STATISTICS
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Analysis of Cincinnati Police Arrival Times to Violent Crimes in Progress

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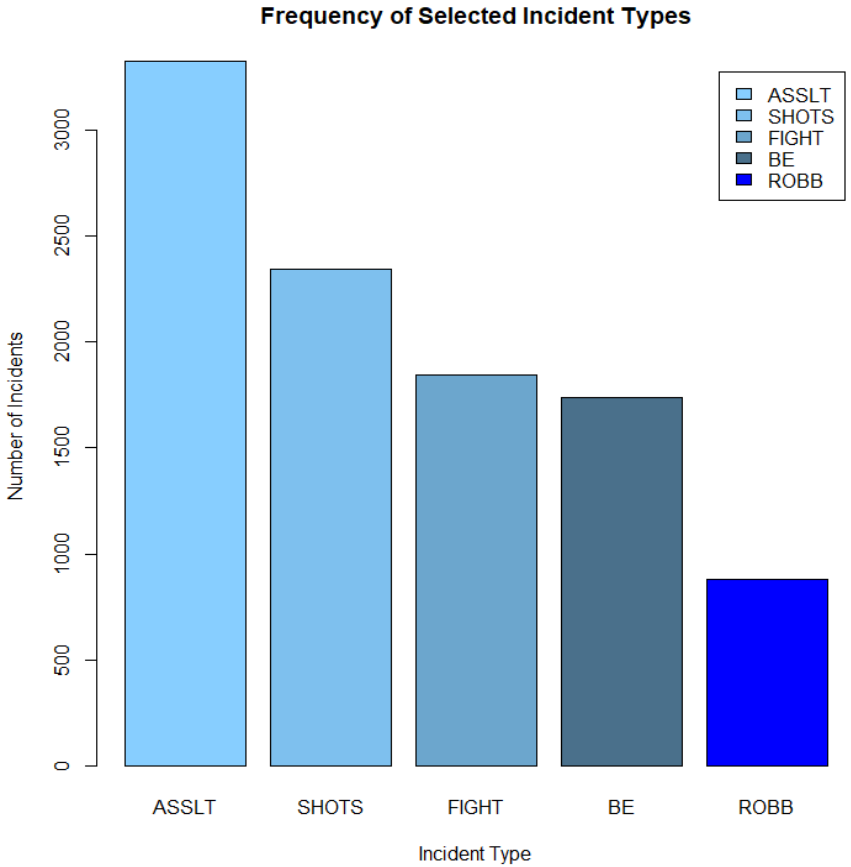
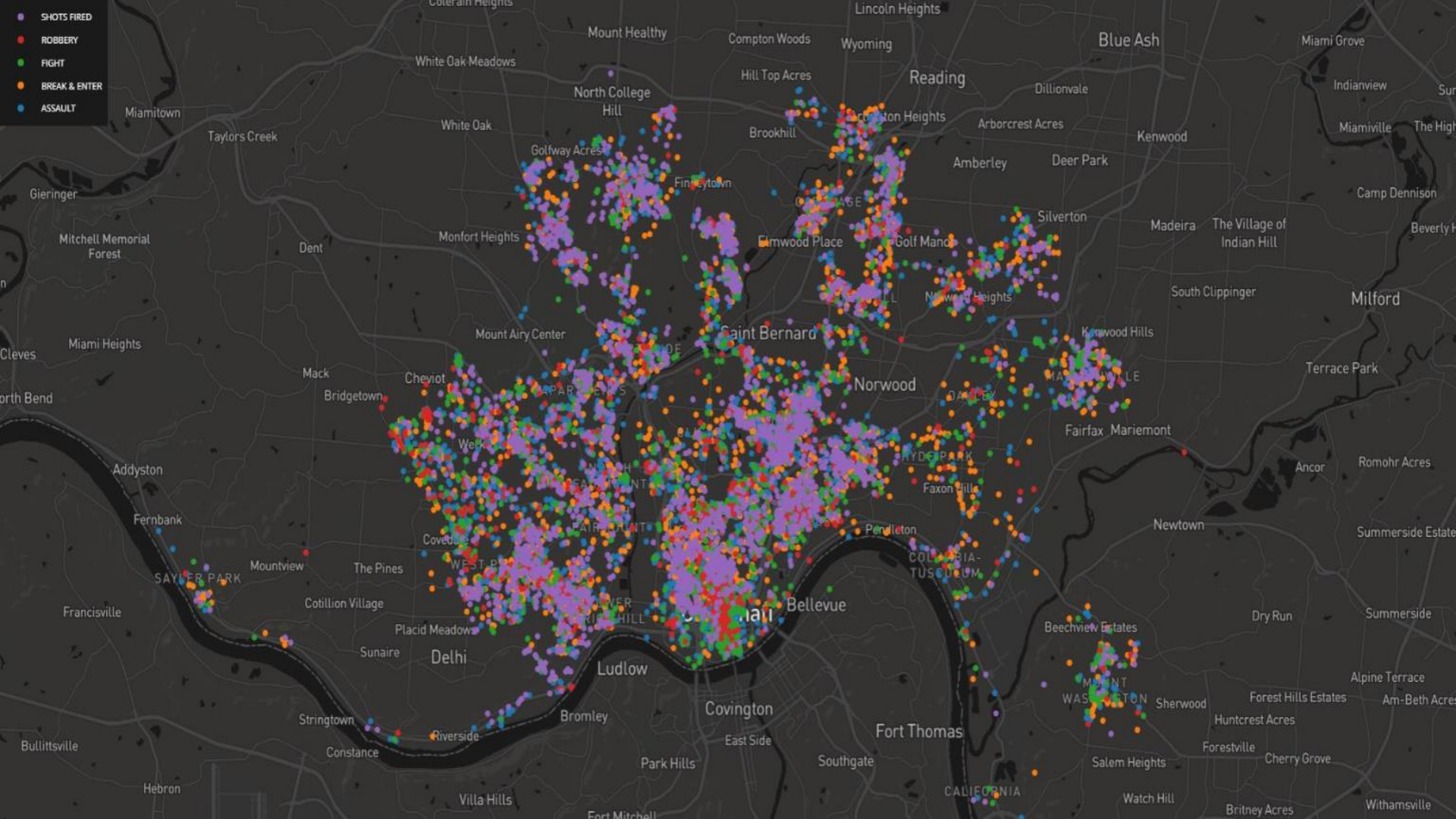
Purpose

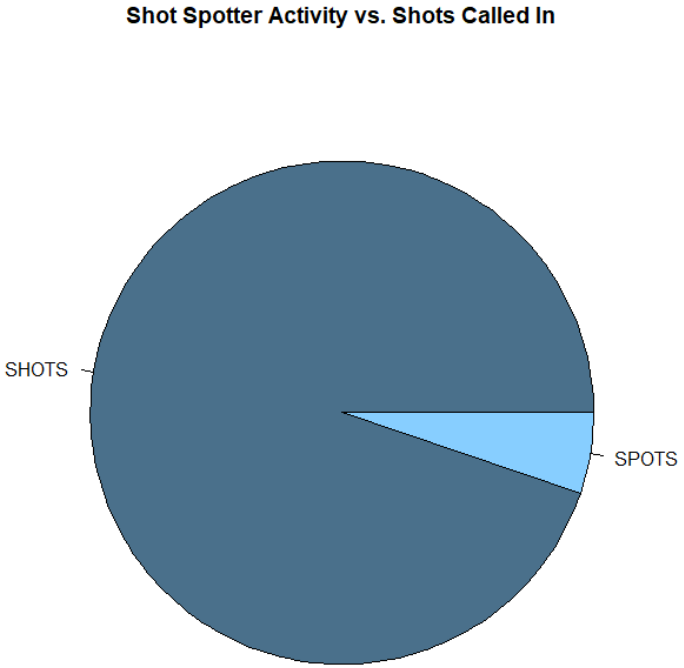
- Seconds in an assault or gunfight could mean the difference between life or death
- Efficient police responses increase a citizen's survival odds during a violent crime
- Are some areas at a disadvantage with respect to police response time?

Assault, fight, breaking and entering, robbery, and shots fired incidents in progress are among the most urgent situations in Cincinnati. To find ways to improve public safety, we will be analyzing the most recent data (November 2016-October 2017) in these categories to look for areas with slower response times. In doing so, we find potential solutions for Cincinnati and a repeatable technique for other cities in the U.S.

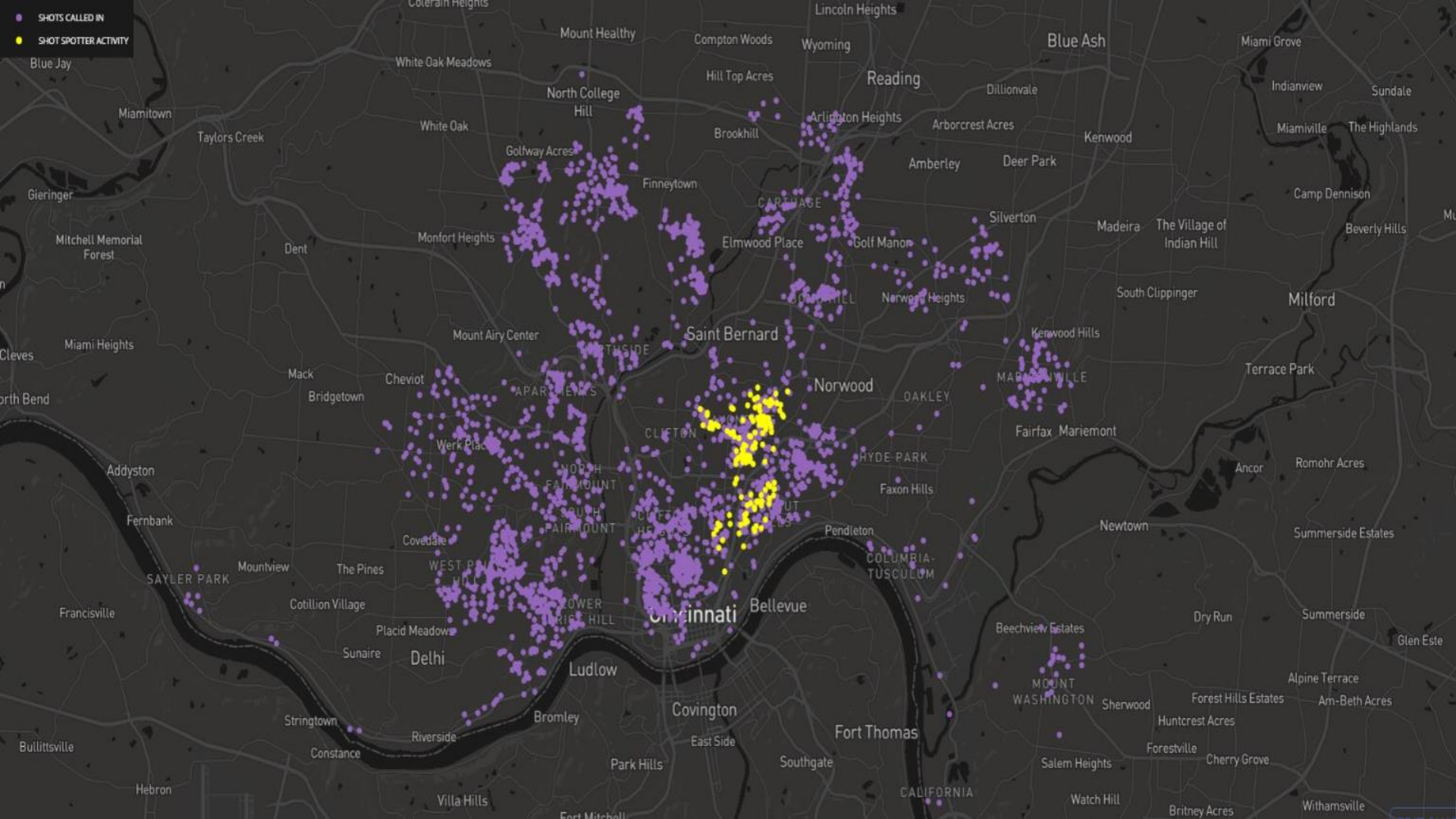


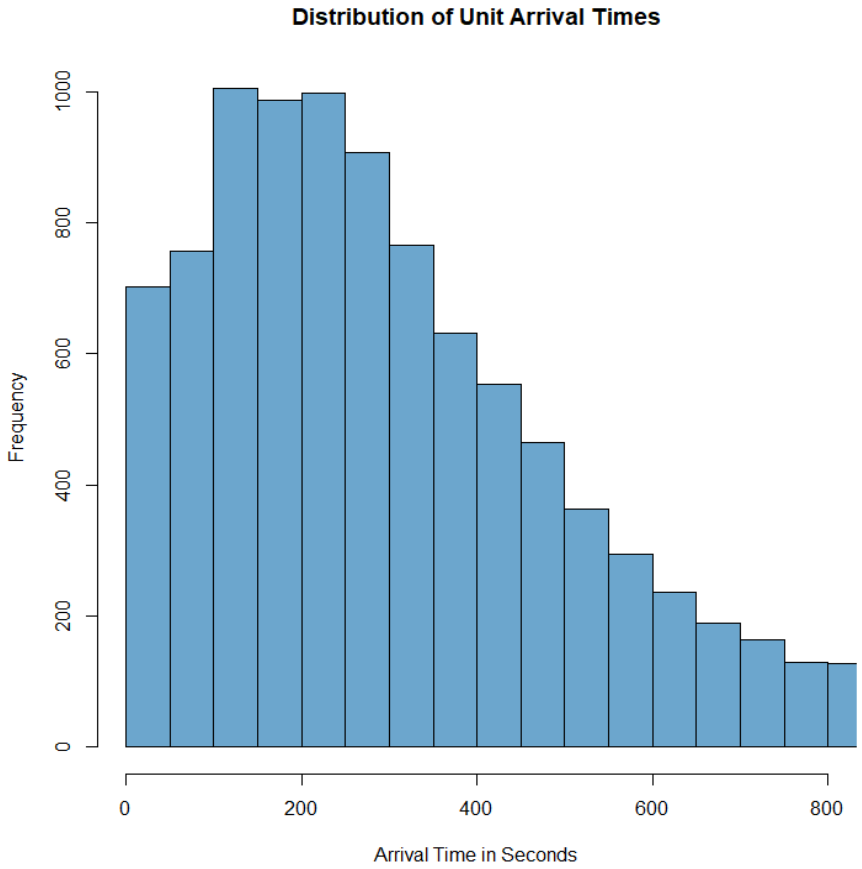
- Out of our selected incidents, Assaults are the most frequent, with Shots Fired being second
- Robbery is significantly less frequent than the other incident types
- In the next slide, we will show a map of Cincinnati with these incidents over the given timespan


SHOTS FIRED
ROBBERY
FIGHT
BREAK & ENTER
ASSAULT
Lincoln Heights
Mount Healthy
Compton Woods
Wyoming
Blue Ash
Miami Grove
White Oak Meadows
Hill Top Acres
Reading
Indianview
North College Hill
Dillonvale
Miamitown
White Oak
Brookhill
Arborcrest Acres
Miamiville
Taylors Creek
Golfway Acres
Kenwood
Amberley
Deer Park
Gieringer
Camp Dennison
Silverton
Mitchell Memorial Forest
Monfort Heights
Dent
Elmwood Place
Madeira
The Village of Indian Hill
Golf Manor
South Clippinger
Milford
Mount Airy Center
Saint Bernard
Miami Heights
Cleves
Norwood
Terrace Park
Mack
Cheviot
Bridgetown
Fairfax
Mariemont
Addyston
Ancor
Romohr Acres
Fernbank
Faxon Hills
Newtown
Summerside Estate
Mountview
The Pines
Pendleton
SAYLER PARK
Francisville
Cotillion Village
Bellevue
Dry Run
Summerside
Placid Meadow
Beechview Estates
Sunaire
Delhi
Ludlow
Alpine Terrace
Sherwood
Forest Hills Estates
Am-Beth Acres
Stringtown
Bromley
Covington
Huntcrest Acres
Riverside
East Side
Fort Thomas
Bullittsville
Constance
Park Hills
Southgate
Forestville
Salem Heights
Cherry Grove
Hebron
Villa Hills
CALIFORNIA
Watch Hill
Britney Acres
Withamsville

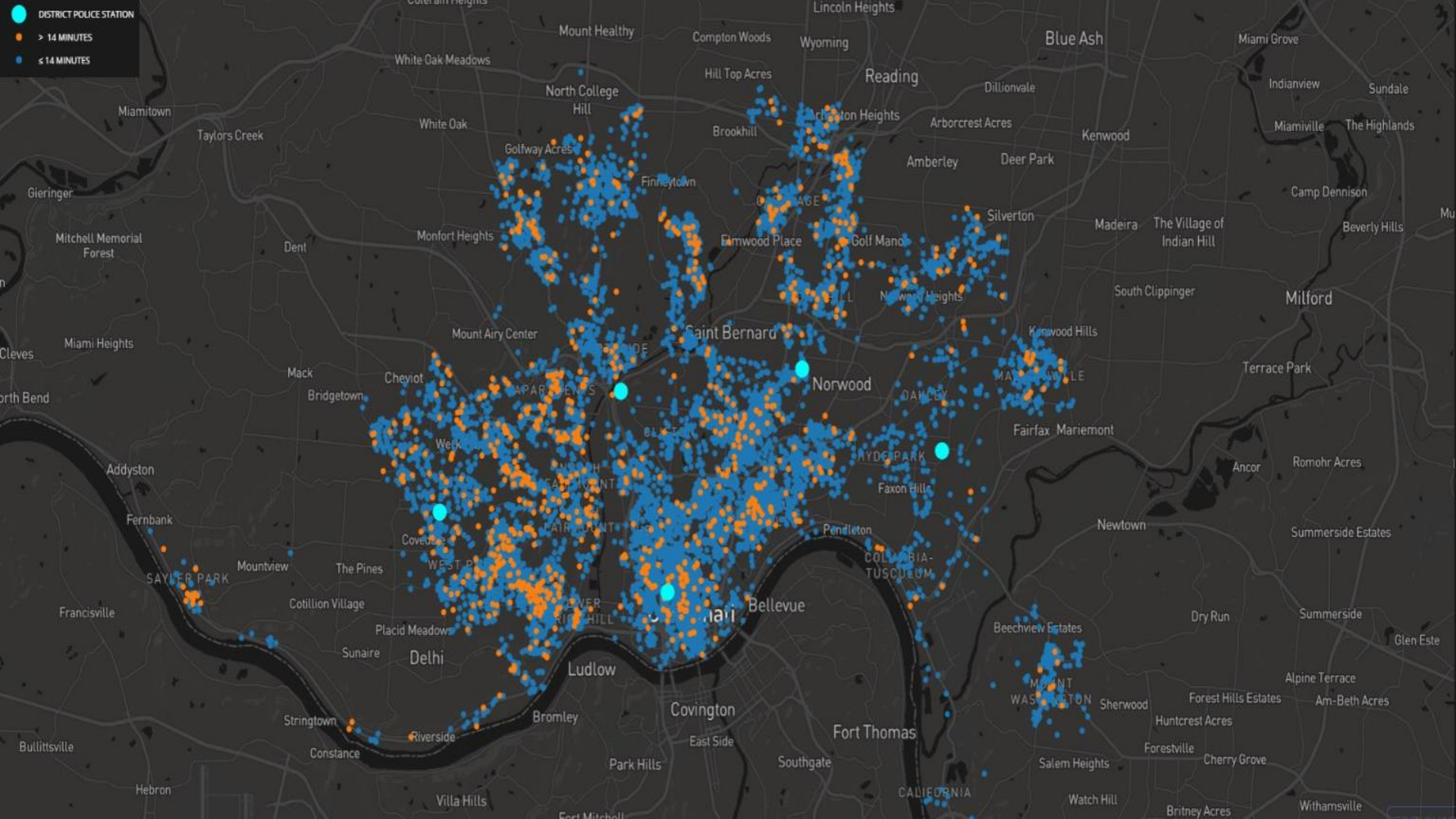


- In the data, we found an incident type named “SPOTS”
- Before combining the “SPOTS” data with our Shots Fired category, we found that some areas of Cincinnati have a Shot Spotter system in place to detect gunfire
- In the next slide, we will show a map of Cincinnati comparing shots called in to shots detected by the Shot Spotter system
- We believe expanding the Shot Spotter system could improve the response times in other areas, especially west of where the system is currently in place


SHOTS CALLED IN
SHOT SPOTTER ACTIVITY
Blue Jay
Miamitown
Taylors Creek
Gieringer
Mitchell Memorial Forest
Dent
Monfort Heights
White Oak Meadows
Mount Healthy
Coterain Heights
Lincoln Heights
Compton Woods
Wyoming
Blue Ash
Miami Grove
Hill Top Acres
Reading
Dillionvale
Indianview
Sundale
North College Hill
White Oak
Brookhill
Arlington Heights
Arborcrest Acres
Kenwood
Miamiville
The Highlands
Golfway Acres
Amberley
Deer Park
Finneytown
Camp Dennison
Silverton
Madeira
The Village of Indian Hill
Beverly Hills
Elmwood Place
Golf Manor
Norwood Heights
South Clippinger
Milford
Mount Airy Center
Saint Bernard
Kenwood Hills
Miami Heights
Cleves
Mack
Cheviot
Bridgetown
Norwood
OAKLEY
Terrace Park
Fairfax
Mariemont
CLIFTON
HYDE PARK
Addyston
Werk Place
Faxon Hills
Ancor
Romohr Acres
Fernbank
Pendleton
Newtown
Summerside Estates
Covedale
Mountview
The Pines
SAYLER PARK
COLUMBIA-TUSCULUM
Francisville
Cotillion Village
Cincinnati
Bellevue
Dry Run
Summerside
Placid Meadows
Beechview Estates
Glen Este
Sunaire
Delhi
Ludlow
Alpine Terrace
MOUNT WASHINGTON
Sherwood
Forest Hills Estates
Am-Beth Acres
Stringtown
Bromley
Covington
Huntcrest Acres
Riverside
East Side
Fort Thomas
Bullittsville
Constance
Park Hills
Southgate
Forestville
Cherry Grove
Salem Heights
Hebron
Villa Hills
CALIFORNIA
Watch Hill
Withamsville
Britney Acres



- The median appears to be around 3 minutes
- The distribution is right skewed, and some of the more extreme values, which could be mistakes or outliers, are cut off
- In the next slide, we will show a map of Cincinnati displaying the locations of the 5 district police stations along with incidents split into two categories of unit response times, >14 minutes and ≤ 14 minutes
- We chose 14 minutes as our cutoff time because only about 5% of the times should be longer


DISTRICT POLICE STATION
> 14 MINUTES
≤ 14 MINUTES
Lincoln Heights
Mount Healthy
Compton Woods
Wyoming
Blue Ash
Miami Grove
White Oak Meadows
Hill Top Acres
Reading
Indianview
Sundale
North College Hill
Dillonvale
Miamitown
White Oak
Brookhill
Arborcrest Acres
Kenwood
Miamiville
The Highlands
Taylors Creek
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Sunaire
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Ludlow
Alpine Terrace
Sherwood
Forest Hills Estates
Am-Beth Acres
Stringtown
Bromley
Covington
Huntcrest Acres
Riverside
East Side
Fort Thomas
Bullittsville
Constance
Park Hills
Southgate
Forestville
Cherry Grove
Salem Heights
Hebron
Villa Hills
CALIFORNIA
Watch Hill
Withamsville
Britney Acres

Conclusion

There are a disproportionate amount of response times above 14 minutes relative to the total number of violent incidents in the western region of Cincinnati. In addition to expanding the Shot Spotter system further west, increasing the activity and/or duration of patrols in the western region of Cincinnati would improve the safety of citizens involved in these violent incidents.

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Interactive Links

Click links below for an interactive version of the maps used in the presentation:

Map color coded by incident types

Map showing Shot Spotter activity

Map showing unit response times