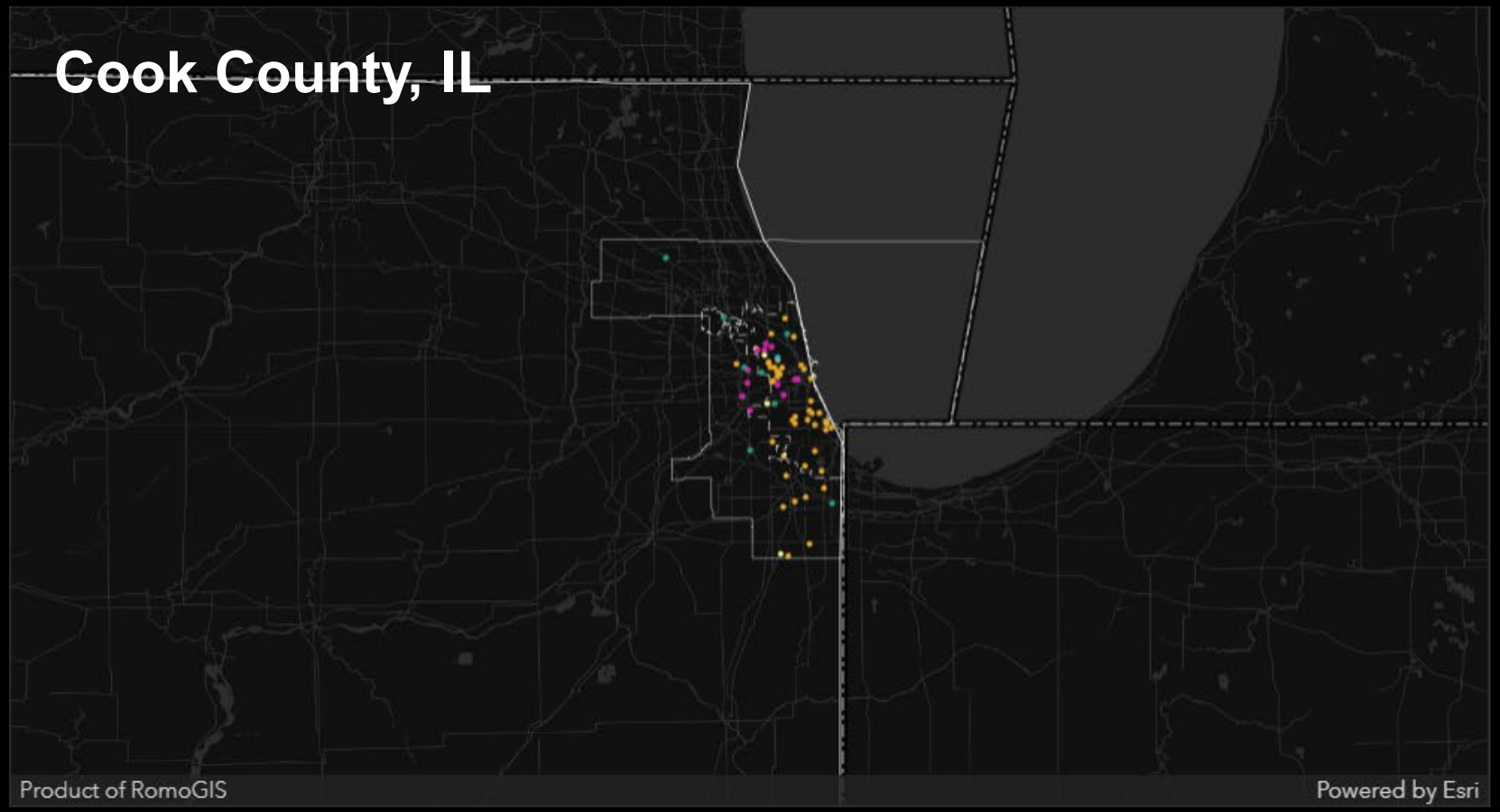
(Click on Chart to Change Map)





Race Bar Chart | Racial Breakdown by Year | Race by Year Graph

Race Pie Chart | Total Incidents by Year

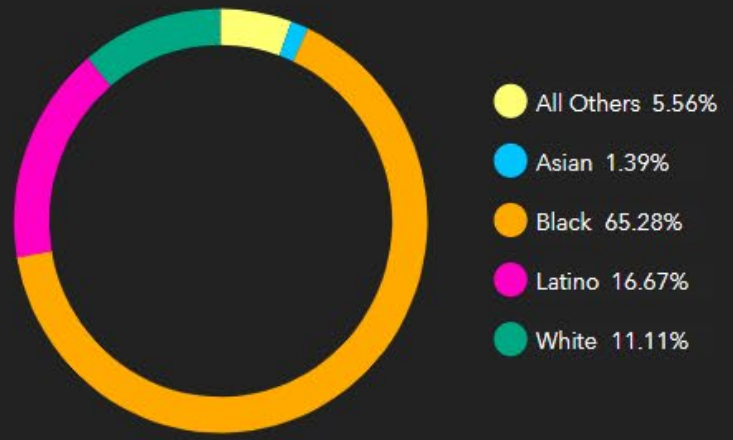


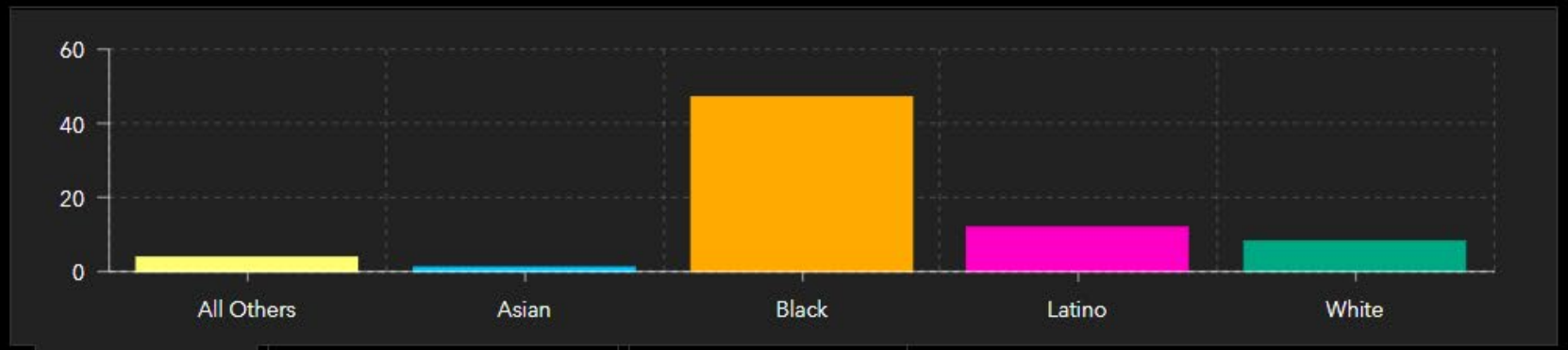
Number of Incident

72

Racial Breakdown of Victims

(Click on Chart to Change Map)





Race Bar Chart | Racial Breakdown by Year | Race by Year Graph | Race Pie Chart | Total Incidents by Year

Preliminary Findings

- Median Household Income was, on average, higher in census tracts with no fatal police encounters ($64,341 vs. $53,958*)
- The per capita rate of FPEs for the Black/African population was 13 per 10,000 in areas with one incident but climb exponentially to an average per capita rate of 44 per 10,000 with two or more FPEs.
- The mean percentage of households living below the poverty line was 14.7% for tracts with no FPEs vs. 18.9% for tracts with one or more FPEs.*
- *Statistically significant at the 95% confidence interval.

Next Steps

- Develop further models to test additional variables for statistical significance
- Update Census variables with most recent American Community Survey
- Share the content and engage in discussions with community partners
- Develop strategies and policy recommendations for urban planning to support safer communities

Continue Fighting for Justice – using GIS for Social Change

Thank You

Frank Romo &

Harley Etienne

www.raceandpolicing.com

www.blm-map.com