Police Force Analysis System℠
Sixth Summary Report

King County Sheriff's Office

Use of Force Data from January 1, 2014 to December 31, 2022

By:

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Background

In 2017 we produced the first Summary Report using data from the King County Sheriff's Office's Police Force Analysis System℠. That report included data from 2014 to 2016. We produced a second Summary Report in June 2019 with data from 2017 and 2018, a third Summary Report in June 2020 with data from 2019 and a Fourth Summary Report in May 2021 with data from 2020, and a Fifth Summary Report in October 2022. This is our Sixth Summary Report which includes use of force data through the end of 2022. Police Strategies will continue to update the system on an annual basis and produce annual Summary Reports.

Police Strategies LLC

Police Strategies LLC is a Washington State based company that was formed in February 2015. The company was built by law enforcement professionals, attorneys, and academics with the primary goal of helping police departments use their own incident reports to make data-driven decisions and develop evidence-based best practices. The company's three partners are all former employees of the Seattle Police Department and were directly involved with the Department of Justice's pattern or practice investigation of the department in 2011 as well as the federal consent decree that followed. They wanted to take the lessons learned from that experience and provide other police departments with the tools they need to monitor use of force incidents, identify high risk behavior, and evaluate the outcomes of any reforms that are implemented. The company has a partnership with the Center for the Study of Crime and Justice at Seattle University to assist in the analysis of the data.

Police Force Analysis System℠

In the summer of 2015, Police Strategies LLC launched the Police Force Analysis System℠ (PFAS). PFAS combines peer-reviewed research with state-of-the-art analytical tools to produce a powerful data visualization system that can be used by law enforcement, policy makers,

academics, and the public.[1] The core of PFAS builds upon the research work of Professor Geoff Alpert and his Force Factor method. Force Factor analysis formed the basis of Professor Alpert's 2004 book "Understanding Police Use of Force – Officers, Subjects and Reciprocity"[2] and has been the subject of several scholarly articles.[3]

PFAS is a relational database that contains 150 fields of information extracted from law enforcement agencies' existing incident reports and officer narratives. The data is analyzed using legal algorithms that were developed from the evaluation criteria outlined in the United States Supreme Court case of *Graham v. Connor*, 490 U.S. 386 (1989). The Court adopted an objective reasonableness standard which evaluates each case based upon the information that the officer was aware of at the time the force was used and then comparing the officer's actions to what a reasonable officer would have done when faced with the same situation. PFAS uses Force Justification Analysis to determine the risk that a use of force incident would be found to be unnecessary and Force Factor Analysis to evaluate the risk that the force would be found to be excessive.
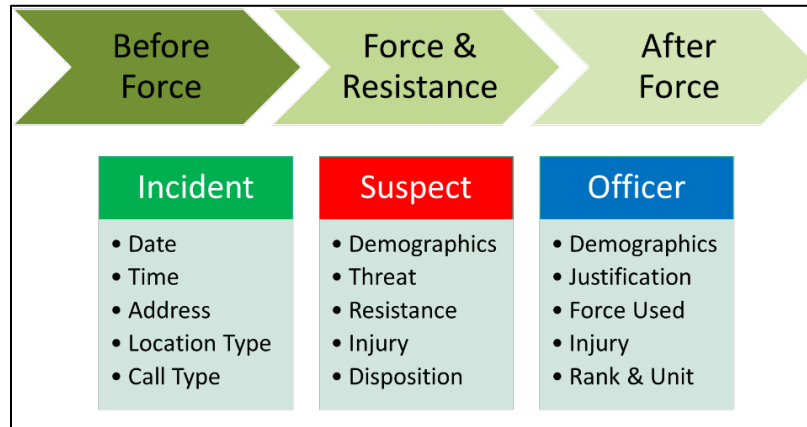

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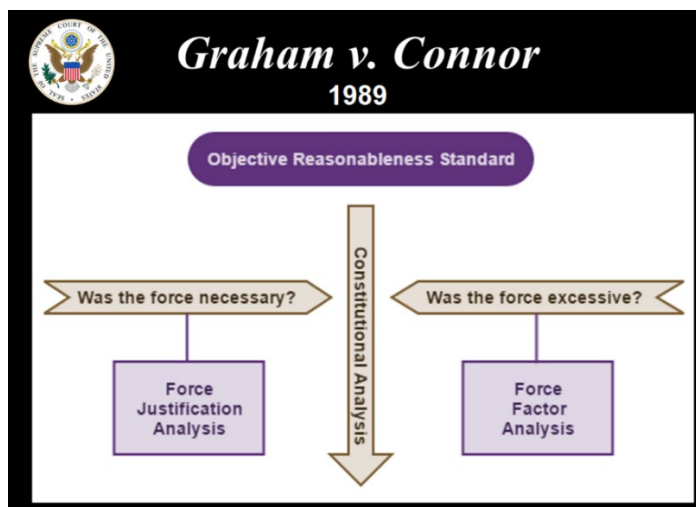
[1] Capitola Police creates online database to track use of force stats, Santa Cruz Sentinel, August 2016.
 KCSO puts use-of-force data online in pioneering move, KCSO Mercury, January 2018
[2] Understanding Police Use of Force – Officers, Subjects, and Reciprocity, Cambridge Studies in Criminology, 2004.
[3] See, e.g., Reliability of the Force Factor Method in Police Use-of-Force Research, Police Quarterly, December 2015.

PFAS examines relevant temporal data from immediately before, during, and after an application of force.

Before Force	Force & Resistance	After Force
Incident	**Suspect**	**Officer**
• Date • Time • Address • Location Type • Call Type	• Demographics • Threat • Resistance • Injury • Disposition	• Demographics • Justification • Force Used • Injury • Rank & Unit

PFAS uses powerful data visualization software to display the information on dynamic dashboards. These dashboards can be used by police management to identify trends and patterns in use of force practices and detect high risk behavior of individual officers. The system can also be used to spot officers who consistently use force appropriately and effectively. Since the system can find both high risk and low risk incidents, PFAS can be used both as an Early Intervention System to correct problematic behavior as well as a training tool that highlights existing best practices.

PFAS contains several years of historical data for each agency and is designed to be updated on a regular basis. This allows the department to immediately identify trends and patterns as well as measure the impacts and outcomes of any changes that are made to policies, training, equipment, or practices. For example, if a department provides crisis intervention and de-escalation training to its officers, the system will be able to evaluate whether that training has had any impact on officer behavior.

PFAS currently has use of force data from 94 law enforcement agencies in eight states involving about 25,000 incidents and 10,000 officers who used force more than 35,000 times. PFAS is the largest database of its kind in the nation. Although the incident reports from each of these agencies uses a different format, all the data extracted and entered into the system has been

standardized which allows us to make interagency comparisons. The Police Force Analysis Network℠ allows agencies to compare their use of force practices with other agencies in the system.

The Police Force Analysis System℠ provides comprehensive information about police use of coercive authority and permits the study of the intersection of individual and contextual factors that explain situational, temporal, and spatial variation in the distribution of police coercive authority. PFAS supports meaningful community engagement about police coercion by providing comprehensive and relevant data to address and inform community concern regarding police-citizen interactions.

Data Collection from the King County Sheriff's Office

The King County Sheriff's Office (KCSO) provided the following data for coding: (1) Raw data from the IAPro system; (2) BlueTeam reports; and (3) incident reports with officer narratives. These reports were received as Word and Adobe Acrobat files.

In August 2023 Police Strategies LLC received KCSO use of force reports from 2022. Data entry was completed in September 2023 and then the information was processed through the system's legal algorithms. Finally, the interactive dashboards were updated. All the data entered into the system was also geocoded.

The Department has contracted for ongoing updates of PFAS. The next Summary Report will be produced in the summer of 2024.

Summary of KCSO's Police Force Analysis System℠

The King County Sheriff's Office's Police Force Analysis System℠ contains nine years of use of force data from 2014 to 2022. The database includes detailed information on 1,487 subjects who had force used against them and the 683 officers who used force during the 9-year period. In 2022, there were 153 use of force incidents involving 172 officers who used force a total of 290 times. This report will examine the 9-year trends in uses of force and will summarize the use of force data from 2022.

1) Date, Time, and Location of Use of Force Incidents

In 2022,the month with the most force incidents was October with 18 incidents, and the month with the fewest incidents was December with 6 incidents each. During the week, Fridays had the most incidents (26) and Tuesdays had the fewest (14). The peak hour for force incidents was between 11am and noon (13 incidents).

Thirty-one percent of all force incidents in 2022 occurred on the street, 35% occurred inside or outside a home, and 29% occurred at a business.

From 2014 to 2017 the number of force incidents rose from 166 to 219 and then fell to 117 incidents in 2021. In 2022, there were 36 more incidents than the prior year, which was an increase of 31%. It appears that the pandemic in 2020 and 2021 may have reduced the number of contacts and arrests resulting in fewer uses of force. While the use of force numbers increased in 2022, they are still lower than any year prior to the pandemic.

Over the last nine years the average annual number of force incidents was 165. There was an average of 41 force incidents per quarter and 14 incidents per month. There was no day that had more than four use of force incidents.

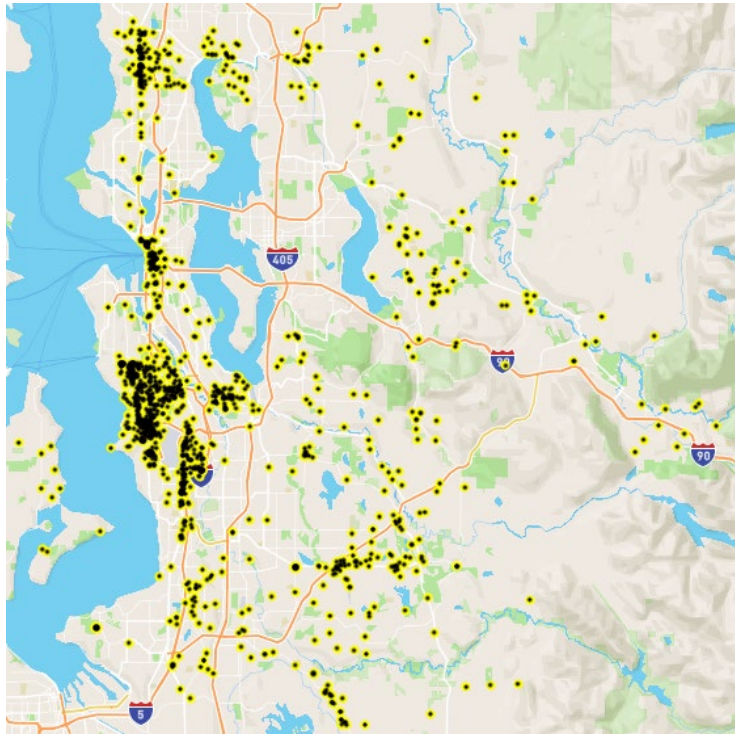In 2022, the longest period of time with no use of force incidents was between October 21st and October 29th.
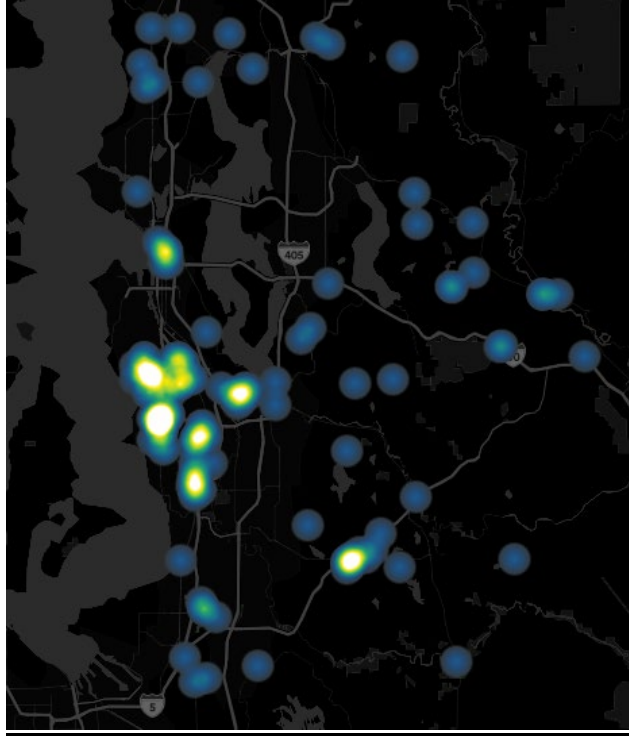
Use of Force Incidents – 2014 to 2022
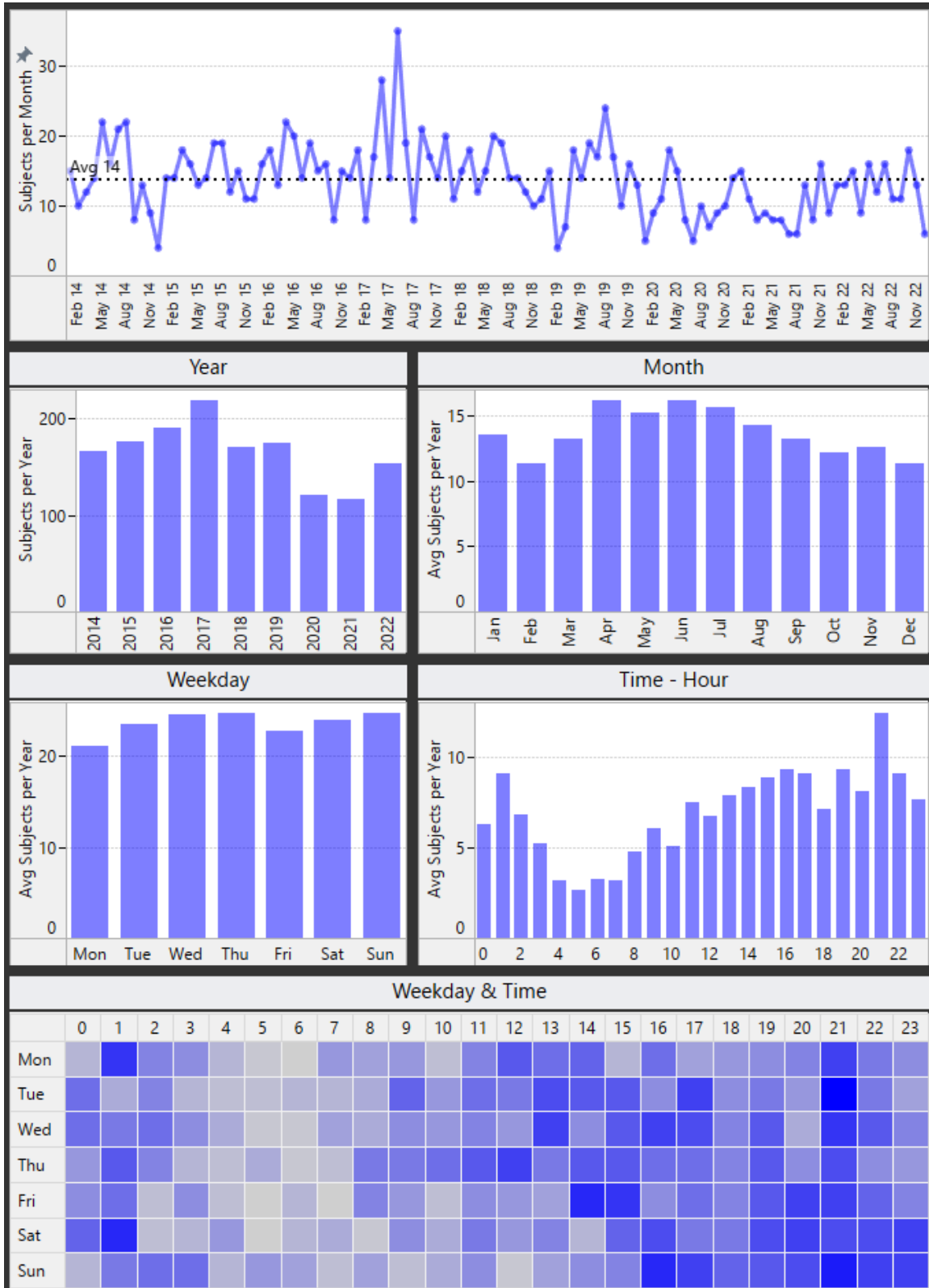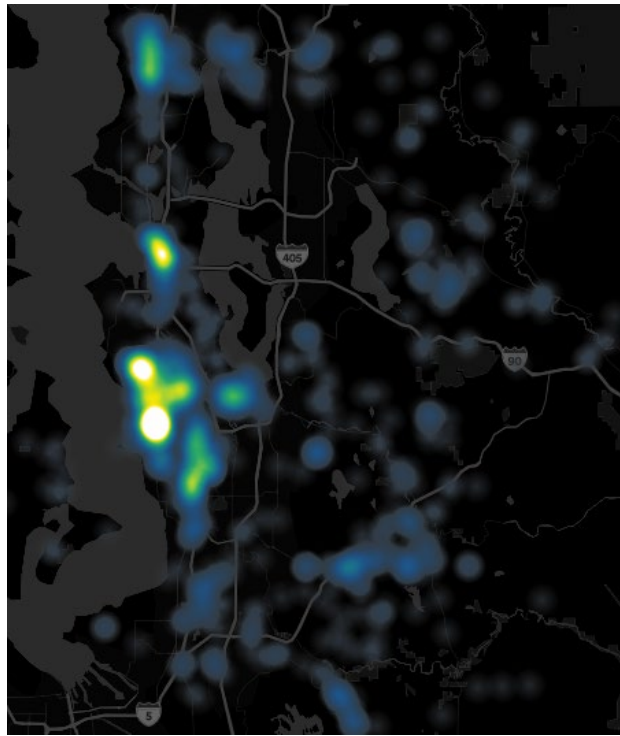
Use of Force Incident Locations – 2022
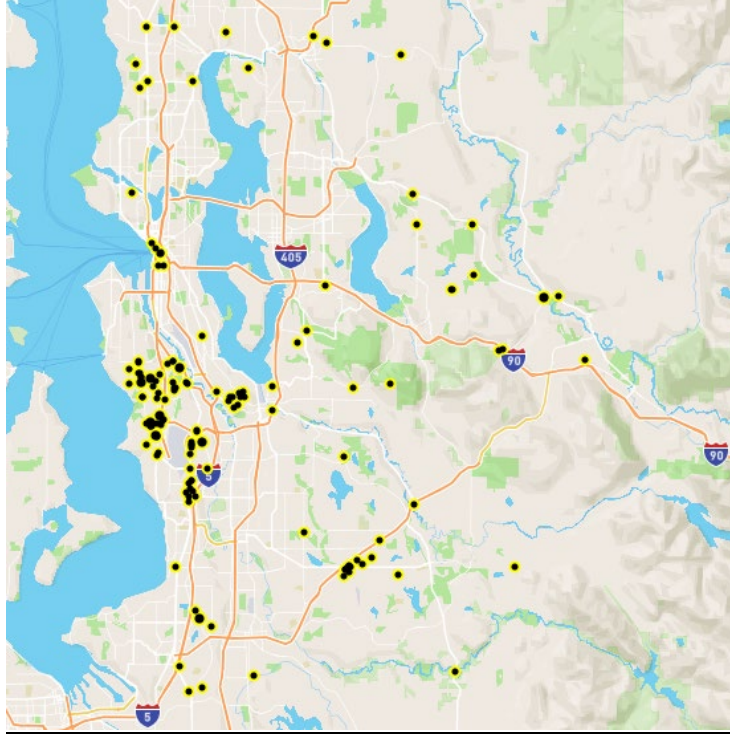
Use of Force Incident Locations – 2014 to 2021

Use of Force Heat Map - 2022

Use of Force Heat Map – 2014 to 2021

2) Reason for Contact

Over the last nine years, 64% of officers who used force were responding to a dispatched call for service. Twenty-five percent of officers were making an officer-initiated contact, and 11% of officers were responding to assist other officers. From 2015 to 2021, the percentage of use of force incidents resulting from an officer-initiated contact fell from 28% to 5%, before rising to 15% in 2022.

Between 2018 and 2021, there has been a trend towards more officers being present on scene when force was used. In 2018, 18% of all force incidents had four or more officers on scene when force was used, and that percentage rose to 53% by 2021, before falling to 30%in 2022. With more officers on scene, more officers were also involved in the use of force incidents. In 2018 54% of use of force incidents involved only one officer using force. This fell to 15% by 2021 before rising to 43% in 2022.

Over the last nine years the most common original call types for force incidents were violent crimes (28%) and property crimes (27%). There were 197 incidents related to a traffic stop, 140 assault calls, and 136 burglary calls.

3) Force Frequency

In 2022, there were 153 use of force incidents, involving 172 officers, who used force a total of 290 times. There were two officers who used force 7 or 8 times each, five officers who used force 5 or 6 times each, nineteen officers who used force 3 or 4 times, 39 officers who used force twice, and 107 officers who used force once. The top 10% of officers made up 25% of all force used by the department.

4) Force Justification

The Force Justification Score is based upon the four Graham Factors: (1) seriousness of the crime being investigated; (2) the level of threat to the officer or others; (3) the level of resistance; and (4) whether the subject fled from the officer. Low Justification Scores are indicative of incidents where subjects were not committing serious crimes, did not pose a significant threat to the officer or others, did not present a high level of resistance, and did not flee.

In 2022, 7% of the Department's use of force incidents had low Force Justification scores (<6). The average Force Justification score was 11.4 on a scale of 0 to 20, which was higher than the average for prior years (10.4). All of the four Graham factors were higher in 2022 than in prior years. This indicates that in 2022, subjects involved in force incidents were more likely to be involved in violent crimes, were more likely to flee, resist officers, and threaten officers than in prior years.

In 2022, there were 22 incidents that received the highest justification score of 20. These incidents involved an assault on the officer before the officer made the decision to use force.

In 2022, there were 10 officers who were involved in at least one incident with a low Force Justification score. One officer was involved in three low Force Justification incidents.

In 2022, the average Force Justification Score was higher for women (13.0) than men (11.0). Native American subjects had the highest average Force Justification score (16.6), and Black subjects had the lowest average score (10.4). Average Force Justification scores were lowest for subjects over 40 (10.1) and were highest for subjects between 30 and 39 (12.4).

In 2022, officers were less likely to use electronic control weapons (ECW) (20%) during a low Force Justification incident than a medium or high Force Justification incident (46%). Three low Force Justification incidents involved a canine bite, and one involved the use of OC.

5) Force Factor

The Force Factor Score is based upon the proportionality of force to resistance and scores range from -6 to +6. A negative score means that the subject's resistance level was higher than the officers' force level. A medium Force Factor Score is between 0 and +2. This is the range where most officers can gain control of a subject by using force that is at least proportional to the level of resistance or slightly above. A Force Factor of +3 or above is considered a high score. This does not mean that the force was excessive, but these incidents do present a higher risk to the department.

In 2022 there were 22 incidents that had a high Force Factor score (+3 or above). Compared to prior years, there was a higher percentage of both high Force Factor incidents (14%) and low Force Factor incidents (10%), while incidents with a Force Factor of +2 decreased from 32% to 22%.

In 2022, the most common Force Factor Score was +1 (30%) followed by 0 (24%) and +2 (22%). These numbers indicate that most officers in the department behave consistently when faced with a given level of resistance and they tend to use the minimal amount of force necessary to gain compliance.

When high levels of force are used against lower levels of resistance, the subjects are controlled much faster, with lower injury rates for officers, but higher injury rates for subjects.
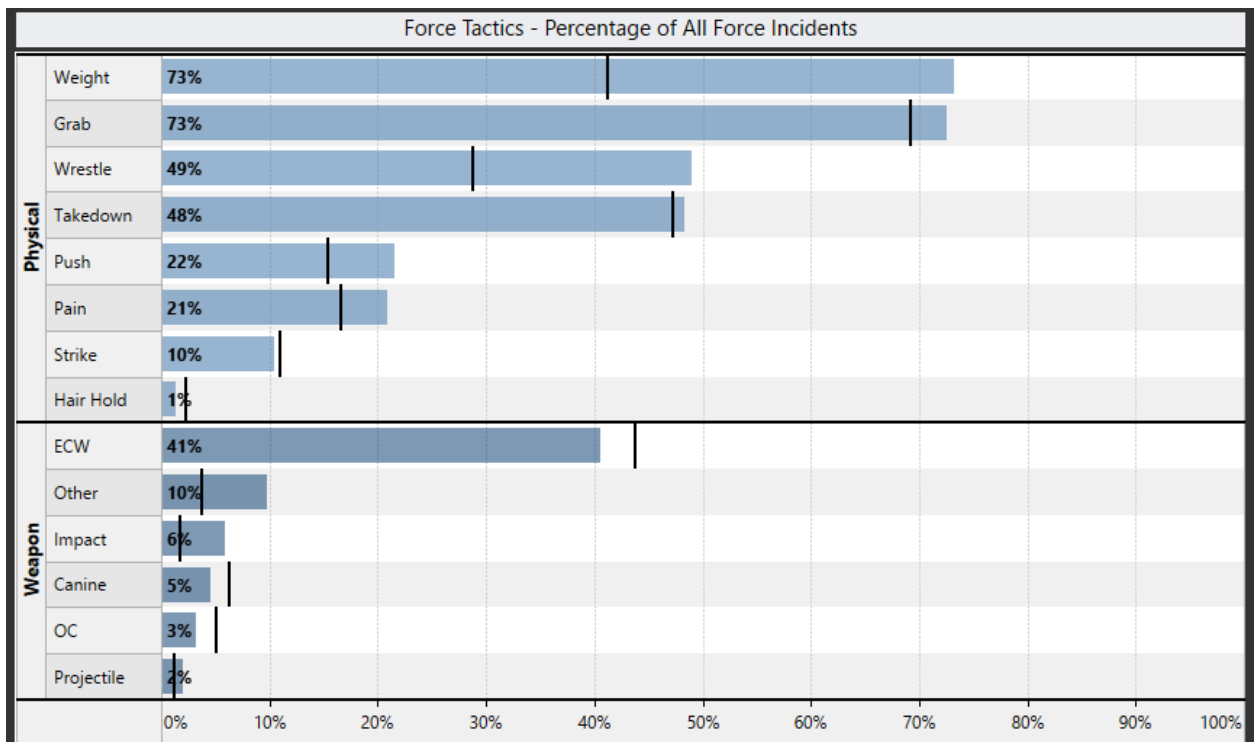
	Force Factor – 2014 to 2022		
	Low (-1 to -3)	Medium (0 to +2)	High (+3 to +5)
Subject brought under control within 1 or 2 Force Sequences	29%	21%	62%
Subject Injury Rate	63%	72%	72%
Officer Injury Rate	26%	22%	5%
Weapon Used by Officer	51%	55%	93%

6) Force Tactics

Of the 153 use of force incidents that occurred in 2022, 42% involved physical force only, 26% involved only the use of weapons by officers, and 32% involved both physical force and the use of a weapon.

Compared to prior years, officers were more likely to use weight to hold a subject down, wrestling, pushing, and pain compliance in 2022. In 2022, officers were less likely to use Electronic Control Weapons (ECW), OC, and canines but were more likely to use vehicle Pursuit Intervention Technique maneuvers and impact weapons than in prior years.

Force Tactics Used in 2022

Force Tactics - Percentage of All Force Incidents

Physical		
Weight	73%
Grab	73%
Wrestle	49%
Takedown	48%
Push	22%
Pain	21%
Strike	10%
Hair Hold	1%

Weapon		
ECW	41%
Other	10%
Impact	6%
Canine	5%
OC	3%
Projectile	2%

Over the last nine years, officers have used 6,835 individual physical force tactics and weapons during 1,487 incidents.

The frequency of use for grabbing and take-downs was higher in 2021 than in any prior year, while other physical force tactics were used less frequently. In 2022 the use of physical force tactics returned to the rates seen prior to 2021.

ECW use has declined from 56% in 2014 to 41% in 2022. The use of canines rose from 3% in 2014 to 15% in 2018 before falling to 1.7% in 2021. In 2022 canine use was 5% of all force incidents. OC use has fallen from a high of 10% in 2015 to 3.3% in 2022.
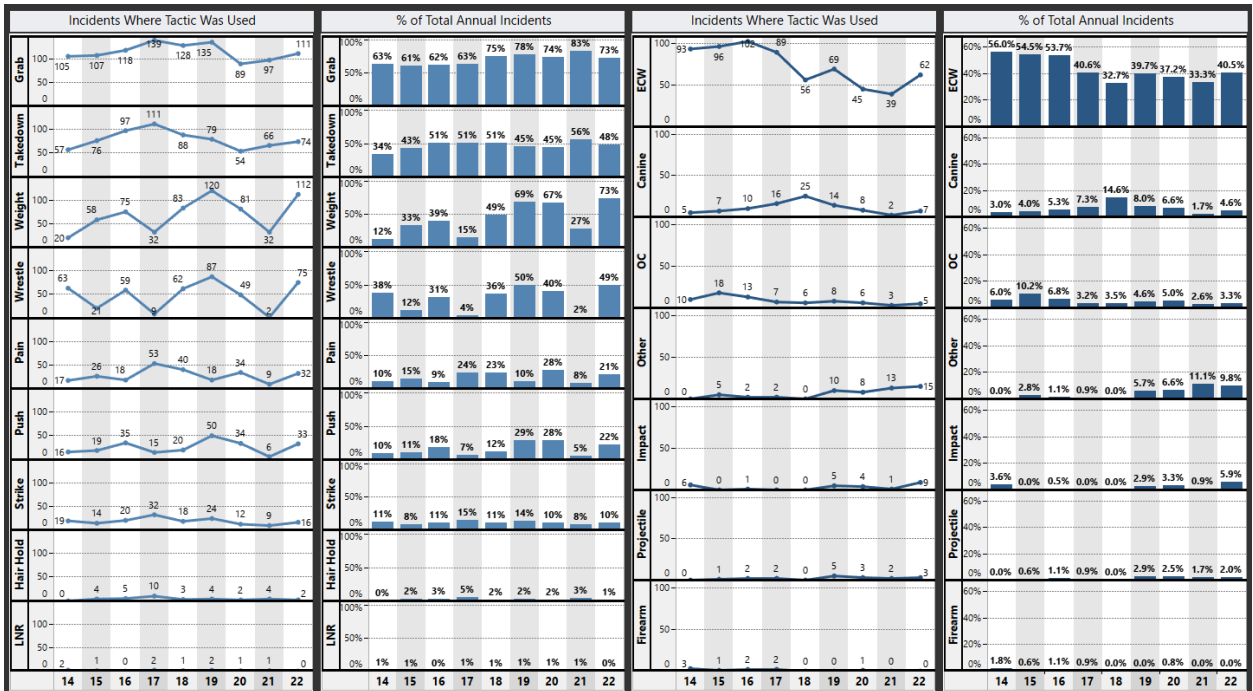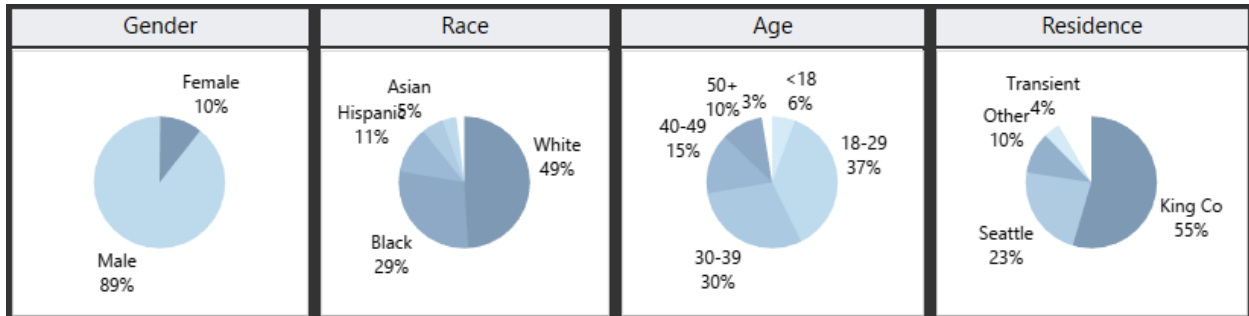
Subjects

Between 2014 and 2021, there were three demographic groups (gender, race, and age) that made up more than 60% of all use of force subjects. Adult White males made up 43% of all force subjects, while Black males between 18 and 39 made up 18% of all subjects. In 2022, these three demographic groups made up 51% of use of force subjects.

Most Common Characteristics of Use of Force Subjects 2014 - 2020				
Gender	**Race**	**Age**	**Number of Subjects**	**Percentage of Force Incidents**
Male	White	18-39	381	29%
Male	Black	18-39	241	18%
Male	White	40+	182	14%
All Other Demographic Groups or Unknown			530	39%

Most Common Characteristics of Use of Force Subjects 2022				
Gender	**Race**	**Age**	**Number of Subjects**	**Percentage of Force Incidents**
Male	White	18-39	38	25%
Male	Black	18-39	24	16%
Male	White	40+	16	10%
All Other Demographic Groups or Unknown			75	49%

In 2022, Female and Hispanic and transient subjects and subjects between 30 and 39 were more likely to be involved in a force incident than in prior years while Black, 18-29, and King County resident subjects were less likely.

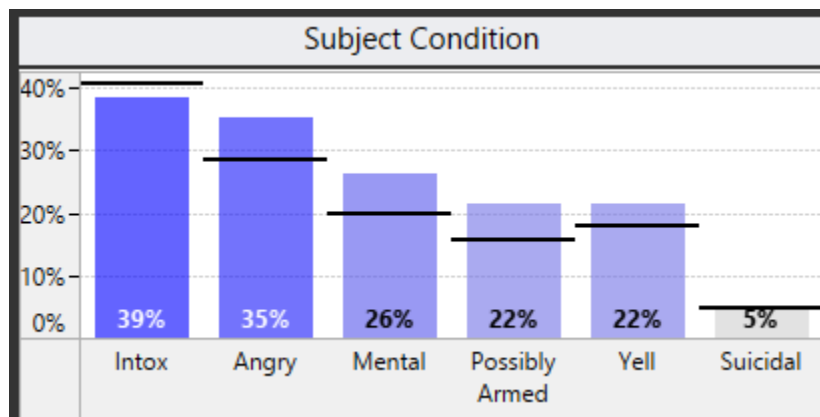**Use of Force Subject Characteristics - 2014 to 2021**

**Use of Force Subject Characteristics - 2022**
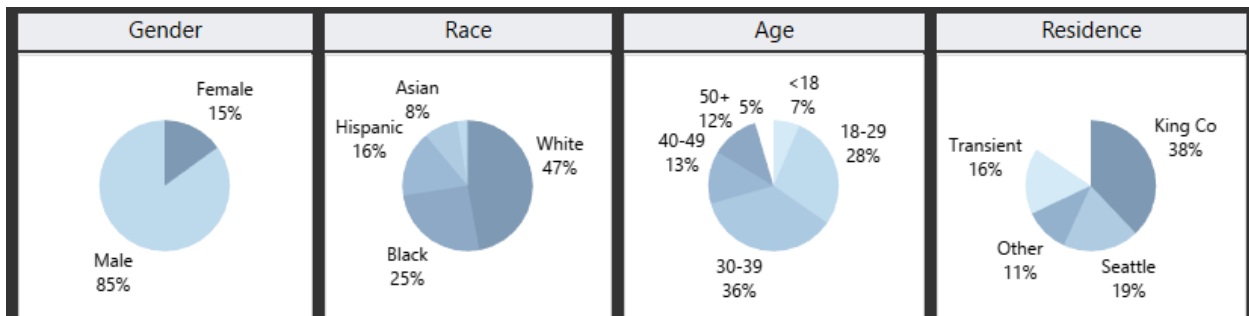
Compared to prior years, use of force subjects in 2022 were more likely to be angry, have a mental health problem, possibly be armed, and yelling.

Subject Condition in 2022

In 2022, officers were more likely to face resistance with deadly force (7% vs 5%) or resistance with a less lethal weapon (6% vs 3%), and were less likely to encounter defensive resistance (50% vs 57%) than in prior years.

Subject Maximum Resistance Level - 2022
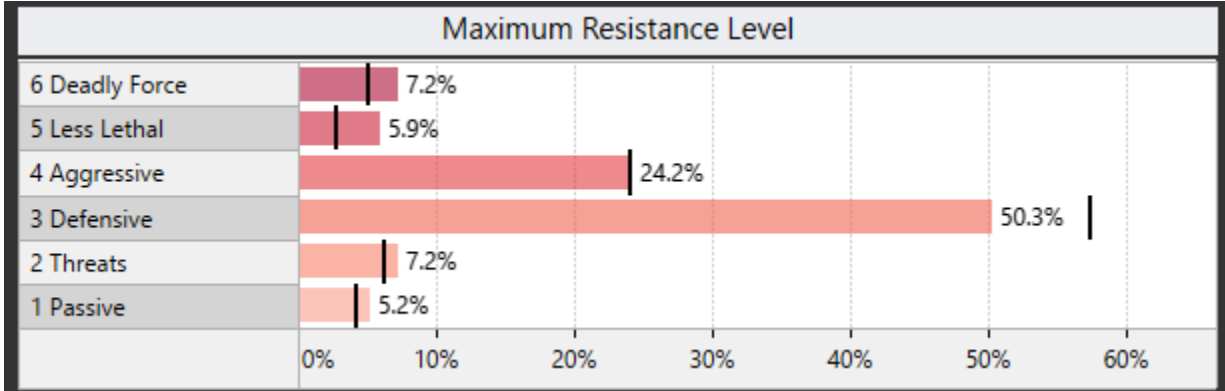
In 2022, subjects were more likely to make furtive or threatening movements towards the officers (46% vs 27%), or threaten officers with deadly weapons (11% vs 5%), than in prior years.

Subject Maximum Threat Level - 2022
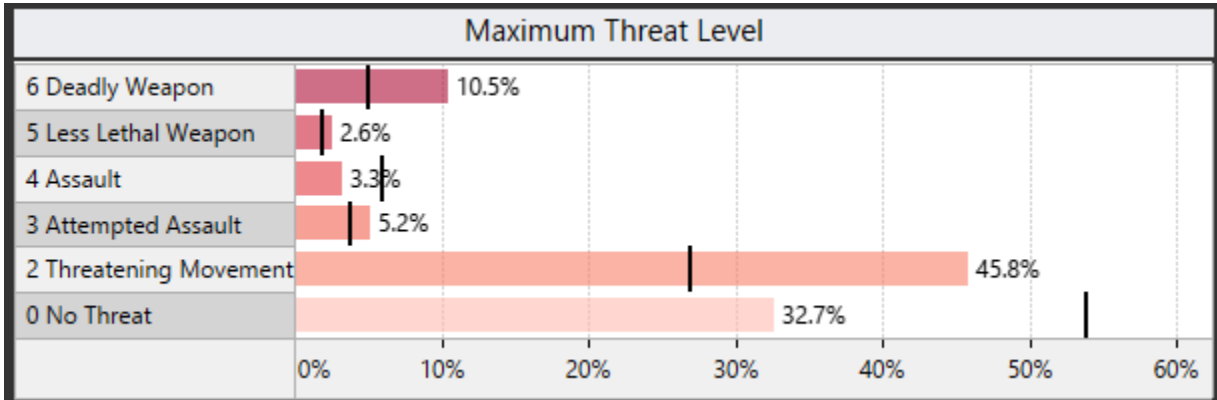
7) Injuries

In 2022, there were 30 officers who were injured during 290 uses of force. Six officers were injured twice during the year. Ten percent of force applications by officers resulted in an injury to the officer who used force. Six officers complained of pain only. Thirteen officers received a bruise or scrape, eight officers had a minor cut, two officers were contaminated with bodily fluid, and one officer suffered a fracture or broken tooth. One in four injured officers received medical treatment from EMTs or at a hospital.

In 2022, 83 subjects who had force used against them were injured (54% of all incidents). Of the subjects who were injured, most of the injuries were minor. Seven subjects were bitten by canines and one subject had a fracture or broken tooth.

Ninety-seven percent of subjects who were injured, or complained of injury, received medical treatment. EMTs treated 80% of injured subjects and 17% were treated at a hospital.

8) Trends

Over the nine year period from 2014 to 2022, the following force trends were observed:

- The year with the lowest average Force Justification score was 2015 (8.9) and the highest score was in 2019 and 2022 (11.4).

- The average annual Force Factor Scores fell from 1.2 in 2014 to 0.5 in 2020 before rising to 0.7 in 2021. In 2022 it was 0.6.

- The average number of Force Sequence was very high between 2018 and 2020 at 5.3 Force Sequences. In 2021, the average number of Force Sequences dropped to 2.6, the lowest level in nine years, before rising back up to 5.5 Force Sequences in 2022.

- Use of force incidents that started with an officer-initiated contact dropped from 28% in 2015 to 5% in 2021, before rising to 15% in 2022.

- The percentage of female subjects averaged 11% over the last nine years. In 2021, it jumped to 17%, and in 2022 fell to 15%.

- The percentage of most racial groups remained stable during the last nine years, but the percentage of Hispanic subjects rose from 1.7% in 2015 to 16% in 2022.

- The percentage of juvenile subjects reached a high in 2018 at 8% before falling to 1% in 2021. In 2022, 7% of use of force incidents involved juveniles.

- Since 2017 the percentage of subjects who were possibly armed rose from 8% to 22% in 2022.

- In 2022, 14% of use of force subjects were charged with auto theft, which is higher than any prior year.

- More subjects possessed a firearm (7%) in 2022 than in prior years, and a higher percentage possessed a knife (12%).

- In recent years, a smaller percentage of force incidents were the result of an officer-initiated stop (10%), and a much higher percentage of force incidents involve officers who were responding to assist other officers (40%). In 2015, 28% of officers who used force made an officer initiated stop, and by 2021 that percentage fell to 5% before rising to 15% in 2022.

- Since 2017, officers were more likely to resolve a force incident with physical force only. From 2014 to 2016, about two-thirds of all force incidents involved the use of a weapon by officers. Over the last two years, about 57% of incidents have involved the use of a weapon.
- Subject injury rates have fallen from 85% in 2016 to 54% in 2022, and the average injury severity was lower in 2022 than any prior year. Between 2016 and 2022, officer injury rates declined from 17% to 10%.