Phoenix Police Department Officer-Involved Shootings (OIS):

From Data to Insights

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UNDERSTANDING OIS THROUGH DATA

Police have long faced scrutiny regarding their actions during encounters with suspects, particularly within minority communities. Throughout history, there have been numerous instances where police employed excessive force in apprehending suspects, resulting in fatalities.

This project seeks to gather insights into officer-involved shootings within the Phoenix Police Department.

The dataset, provided by the city of Phoenix, includes details of incidents from 2017-2024 with the date, time, suspect age, race and ethnicity of both the suspect and the police officer, the suspect's weapon, and police precincts.
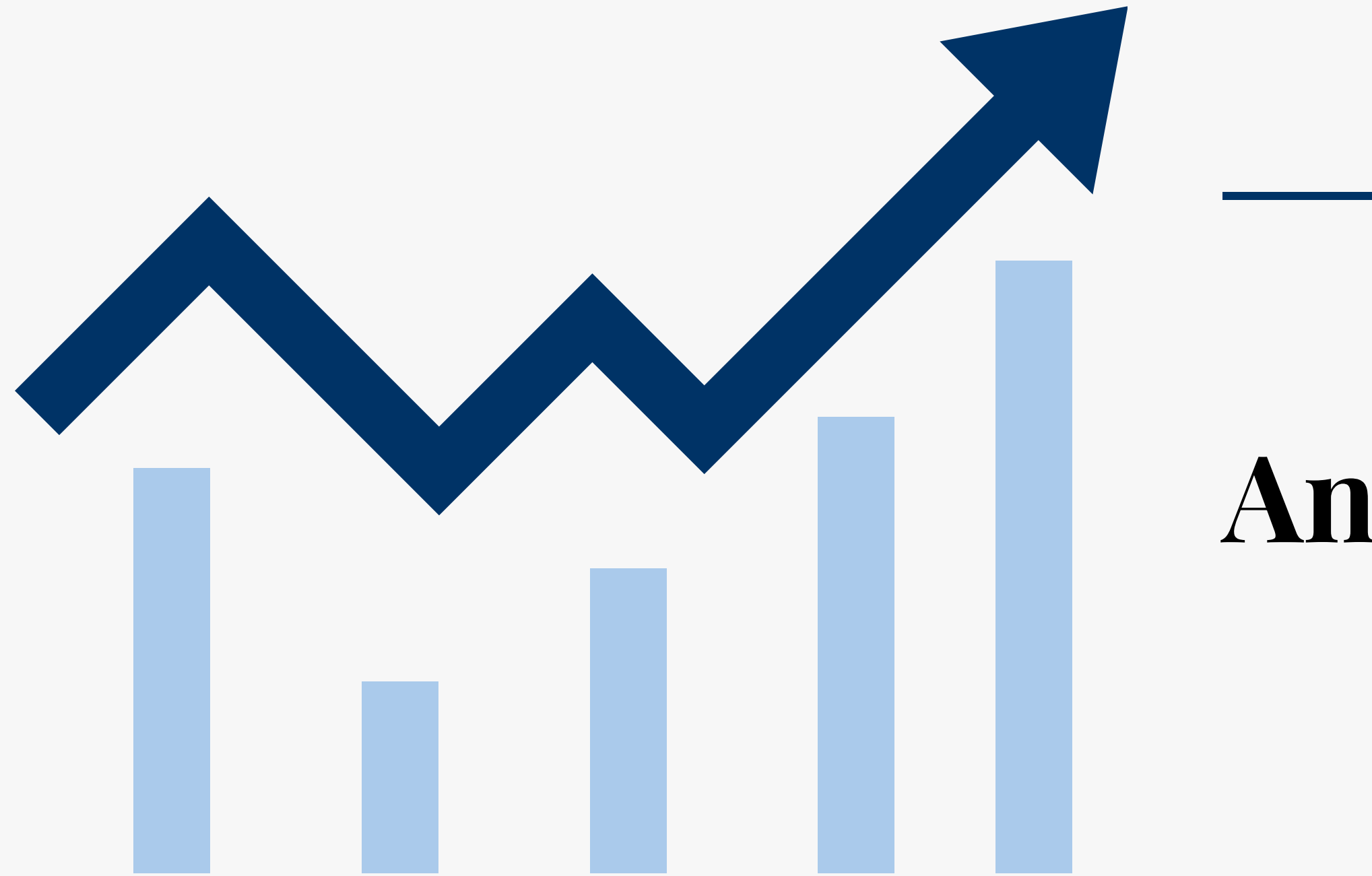
Additionally, I will utilize population data from Statistical Atlas to estimate the population within each precinct, focusing on Hispanic, Black, and White populations.
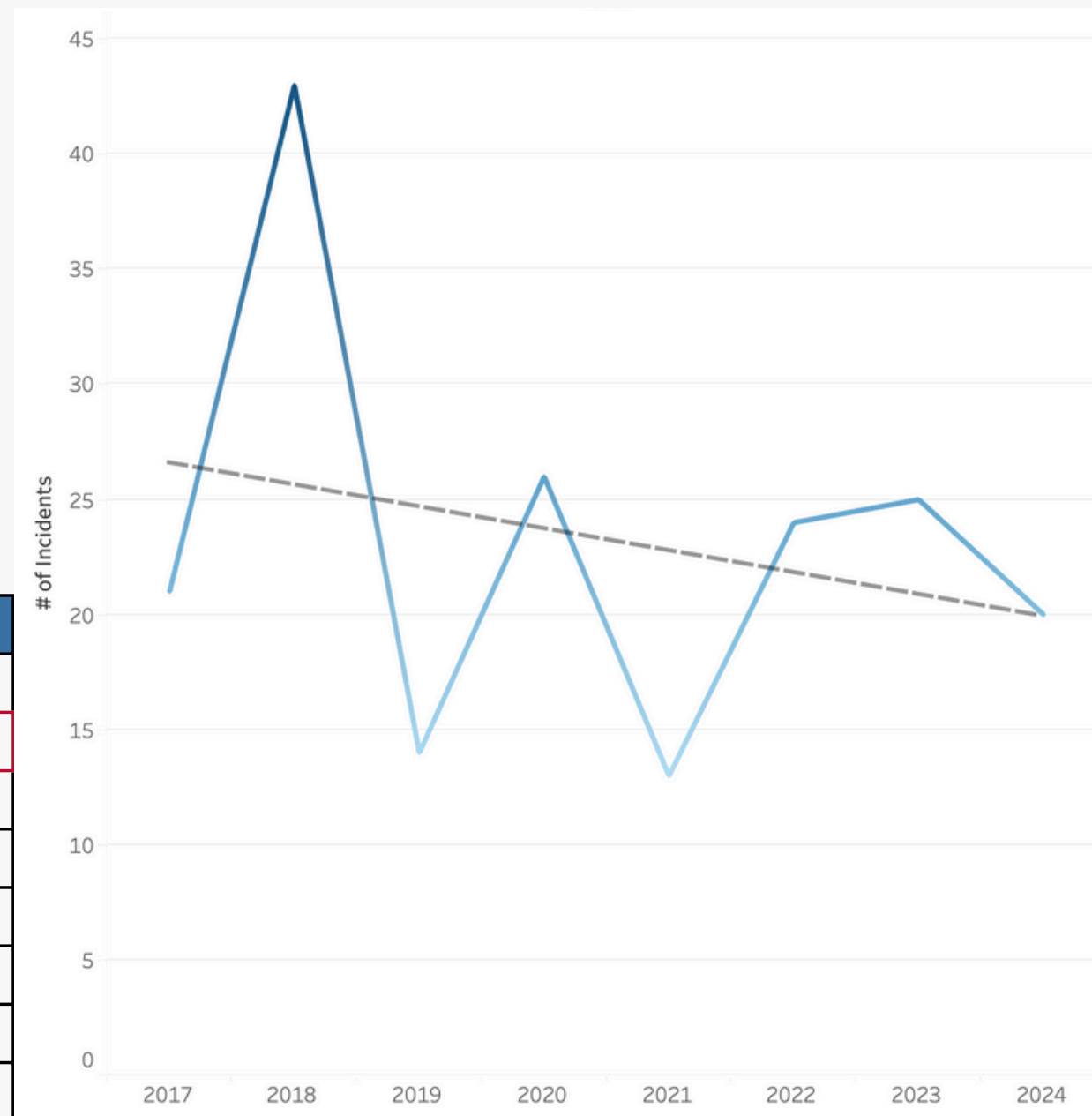
Sources:
https://statisticalatlas.com/place/Arizona/Phoenix/Race-and-Ethnicity
https://www.phoenixopendata.com/dataset/ois

Annual Trends

OFFICER-INVOLVED SHOOTINGS OVER TIME

- **Overall Trend:** Officer-involved shootings in Phoenix have declined over time despite the yearly fluctuations.
- **2018 Surge:** Shootings doubled compared to the previous year.
  - National Police Foundation Findings For Surge*:
    - Increased hostility from armed suspects.
    - Rising mental health challenges.
    - Widespread drug use.
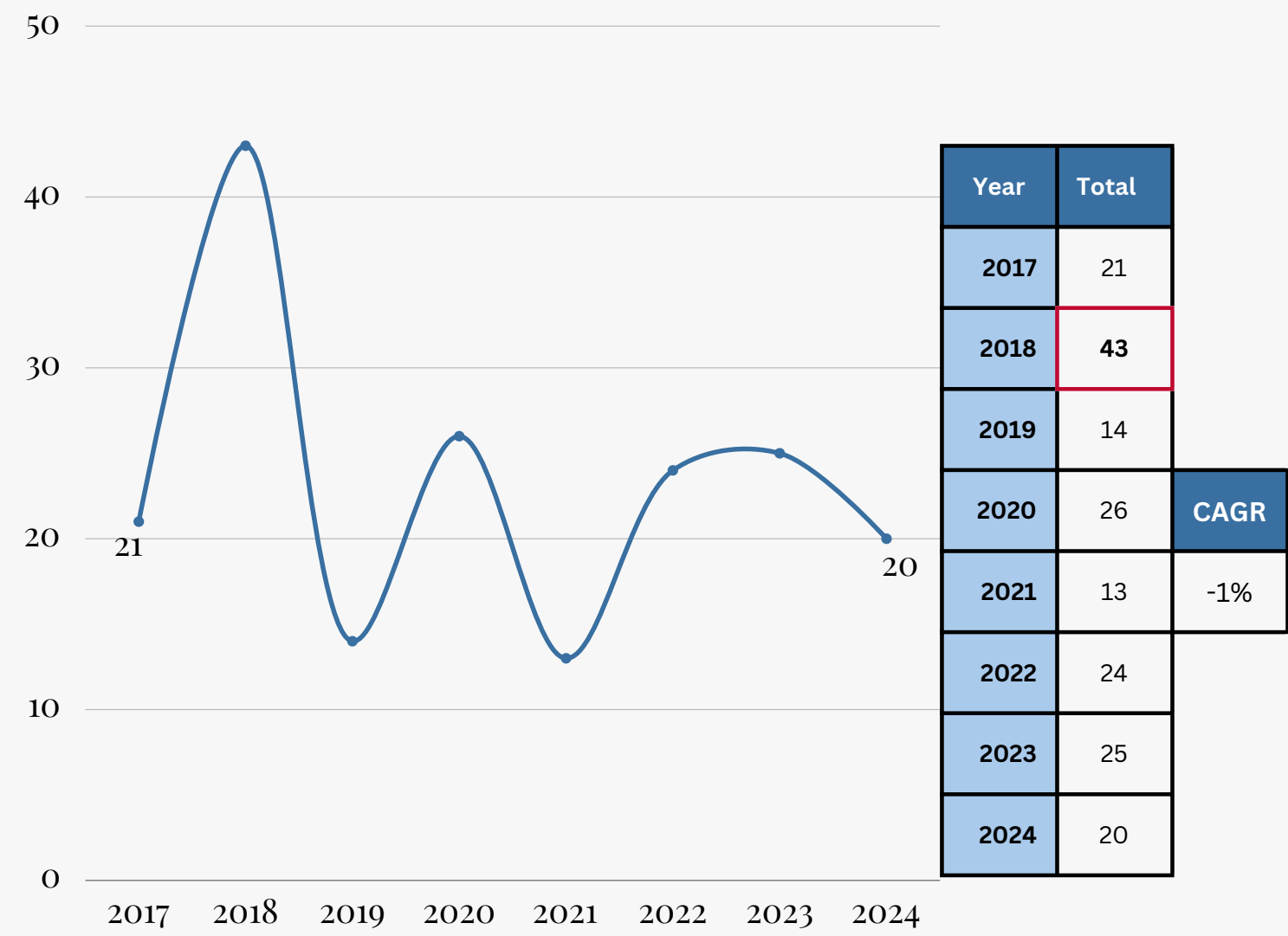   - Understaffing issues within Phoenix PD.

Year	Total
2017	21
2018	43
2019	14
2020	26
2021	13
2022	24
2023	25
2024	20

*National Police Foundation. (2019). Analysis of 2018 use of deadly force by the Phoenix Police Department. City of Phoenix. https://www.phoenix.gov/policesite/Documents/NPF_OIS_Study.pdf.

ANNUAL GROWTH ANALYSIS

- **AARG (Average Annual Growth Rate):** 20% » Indicates significant year-to-year fluctuations.
- **CAGR (Compound Annual Growth Rate):** -1% » Reflects an overall decline over time.
- The difference between AARG and CAGR highlights the impact of yearly variations in officer-involved shootings.


Year	Growth Rate		AAGR
2017	-		
2018	**105%**		
2019	-67%		
2020	86%		
2021	-50%		**20%**
2022	85%		
2023	4%		
2024	-20%		

Year	Total		CAGR
2017	21		
2018	**43**		
2019	14		
2020	26		
2021	13		-1%
2022	24		
2023	25		
2024	20		

ARIZONA
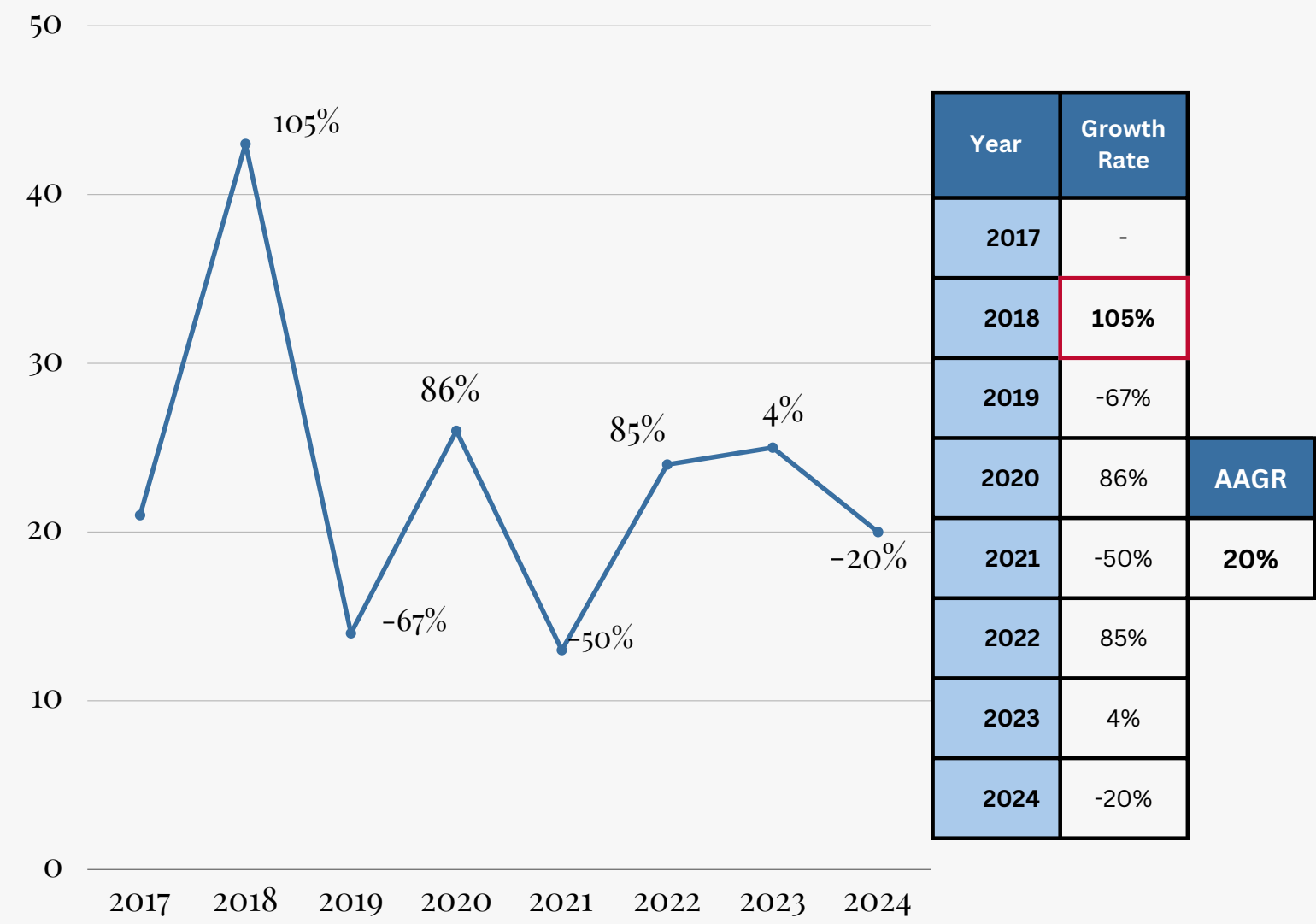
Insights By Phoenix PD Precincts

MAPPING OFFICER-INVOLVED SHOOTINGS BY PRECINCT

- **Highest**: Mountain View Precinct (1) had the highest OIS incidents totaling 45
- **Least:** Desert Horizon Precinct (7) recorded the fewest at 9
  - 4x difference compared to Mountain View.
- Precincts with higher OIS incidents are located near major highways.
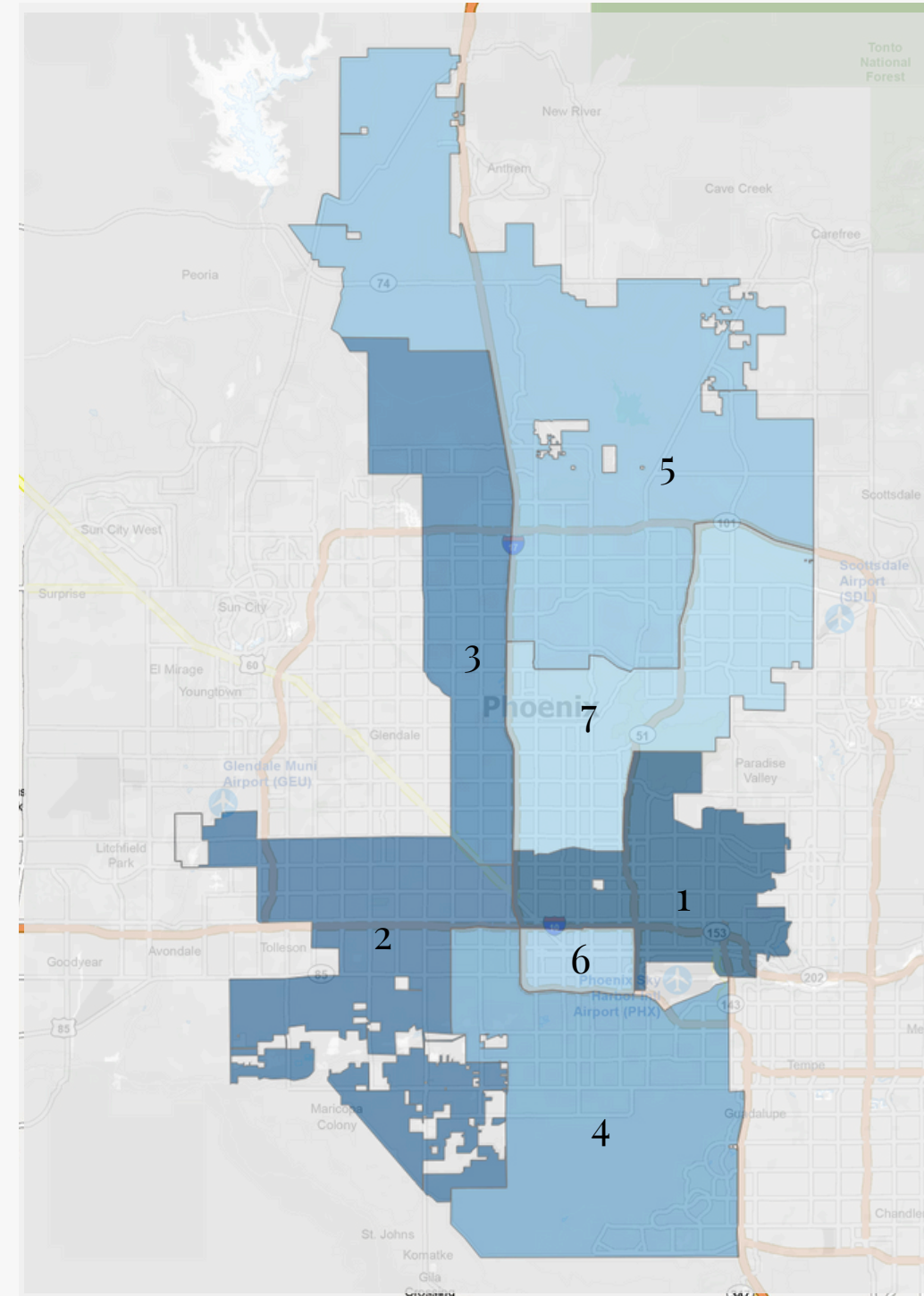
Precinct	# of Shootings
Mountain View (1)	45
Maryvale/Estrella (2)	39
Cactus Park (3)	35
South Mountain (4)	23
Black Mountain (5)	15
Central City (6)	12
Desert Horizon (7)	9

DISTRIBUTION OF SUSPECTS

- Suspects in their 30s represent the largest group in police shootings.
- Hispanic suspects (ages 20-40) are most involved in:
  - Mountain View
  - Maryvale/Estrella
  - South Mountain

- Black suspects, predominantly in their 30s, are more frequent in Mountain View
- White suspects (ages 20-40) are more frequent in Cactus Park.

Precinct / Suspect Profile
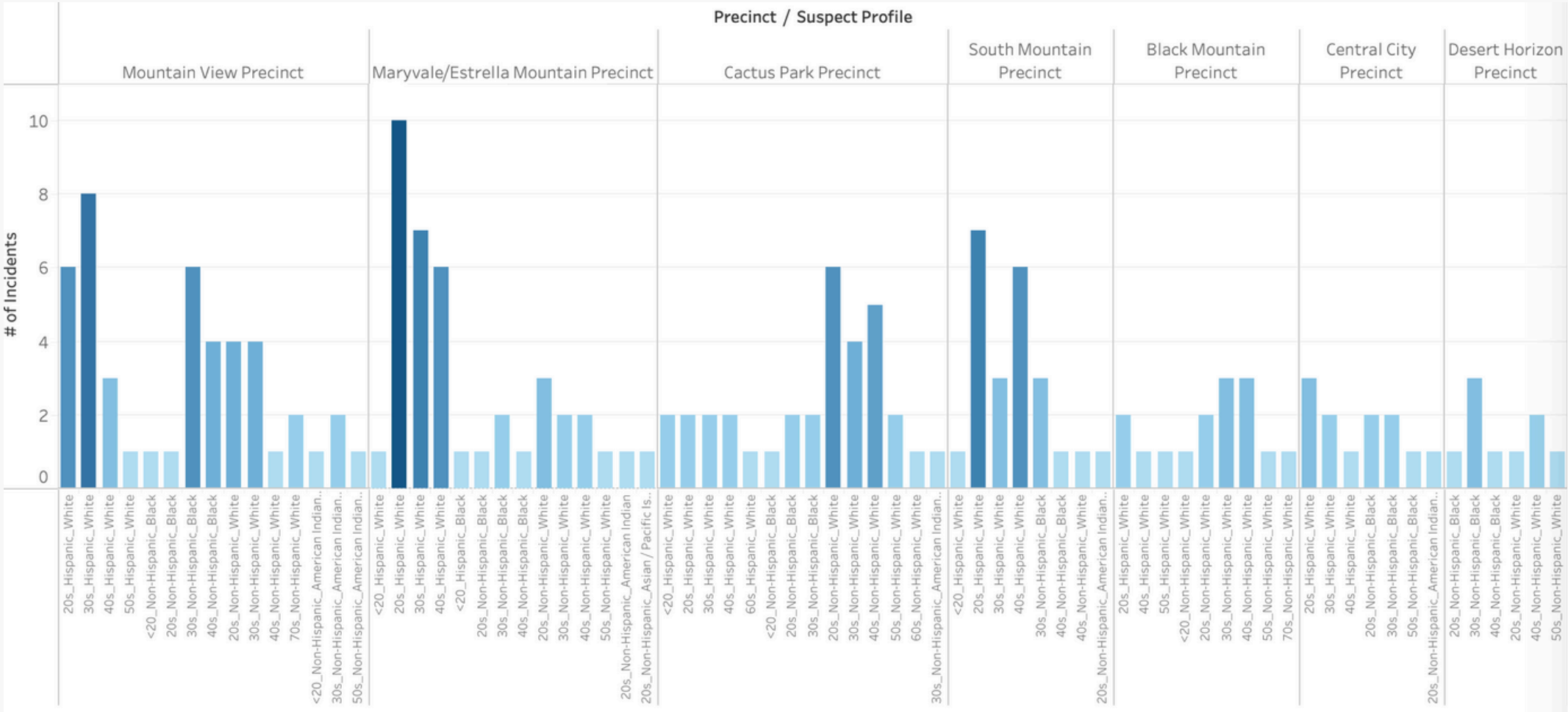
Suspect Profile	Mountain View	Maryvale/ Estrella	Cactus Park	South Mountain	Black Mountain	Central City	Desert Horizon
<20 Hispanic White		1	2	1			
20s Hispanic White	6	10	2	7	2	3	
30s Hispanic White	8	7	2	3		2	
40s Hispanic White	3	6	2	6	1	1	
50s Hispanic White	1				1		
60s Hispanic White			1				
<20 Hispanic Black		1					
<20 Non-Hispanic Black	1		1				
20s Non-Hispanic Black	1	1	2			2	1
30s Non-Hispanic Black	6	2	2	3		2	3
40s Non-Hispanic Black	4	1		1			1
50s Non-Hispanic Black					1		
<20 Non-Hispanic White					1		
20s Non-Hispanic White	4	3	6		2		1
30s Non-Hispanic White	4	2	4		3		
40s Non-Hispanic White	1	2	5	1	3		2
50s Non-Hispanic White		1	2		1		1
60s Non-Hispanic White				1			
70s Non-Hispanic White	2				1		
<20 Non-Hispanic American Indian/Alaskan	1						
20s Non-Hispanic American Indian/Alaskan			1		1		
30s Non-Hispanic American Indian/Alaskan	2		1				
50s Non-Hispanic American Indian/Alaskan	1						
20s Non-Hispanic American Indian		1					
20s Non-Hispanic Asian/Pacific Islander		1					

RATE PER 10,000 RESIDENTS FOR WHITE, HISPANIC, AND BLACK SUSPECTS

- The Black suspects shows significantly higher rates compared to Hispanic and White populations in:
  - Mountain View (9.8)
  - Cactus Park (8.2)
  - Central City (7.49)
  - Desert Horizon (3.2)
- Only one precinct has fairly equal rates across populations:
  - Maryvale/Estrella
- The White suspects has the lowest values across all precincts.
- The Hispanic suspects falls in between but still varies across precincts.
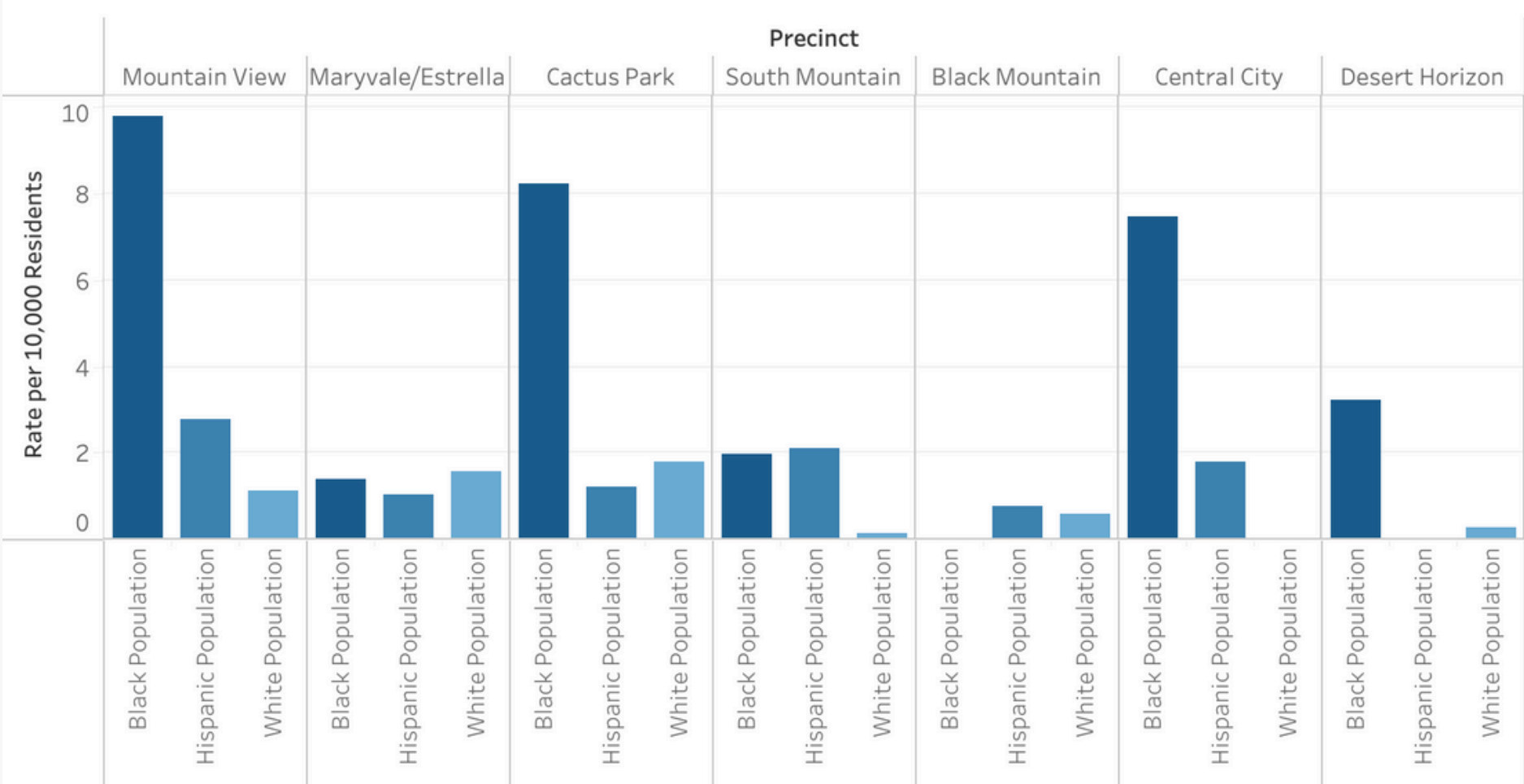
Precinct	Pop. Black	Pop. Hispanic	Pop. White	OIS Black Suspects	OIS Hispanic Suspects	OIS White Suspects	Rate Per 10,000 Black Residents	Rate Per 10,000 Hispanic Residents	Rate Per 10,000 White Residents
Mountain View	12,248	64,600	97,100	12	18	11	9.80	2.79	1.13
Maryvale/Estrella	28,711	237,400	50,600	4	24	8	1.40	1.01	1.58
Cactus Park	8,522	74,095	100,147	7	9	18	8.12	1.21	1.80
South Mountain	20,424	81,200	72,800	4	17	1	1.96	2.10	0.14
Black Mountain	5,830	51,943	186,223	–	4	11	0	0.77	0.59
Central City	6,680	33,900	13,100	5	6	–	7.49	1.77	0
Desert Horizon	15,421	42,950	140,433	5	–	4	3.24	0	0.28

*Population data are rough estimates of the areas within the precinct's jurisdiction.

FATALITY VS NON-FATALITY BY PRECINCT

- **Most Fatalities:** Mountain View has the most fatalities than all of the precincts, totaling 27.
- **Fatal over Non-Fatal:** South Mountain have more fatal outcomes (15) than non-fatal (8).
- **Non-Fatal over Fatal:** The only precinct with more outcomes that are non-fatal is Black Mountain.
- Maryvale/Estrella, Cactus Park, and Desert Horizon nearly have equal fatal and non-fatal outcomes
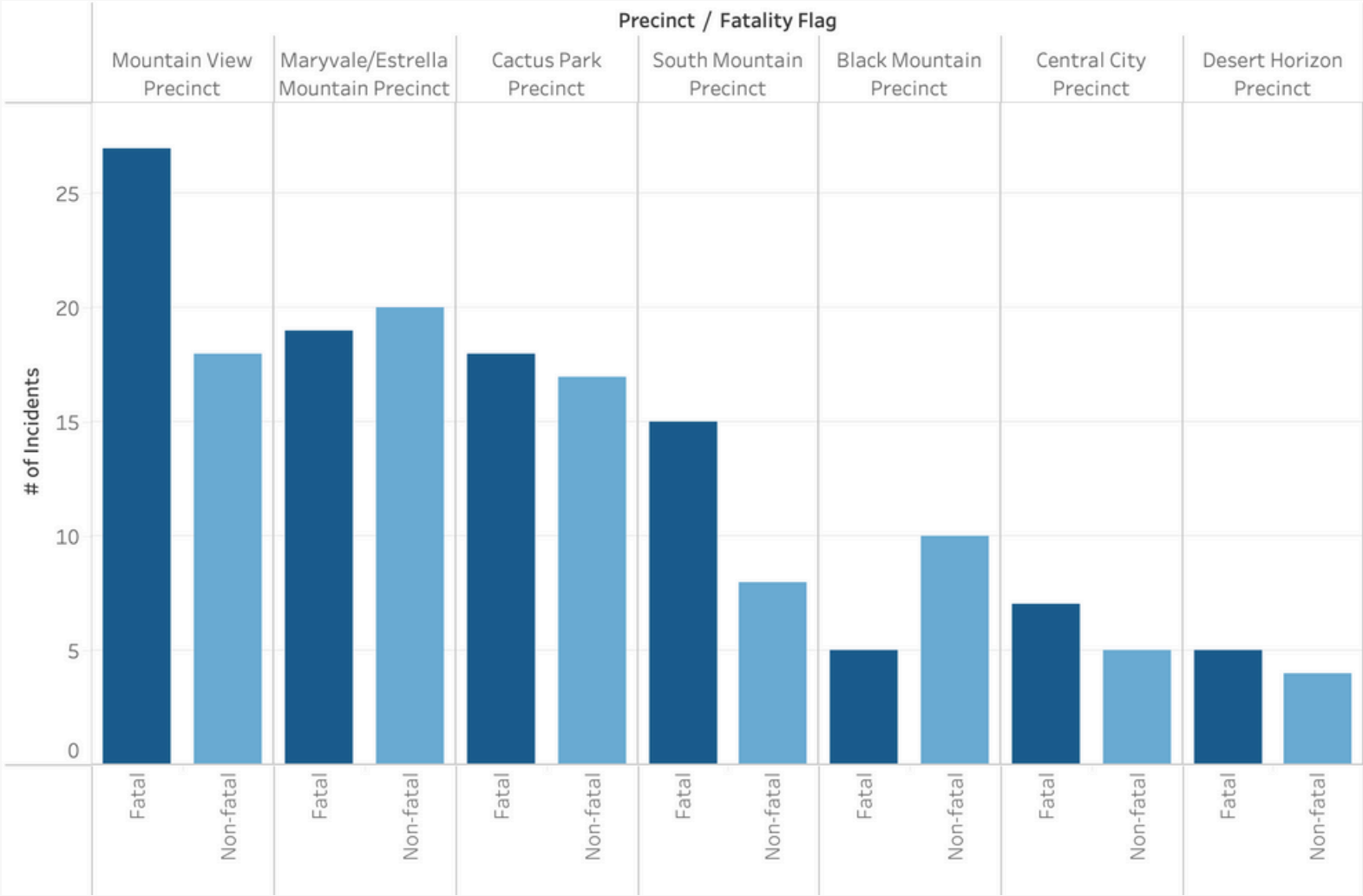
| Precinct	Fatal	Non-Fatal
Mountain View (1)	**27**	18
Maryvale/Estrella (2)	19	20
Cactus Park (3)	18	17
South Mountain (4)	**15**	8
Black Mountain (5)	5	**10**
Central City (6)	7	5
Desert Horizon (7)	5	4

Insights By Suspect Profile

DISTRIBUTION OF SUSPECTS BY OFFICER RACE

- White officers are the most frequently involved in shootings across all suspect profiles.
  - Followed by Hispanic officers.
  - Black and Asian officers are rarely involved in these incidents.
- Black suspects (ages 20-49) are about 7x more likely to be involved in a shooting with a White officer than a Hispanic officer.
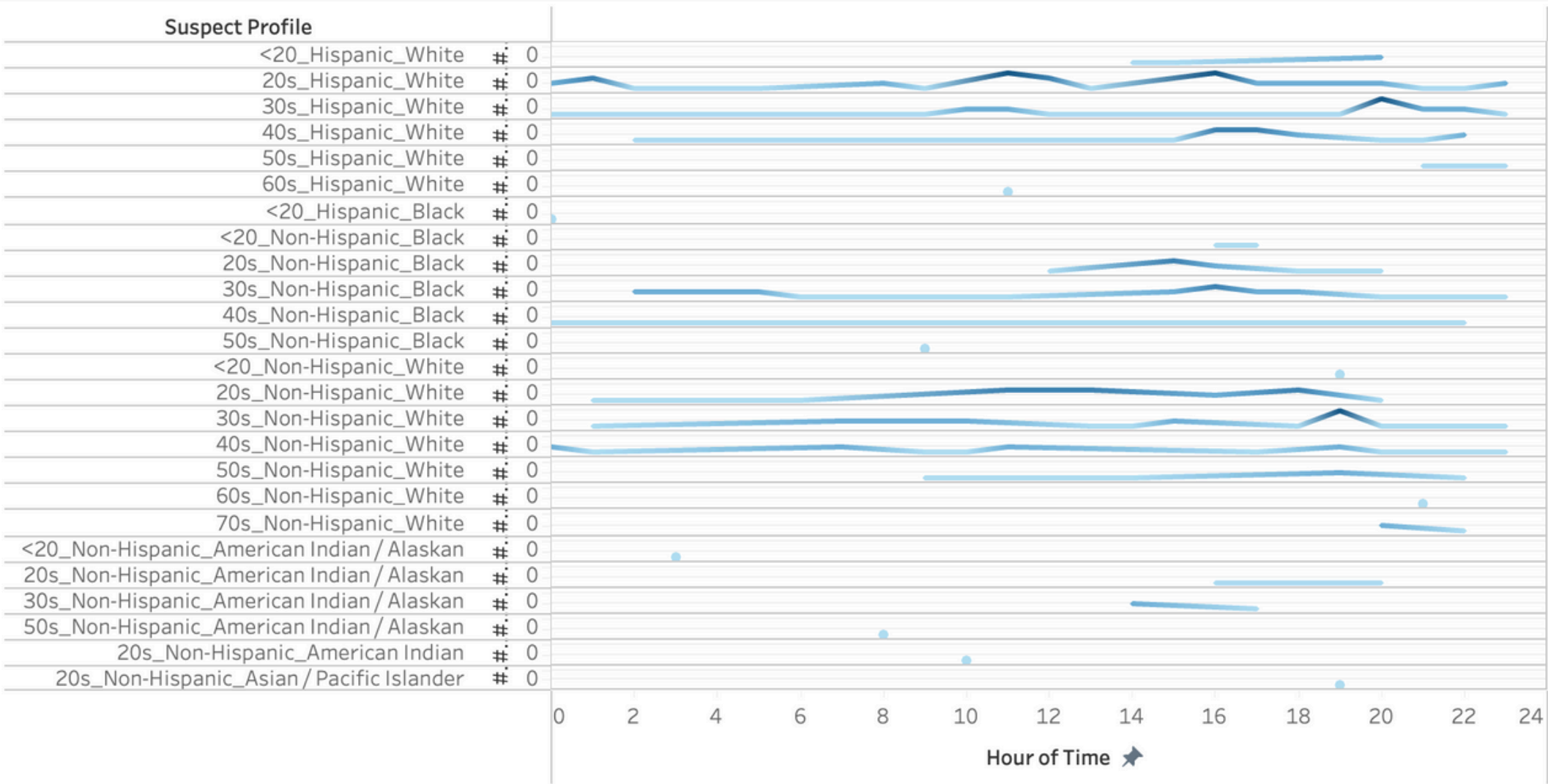- Hispanic suspects in their 20s encounter White officers 2x more often than they do Hispanic officers.
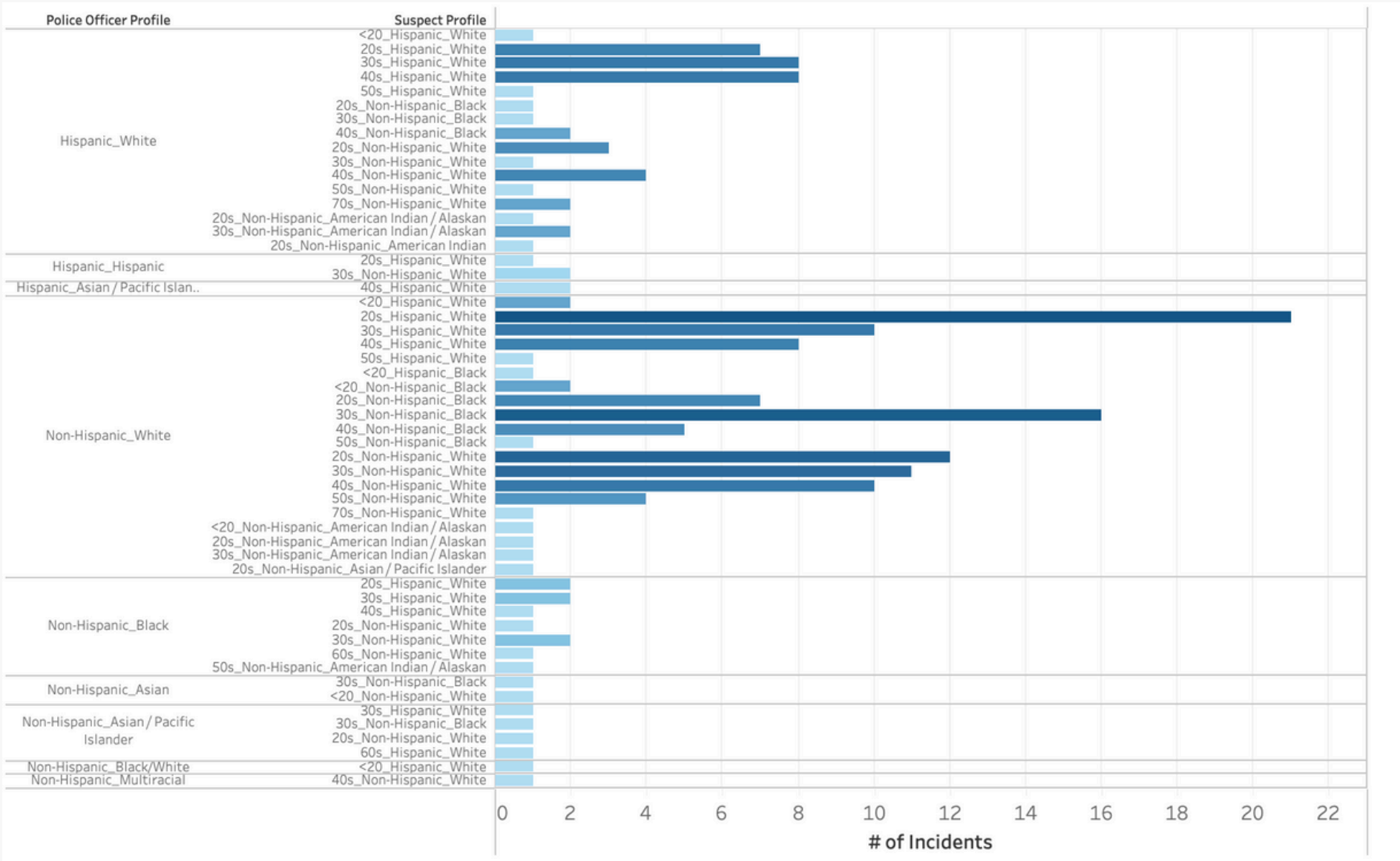
Suspect Profile	Police Officer Ethnicity/Race								
	Hispanic White	Hispanic Hispanic	Hispanic Asian/ Pacific Islander	Non-Hispanic White	Non-Hispanic Black	Non-Hispanic Asian	Non-Hispanic Asian/ Pacific Islander	Non-Hispanic Black/ White	Non-Hispanic Multiracial
<20 Hispanic White	1			2				1	
20s Hispanic White	7	1		21	2				
30s Hispanic White	8			10	2		1		
40s Hispanic White	8		2	8	1				
50s Hispanic White	1			1					
60s Hispanic White									
<20 Hispanic Black				1					
<20 Non-Hispanic Black				2					
20s Non-Hispanic Black	1			7					
30s Non-Hispanic Black	1			16		1	1		
40s Non-Hispanic Black	2			5					
50s Non-Hispanic Black				1					
<20 Non-Hispanic White						1			
20s Non-Hispanic White	3			12	1		1		
30s Non-Hispanic White	1	2		11	2				
40s Non-Hispanic White	4			10					1
50s Non-Hispanic White	1			4					
60s Non-Hispanic White					1		1		
70s Non-Hispanic White	2			1					
<20 Non-Hispanic American Indian/Alaskan				1					
20s Non-Hispanic American Indian/Alaskan	1			1					
30s Non-Hispanic American Indian/Alaskan	2			1					
50s Non-Hispanic American Indian/Alaskan						1			
20s Non-Hispanic American Indian	1								
20s Non-Hispanic Asian/Pacific Islander				1					

SUSPECT TRENDS ACROSS TIME

- **Peak hours:** 4–10 PM, with suspects in their 20s, 30s, and 40s most frequently involved.
- **Early morning (12–6 AM):** Fewer incidents, except for spikes among young hispanic suspects in their 20s, black suspects in their 30s, and older white suspects.
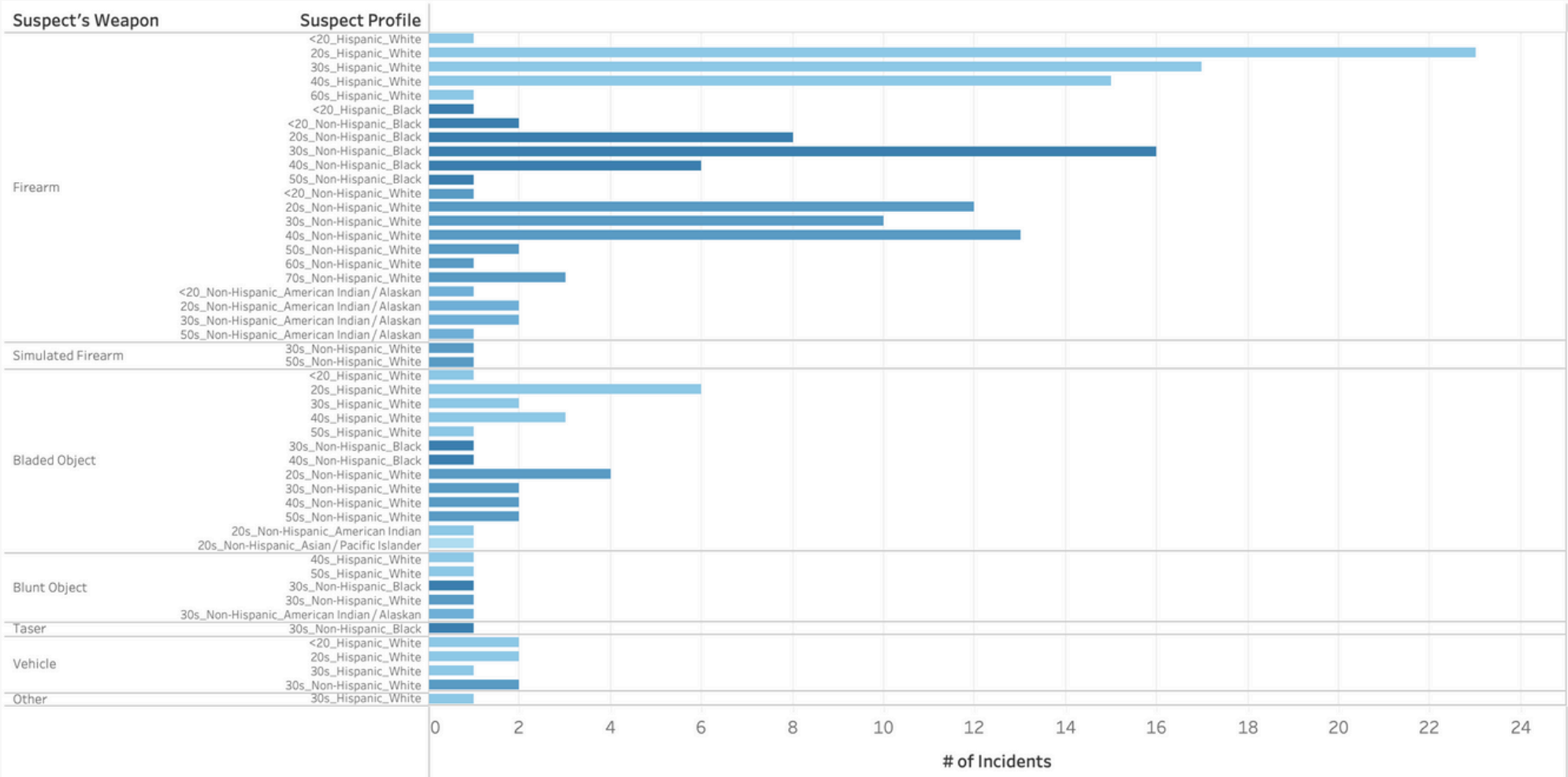
DISTRIBUTION OF SUSPECTS BY WEAPON

- **Most present weapon:** All of the suspects were armed during these incidents, with majority having a firearm.
  - Followed by bladed objects.
- While Hispanic and White suspects are distributed across majority of the weapon types, Black suspects mainly had firearms.

Suspect Profile	Firearm	Simulated Firearm	Bladed Object	Blunt Object	Taser	vehicle	other
<20 Hispanic White	1		1			2	
20s Hispanic White	23		6			2	
30s Hispanic White	17		2			1	1
40s Hispanic White	15		3	1			
50s Hispanic White			1	1			
60s Hispanic White	1						
<20 Hispanic Black	1						
<20 Non-Hispanic Black	2						
20s Non-Hispanic Black	8						
30s Non-Hispanic Black	16		1	1	1		
40s Non-Hispanic Black	6		1				
50s Non-Hispanic Black	1						
<20 Non-Hispanic White	1						
20s Non-Hispanic White	12		4				
30s Non-Hispanic White	10	1	2	1		2	
40s Non-Hispanic White	13		2				
50s Non-Hispanic White	2	1	2				
60s Non-Hispanic White	1						
70s Non-Hispanic White	3						
20s Non-Hispanic American Indian	1						
20s Non-Hispanic Asian/Pacific Islander	2						
<20 Non-Hispanic American Indian/Alaskan	2			1			
20s Non-Hispanic American Indian/Alaskan	1						
30s Non-Hispanic American Indian/Alaskan			1				
50s Non-Hispanic American Indian/Alaskan			1				

CONCLUSION

In conclusion,this analysis of officer-involved shootings in Phoenix from 2017 to 2024 highlights key trends in suspect demographics, precinct disparities, and incident timing.
While the overall number of shootings has fluctuated, there has been a general trend of decline. Nevertheless, significant differences exist across precincts, with Mountain View recording the highest number of incidents as well as fatal outcomes.
Demographic patterns reveal that majority of suspects are in thier 30s, followed by those in their 20s. Additionally, Black suspects are disproportionately involved, particularly in precincts with predominantly white population.
Moreover, the majority of shootings occur in the late afternoon and evening hours, aligning with periods of peak activity within urban communities.
These insights emphasize the need for continued examination of law enforcement practices, officer deployment strategies, and community dynamics. Understanding these patterns can contribute to data-driven policy decisions, improved police training, and enhanced community engagement.