Use of Force Outcomes Assessment

The Consent Decree Monitoring Team's preliminary analysis of Baltimore Police Department ("BPD") use of force data from 2018 and 2019

Prepared by The Crime and Justice Institute for the Baltimore Police Department Monitoring Team

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SUMMARY OF FINDINGS

The Monitoring Team's preliminary analysis of Baltimore Police Department ("BPD") use of force data from 2018 and 2019 offers a baseline assessment with respect to use of force issues under Paragraph 459(d)(i) of the Consent Decree. The major findings of this outcome assessment of use of force indicate that, among other things:

- **BPD applied force less often in 2019 than 2018, declining by 15.5 percent in 2019.**

- **The majority of uses of force is Level 1 - 76.1 percent of all incidents in 2018 and 70.5 percent in 2019.**

- **BPD officers identified "suspect resistance" as the most common reason for using force.**

- **Use of force incidents occurred relatively evenly across BPD's districts and in 2019 location of a use of force incident was associated with the seriousness of the force used, meaning that more serious force was more likely to be used in certain districts as opposed to others.**

- **Approximately three-quarters of arrests in a use of force incident did not involve violent crime charges and nearly 20 percent of arrests in a use of force incident involved incident-related charges.**

- **Male subjects appear to experience higher levels of force than female subjects; however, level of force does not significantly differ by age, race, or ethnicity.**

- **Excluding cases where behavioral health indicators were unknown or missing, approximately 20 percent of use of force incidents involved a subject exhibiting signs of mental illness or behavioral crisis, with another approximately 20 percent exhibiting signs of being under the influence of drugs or alcohol.**

- **Male officers engage in more serious uses of force than female officers, but level of force does not significantly differ by officer age, race, or ethnicity.**

These findings, by themselves, do not establish whether the force that BPD used was lawful, justified under BPD policies in effect at the time of the incident, or consistent with the Consent Decree's requirements. Instead, they provide an overall picture of how and when officers used force over time and across incidents.

Additionally, these findings will help inform a detailed, structured Monitoring Team audit that will examine officer use of force in light of legal and Consent Decree requirements. That audit is currently underway.

These findings also will inform which additional data BPD will need to collect moving forward in order to enable the Monitoring Team (and BPD itself) to generate a more comprehensive, rigorous evaluation of how the Department uses force, particularly with respect to potential variations across police district, subject characteristics, and officer characteristics.

However, although BPD will need to continue to address the quality and comprehensiveness of aggregate data on use of force and although the data, by themselves, do not establish anything definitive about the Department's performance, the data and analysis are sufficient for purposes of paragraph 459(d) to establish baselines against which BPD's future performance can be compared.

OVERVIEW

On April 7, 2017 the City of Baltimore, the Baltimore Police Department ("BPD") and the U.S. Department of Justice ("DOJ") entered into a Consent Decree pursuant to DOJ's findings that the BPD had engaged in a pattern or practice of conduct that violated the United States Constitution when engaging with members of the public.

Section XIX ("Agreement Implementation and Enforcement") of the Consent Decree, subsection D ("Outcome Assessments"), explains that the purpose of outcome assessments is to measure whether BPD's revised practices and procedures are having an overall beneficial effect on policing in Baltimore. Paragraphs 459(a)-(n) specify a number of distinct outcome assessments geared toward tracking BPD's progress under the Consent Decree.

This report involves a baseline exploration of use of force incidents in Baltimore. To assess use of force, Paragraph 459(d)(i) requires:

> *Analysis of use of force incidents, broken down by reportable force type, district, type of arrest; race, ethnicity, age, and gender of the subject; and, if indicated at the time force was used, the subject's perceived mental health or medical condition, use of drugs or alcohol, or the presence of a disability.*

The present evaluation focuses on use of force ("UOF") incidents that occurred during 2018 and 2019. Per 459(d)(i), this outcome assessment seeks to assess whether the level of force used during a use of force incident is associated with:

- Police district,
- Type of arrest,
- Subject demographics (race/ethnicity, age, and gender),

- Subject perceived behavioral health indicators (mental health status and use of drugs or alcohol), and
- Officer demographics (race/ethnicity, age, and gender).

Based on the structure of the BPD force database system, and the nature of BPD's force policies, we analyze and report data here on the *incident level* – or all of the actions and force that transpired in an overall police encounter with a subject. In any given incident involving a subject, multiple officers might apply force or that a single officer might apply several different types of force. For instance, a sequence of events in which an officer applied a controlled electronic weapon ("CEW") and a soft takedown to the same subject is considered and analyzed here as one incident.

BPD provided data on UOF incidents to the Crime and Justice Institute ("CJI") for this analysis in three separate data files. These files represent extracted information present in BPD's IAPro system:

- **The Incident File.** The Incident file (N=2,870) offers information about the location, light, and weather conditions at the time of the incident, the level and reason for use of force, whether an arrest occurred, the demeanor of the subject(s) involved (i.e., mental health crisis, under the influence, aggression), and whether injuries were sustained by the subject(s) or the officer(s).[1]

- **The Officer File.** The Officer file (N=9,848) provides demographic information about officer(s) involved in the use of force incident, whether there is footage of the incident captured on body worn camera video, type of force used, whether force was effective, and whether officers were injured during the incident.[2]

- **The Subject File.** The Subject file (N=4,190) provides information about the demographics of the person(s) involved in use of force incidents, whether the subject or officer reported that the subject was experiencing a crisis, whether the subject was injured, whether the subject was armed, and the type of arrest charges incurred.[3]

[1] We excluded 57 observations from the Incident file that were coded as "accidental Taser discharges" and 14 observations where two different levels of force were used. In cases where two levels of force were used, the higher level of force is retained for analysis.

[2] We excluded 2,924 observations from the Officer file because the officer was coded as a "witness" to the incident rather than an active participant. We also excluded 983 observations where the officer role was "officer" but the type of force they used was coded as "NA." Guidance from BPD indicated these were officers that were present at the scene but were not involved in the actual use of force.

[3] We excluded 1,283 observations from the Subject file because these individuals were not directly involved in uses of force and were coded as "NA," "Other Police Agency," "Witness," "Victim," "Owner," or "Passenger." An additional two observations were excluded from this file because there was not corresponding information about the incident in the Incident file.

Appendix A provides a listing of the variables that BPD captures and that are relevant to this outcome assessment; a description of the variable; and the proportion of observations with missing information. The extent of missing data for some variables is high enough such that those variables are not useful for this analysis of 2018 and 2019. However, should data completeness improve, they can be useful in future analyses.

We appended information on the police district in which each incident occurred to the data provided by BPD. Addresses in the Incident file were geocoded using ArcGIS software to determine the police district in which the use of force incident occurred. Approximately 6 percent of the incidents lacked adequate address information. We provided BPD with the identifiers for the unmatched incidents and BPD personnel were able to match district information based on additional information they had at their disposal. No UOF incidents were excluded from the analysis because of missing district information.

It must be noted here that a large proportion of the data that BPD collected on use of force in 2018 and 2019 was collected prior to new use of force policies being approved by the Court. Accordingly, as this report describes in various instances, the specific data fields and classifications that BPD uses may not always be the way that BPD will collect or classify data going forward. Nevertheless, to establish a working baseline from which the Department's progress might be gauged over time, the Monitoring Team attempts to work with the data as collected and provided.

Two evaluative methods are used to assess use of force incidents by the dimensions listed above: descriptive statistics and inferential statistics. Descriptive statistics give information about the basic features of the use of force incidents, summarizing the use of force incident and the officers and subjects involved. While descriptive statistics offer some information about trends in use of force, we use inferential statistics to understand whether there are significant associations between level of force used by district, type of arrest, and person demographics. Inferential statistics estimate the extent to which relationships between variables are strong enough that they are unlikely to be due to chance. We use a 95 percent confidence threshold, which, if achieved, signifies that the likelihood of the relationship between variables due to chance is 5 percent or less. Since Level 3 uses of force are rare, we exclude these cases from the analysis and focus on the likelihood of an incident resulting in a Level 2 use of force compared to a Level 1 use of force. The analyses in this assessment present descriptive statistics and inferential statistics by the dimensions listed above.

These data only allow comparisons of UOF incidents, subjects, and officers among encounters involving UOF; therefore, these data are not able to provide information about how the subjects and officers involved in UOF incidents may compare to subjects and officers involved in police encounters that do not result in uses of force. Such comparisons can be made once BPD has

developed a reliable method for documenting all police encounters within a digitized records management system.

USE OF FORCE BY LEVEL AND TYPE

BPD applied force less often in 2019 than 2018. A total of 1,525 UOF incidents occurred in 2018 and 1,288 in 2019 (Table 1). The large majority of these incidents involved one subject (90.1 percent), with an average of 1.14 subjects involved per incident. There were 237 fewer use of force incidents in 2019 than in 2018, a 15.5 percent decrease.

BPD, per the Consent Decree, classifies UOF incidents into three levels:

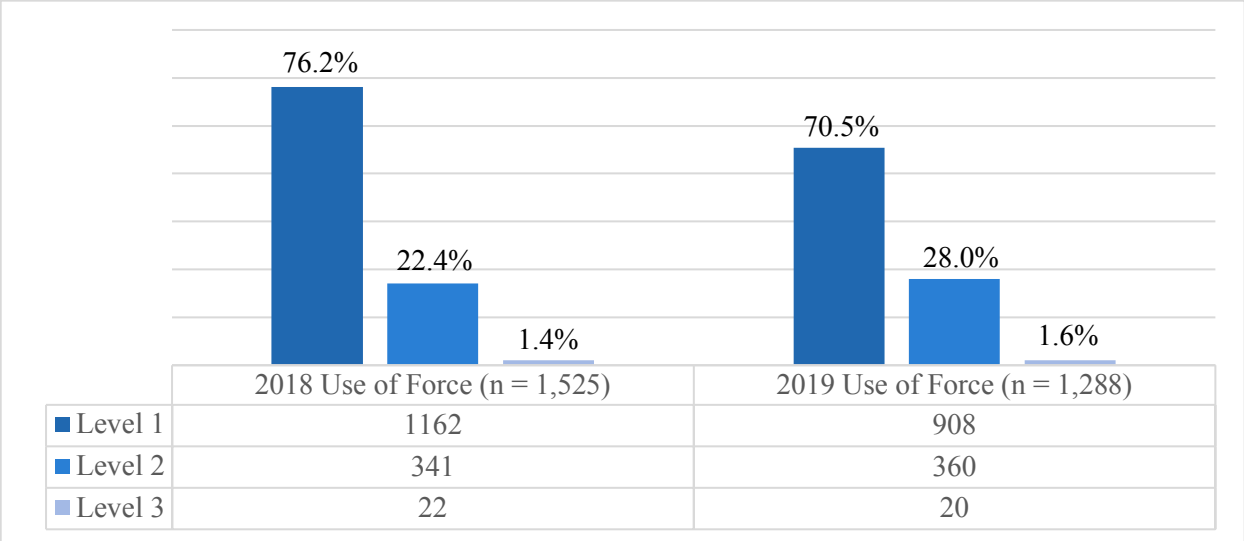
- **Level 1** is the lowest level of force. It is not reasonably expected to cause injury, and can involve temporary bodily force to gain compliance, pointing a weapon at a subject, displaying the arc of a conducted electrical weapon ("CEW" or Taser) as a warning, or forcible takedowns that do not result in injury.
- **Level 2** is the intermediate level of force. It could reasonably cause injury and can involve discharge of a CEW, use of chemical agents like OC spray, bodily force including fist strikes and kicks, canine-inflicted injuries, or discharge of a less-lethal launcher in the direction of a subject.
- **Level 3** is the highest level of force. It can involve strikes to vital areas with impact weapons, firearm discharges, multiple or longer durations of CEW use, and use of deadly force.[4]

A force incident is classified according to the most-serious level of force used during the encounter with the subject. For instance, in an incident where an officer discharged a CEW (Level 2 force) and used a soft takedown (Level 1 force), the overall incident would be classified as Level 2 force. In other words, the incident is classified per the highest level of force that was applied to a subject during the incident.

The majority of uses of force is Level 1 (76.1 percent of all incidents in 2018 and 70.5 percent in 2019, see Figure 1). Level 2 accounted for 22.4 percent in 2018 and 28.0 percent in 2019. While Level 1 uses of force declined from 2018 to 2019, Level 2 uses of force increased by 19 incidents from 341 incidents in 2018 to 360 incidents in 2019. Level 3 uses of force are comparatively infrequent, with 42 of these most serious incidents across the two years. Intermediate-level (Level 2) force accounted for a greater proportion of force used in 2019 than 2018, with less-significant (Level 1) and more-significant (Level 3) force less frequently employed in 2019 than 2018.

[4] https://www.baltimorepolice.org/transparency/understanding-use-of-force

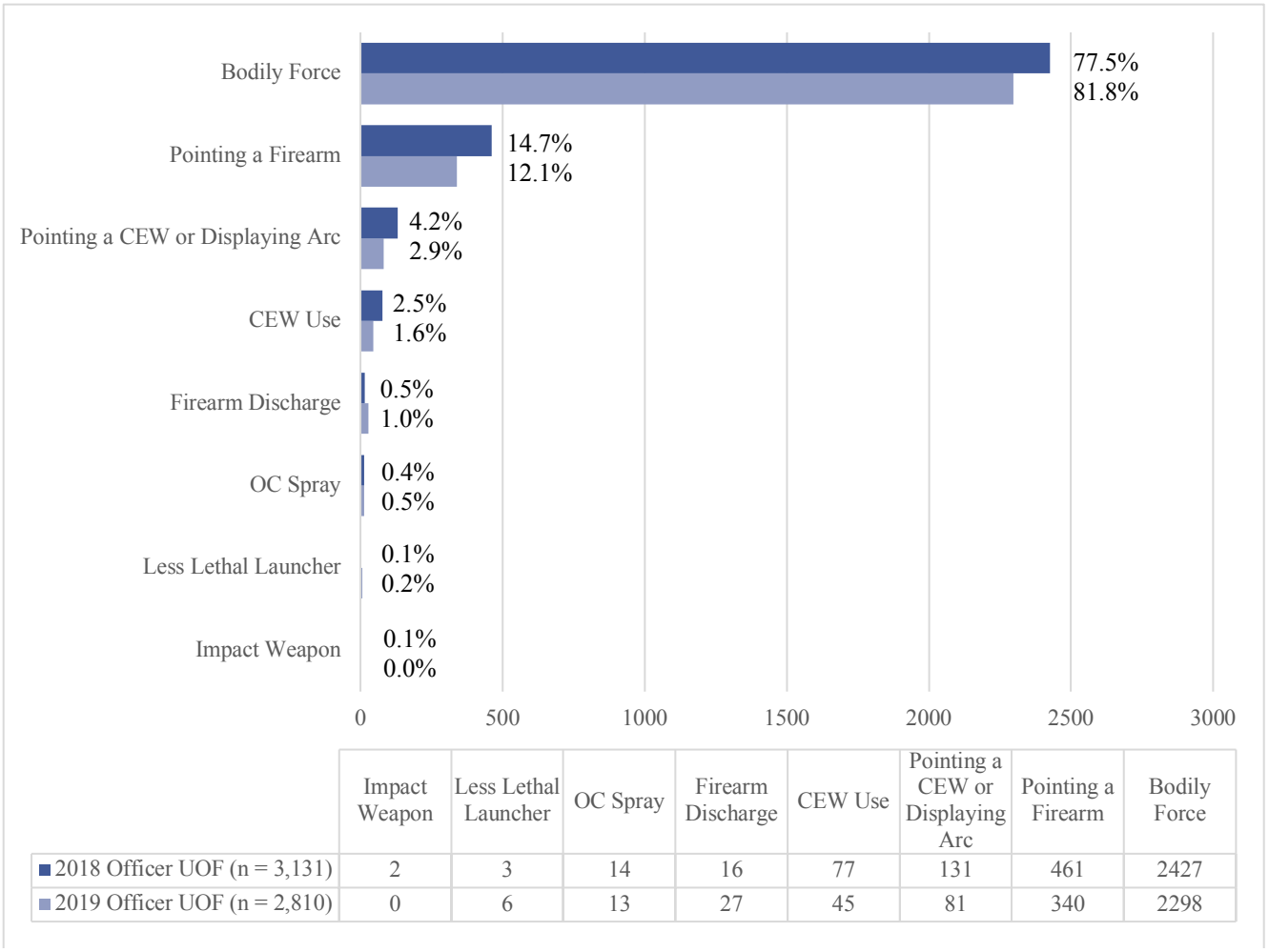
Figure 1. Use of Force by Level, 2018 and 2019.



	2018 Use of Force (n = 1,525)	2019 Use of Force (n = 1,288)
Level 1	1162	908
Level 2	341	360
Level 3	22	20

Bodily force is the most common type of force used by officers (77.5 percent of officers in 2018 and 81.8 percent in 2019, see Figure 2). Pointing a firearm, while relatively infrequent, is the second most used type of force, with 461 officers reporting pointing their firearm in 2018 and 340 doing so in 2019. Pointing or using a CEW are less common than pointing a firearm, with firearm discharges and less lethal force (OC Spray, less lethal launchers, and impact weapons) the least likely type of force used by officers.

Figure 2. Use of Force by Type, 2018 and 2019.



	Impact Weapon	Less Lethal Launcher	OC Spray	Firearm Discharge	CEW Use	Pointing a CEW or Displaying Arc	Pointing a Firearm	Bodily Force
2018 Officer UOF (n = 3,131)	2	3	14	16	77	131	461	2427
2019 Officer UOF (n = 2,810)	0	6	13	27	45	81	340	2298

Notes:
The unit of analysis is by officer. Percentages represent the share of officers in that year that engaged in each type of force, with the numerator being the number of officers engaged in each type of force and the denominator being the total number of officers who used force in each year.
CEW refers to a conducted electrical weapon or "taser."
OC spray is a chemical agent - oleoresin capsicum spray - more commonly known as pepper spray.
Less lethal launchers or munitions are a delivery tool for munitions such as bean bags or pepper ball rounds.
Impact weapons are items such a batons.

BPD officers identified "suspect resistance" as the most common reason for using force. Table 1 provides a breakdown for each year of the total use of force incidents by reason and by level of force. Officers documented "suspect resistance" as the most frequent reason for use of force in both years, representing over half of UOF incidents. "Defense of self" was the reason provided for force in approximately 12 percent of force incidents in both years, and "defense of others" was the reason in between 7 and 8 percent of force incidents in both years.

Table 1 presents BPD's categories for use of force reasons as mutually exclusive since the provided data do not offer multiple categories as reasons for each incident. However, "suspect resistance" may also signify "defense of self" which could also signify "gain tactical advantage" as overlapping reasons for use of force and thus it is likely that more than one category could apply to any given incident.

In about one out of five (20 percent) incidents, officers indicated that the reason for force was to "gain tactical advantage." The Monitoring Team is uncertain as to what precisely it means for an officer to apply force for the objective of obtaining tactical superiority. As a general matter, and under the Consent Decree, force may be used only when necessary given the threat posed by a subject to officers or others – not merely when the application of force would be convenient to more quickly resolve an encounter or inspire a noncompliant, nonthreatening subject to submit to officer commands. The Monitoring Team is currently in the process of conducting in-depth audits of use of force incidents, and this review will likely serve as an occasion to understand more about cases where a "tactical advantage" has been marked as the reason for force, as well as additional information about how each of the reasons for use of force are prioritized and documented..

Table 1. Use of Force by Level and Reason, 2018 and 2019.

	Level 1		**Level 2**		**Level 3**		**Total**	
Reason for Use of Force	**2018**	**2019**	**2018**	**2019**	**2018**	**2019**	**2018**	**2019**
Suspect Resistance	631 (54.3)	497 (54.7)	195 (57.2)	237 (65.8)	5 (22.7)	5 (25.0)	**831 (54.5)**	**739 (57.4)**
Gain Tactical Advantage	278 (23.9)	203 (22.4)	32 (9.2)	36 (10.0)	1 (4.5)	0 (0.0)	**311 (20.4)**	**239 (18.6)**
Defense of Self	133 (11.4)	111 (12.2)	47 (13.8)	39 (10.8)	12 (54.5)	9 (45.0)	**192 (12.6)**	**159 (12.3)**
Defense of Others	77 (6.6)	61 (6.7)	36 (10.6)	25 (6.9)	1 (4.5)	4 (20.0)	**114 (7.5)**	**90 (7.0)**
Protect Property	2 (0.2)	5 (0.6)	2 (0.6)	0 (0.0)	1 (4.5)	0 (0.0)	**5 (0.3)**	**5 (0.4)**
Missing	41 (3.5)	31 (3.4)	29 (8.5)	23 (6.4)	2 (9.1)	2 (10.0)	**72 (4.7)**	**56 (4.3)**
Total	**1162 (100.0)**	**908 (100.0)**	**341 (100.0)**	**360 (100.0)**	**22 (100.0)**	**20 (100.0)**	**1525 (100.0)**	**1288 (100.0)**

Notes:
Percentages in parentheses.
The categories for reason for use of force are presented in the table as they are represented in the BPD data.

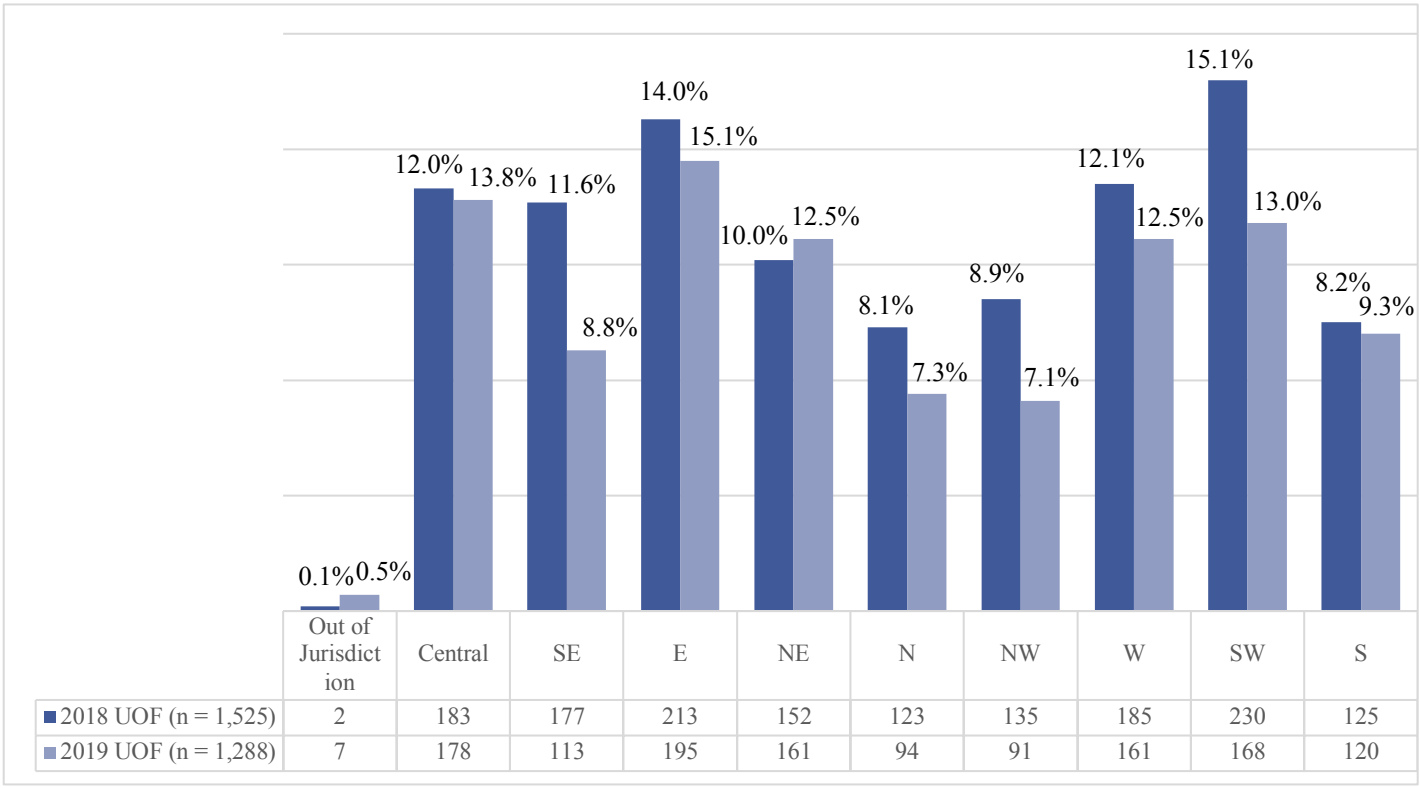
USE OF FORCE BY DISTRICT

Use of force incidents occurred relatively evenly across BPD's districts. Figure 3 provides a breakdown of incidents by district and year. Uses of force were fairly evenly spread across districts

for both years; however, Eastern and Southwestern districts had the largest proportions in 2018 (14.0 percent and 15.1 percent, respectively) and Eastern and Central districts had the largest proportions in 2019 (15.1 percent and 13.8 percent, respectively). Figures C1, C2, and C3 in Appendix C show the geographic distribution of UOF incidents for each level of force for 2018 and 2019.

In 2019, unlike in 2018, the location of a use of force incident was associated with the seriousness of the force used. For use of force incidents occurring in 2018, we did not identify a statistically significant relationship between police district and the level of force used. However, there is a significant relationship between police district and level of force used for incidents that occurred in 2019. Table 2 summarizes the statistics for the bivariate comparison, indicating significance when estimating whether police district is associated with more serious uses of force.

Figure 3. Use of Force Incidents by District, 2018 and 2019.



	Out of Jurisdiction	Central	SE	E	NE	N	NW	W	SW	S
2018 UOF (n = 1,525)	2	183	177	213	152	123	135	185	230	125
2019 UOF (n = 1,288)	7	178	113	195	161	94	91	161	168	120

Table 2. Relationship Between Level of Force and Police District, 2018 and 2019.

	2018 Use of Force	2019 Use of Force	2018 and 2019 Use of Force
Pearson Chi-Square	10.9043	16.4271*	8.3251

p < .05* p < .01** p < .001***
Notes:
Pearson's Chi-Square is calculated for each variable compared to level of force, measured as Level 1 or Level 2 use of force.
The test statistic identifies whether there is statistically significant association between level of force and police district.
Statistically significant findings are noted in the table as (*) based on the significance threshold achieved.

A logistic regression model helps to further understand the relationship found in 2019 between police district and level of force. Logistic regression determines the probability of a certain event occurring based on one or more predictors. In this analysis, the predictor is the police district and the outcome of interest (whether the use of force incident is a Level 2) is coded as one (1) if a Level 2 use of force occurred and zero (0) if the incident was a Level 1 use of force. Estimates are reported using odds ratios and predicted probabilities to develop a specific understanding of the estimated differences in use of force by police district. The odds ratio is defined as the odds of a Level 2 use of force in a given district over the odds of a Level 2 use of force in Central District. Central District is used as the reference category for this relationship for ease of interpretation. Predicted probabilities indicate the percent probability that a use of force encounter will be a Level 2 use of force rather than a Level 1 use of force in each police district.

Table 3 presents the regression results and predicted probabilities for level of force by police district. For 2019 uses of force, the model confirms that there is a statistically significant relationship between district and level of force for incidents. The predicted probability of a Level 2 use of force as compared to a Level 1 use of force is highest in Northwestern and Northeastern Districts (37.8 percent and 37.5 percent, respectively). Southern District has the lowest predicted probability with only a 20.7 percent likelihood of experiencing a Level 2 incident as compared to a Level 1 incident. There is not a statistically significant relationship between district and level of force in 2018 or when data for both years is combined. The Monitoring Team will use this information to scrutinize more closely Level 2 UOF by district during the compliance review process.

Table 3. Logistic Regression and Predicted Probabilities for Level of Force by District, 2018 and 2019.

	2018 Use of Force		2019 Use of Force		2018 and 2019 Use of Force	
District	**Odds Ratio (95% CI)**	**Predicted Probability**	**Odds Ratio (95% CI)**	**Predicted Probability**	**Odds Ratio (95% CI)**	**Predicted Probability**
Central	--	24.3%	--	26.9%	--	25.6%
Southeastern	0.784 (0.474 – 1.296)	20.1%	0.823 (0.474 – 1.429)	23.2%	0.789 (0.545 – 1.143)	21.3%
Eastern	0.942 (0.591 – 1.501)	23.2%	0.939 (0.591 – 1.493)	25.6%	0.939 (0.676 – 1.304)	24.4%
Northeastern	0.913 (0.547 – 1.522)	22.7%	1.634* (1.029 – 2.596)	37.5%	1.267 (0.902 – 1.780)	30.3%
Northern	1.168 (0.691 – 1.973)	27.3%	1.057 (0.602 – 1.856)	28.0%	1.108 (0.756 – 1.626)	27.6%
Northwestern	0.487* (0.267 – 0.890)	13.5%	1.653 (0.962 – 2.842)	37.8%	0.886 (0.599 – 1.309)	23.3%
Western	1.061 (0.659 – 1.709)	25.4%	1.036 (0.638 – 1.683)	27.6%	1.045 (0.744 – 1.468)	26.4%
Southwestern	0.840 (0.527 – 1.338)	21.2%	1.160 (0.723 – 1.862)	29.9%	0.964 (0.693 – 1.342)	24.9%
Southern	1.129 (0.669 – 1.906)	26.6%	0.710 (0.406 – 1.244)	20.7%	0.907 (0.620 – 1.328)	23.8%
Likelihood Ratio Chi-Square	11.57		16.19*		8.26	
Number of Incidents	1,501		1,261		2,762	

p < .05* p < .01** p < .001***

Notes:

Central district is the reference category in the logistic regression model.

Odds ratios are reported with 95% confidence intervals in parentheses.

Analysis excludes 9 incidents that occurred out of jurisdiction and 42 incidents that were categorized as Level 3 uses of force.

Statistically significant findings are noted in the table as (*) based on the significance threshold achieved.

USE OF FORCE AND ARREST

Approximately three-quarters of arrests in a use of force incident did not involve violent crime charges and nearly 20 percent of arrests in a use of force incident involved incident-related charges. Table 4 provides the total number and percentage of use of force incidents that resulted in at least one arrest. Overall, approximately two-thirds of use of force incidents resulted in at least one arrest. In 2018, 68.1 percent of use of force incidents resulted in an arrest with a similar proportion for 2019 (64.4 percent). A greater proportion of Level 2 uses of force result in an arrest as compared to Level 1 uses of force. In 2018, 79.2 percent of Level 2 uses of force resulted in arrest as compared to 65.5 percent of Level 1 uses of force. Incidents in 2019 follow a

similar pattern.[5] Level 3 uses of force have the lowest proportion, with just 31.8 and 20.0 percent of incidents resulting in arrest for 2018 and 2019, respectively.[6]

To measure UOF by type of arrest, we categorize arrests in use of force incidents based on whether the underlying criminal charge is for a violent crime, with an additional assessment of whether the arrest includes charges related to the UOF incident itself (i.e., assault on police, resisting arrest, or disorderly conduct). Among arrests in use of force incidents in 2018, 23.8 percent included charges for violent crimes and 19.4 percent involved charges related to the police encounter itself. Arrests in 2019 followed similar patterns, with 27.0 percent of arrests involving charges for violent crime and 19.3 percent involving charges related to the incident (Table 5).

The Monitoring Team observes here that the fact that arrests resulting from or otherwise related to a use of force incident does not establish anything, in any particular direction, about whether the use of force was reasonable, necessary, or appropriate under the circumstances. The Monitoring Team will need to understand more about the factors leading to an officer's decision to use force when it conducts its structured assessment of use of force incidents.

Table 4. Use of Force Subject Arrests by Level of Force, 2018 and 2019.

Subject Arrest	2018 Use of Force				2019 Use of Force			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
No	401 (34.5)	71 (20.8)	15 (68.2)	487 (31.9)	359 (39.5)	83 (23.1)	16 (80.0)	458 (35.6)
Yes	761 (65.5)	270 (79.2)	7 (31.8)	1,038 (68.1)	549 (60.5)	277 (76.9)	4 (20.0)	830 (64.4)
Total	1,162 (100.0)	341 (100.0)	22 (100.0)	1,525 (100.0)	908 (100.0)	360 (100.0)	20 (100.0)	1,288 (100.0)

Notes:
Percentages in parentheses.
These totals represent the total number of incidents resulting in arrest and multiple subjects may have been arrested during any given use of force incident.

[5] The Consent Decree does not specify an analysis of whether an incident resulted in arrest and the level of force used. However, bivariate analysis indicates that there is a relationship between level of force (Level 1 or Level 2) and whether an arrest is made during the incident (for 2018, $X^2 = 22.931$, $p<0.001$; for 2019, $X^2 = 30.840$, $p<0.001$).
[6] Level 3 uses of force include accidental firearm discharges, animal shootings, fatal shootings, and missed discharges, all events not likely to involve arrest and contributes to lower arrest rates for Level 3 use of force incidents.

Table 5. Type of Charges Incurred Among Arrestees, 2018 and 2019.

	Violent Crime Charges		Incident-Related Charges	
	2018	2019	2018	2019
No	853 (76.2)	693 (73.0)	902 (80.6)	766 (80.7)
Yes	266 (23.8)	256 (27.0)	217 (19.4)	183 (19.3)
Total	1,119 (100.0)	949 (100.0)	1,119 (100.0)	949 (100.0)

Notes:
Percentages in parentheses.
Violent crime includes assault and "other violent" crime categories.
Incident-related charges are assault on police, resisting arrest, or disorderly conduct.
The unit of analysis is by person and multiple persons may be arrested per incident.
One person may incur a violent crime charge and an incident-related charge and be counted in both categories.

Among the total number of people arrested during a use of force incident, we find no significant differences in the type of arrest charges by level of force (see Appendix B for test statistics). We categorized arrested individuals into two groups, coded as one (1) if their arrest charges included assault or other violent crime and zero (0) if their arrest charges were not for a violent crime (e.g., controlled substance violation, burglary, motor vehicle theft). There are no significant differences in the type of arrest charges by level of force, with approximately one quarter of incidents for both levels of force involving charges for violent crime. Violent crimes were categorized as "assault" or "other violent crime". Incidents that include charges with a component of violence that were related to the encounter itself, such as resisting arrest or assault on police, were excluded from this categorization in order to assess the crime violation rather than assess the behavior during the police encounter.

USE OF FORCE BY SUBJECT DEMOGRAPHICS

Regarding subject demographics, male subjects appear to experience higher levels of force than female subjects; however, level of force does not significantly differ by age, race, or ethnicity. Tables 6, 9, and 10 provide descriptive statistics for the demographic information of subjects involved in use of force incidents. Most use of force subjects are male, Black, and under 30 years old.

Level of use of force appears to differ significantly by gender. There were too few incidents with transgender subjects to explore statistically; however, combining data for both years indicates that the level of force used during an incident is higher for male subjects than female subjects (Table 7). While the individual year models do not reach statistical significance, there is a clear pattern in males more likely to be engaged in Level 2 uses of force than females. Table 8 indicates that the predicted probability of males experiencing a Level 2 use of force compared to a Level 1 use of

force is consistently four to five percentage points higher than the likelihood of females experiencing a Level 2 use of force.

Table 6. Use of Force Subjects by Gender, 2018 and 2019.

Gender	2018 Use of Force	2019 Use of Force
Male	1,286 (82.7)	1,132 (83.9)
Female	259 (16.7)	210 (15.6)
Transgender	2 (0.1)	1 (0.1)
Unknown/Missing	8 (0.5)	8 (0.5)
Total	1,555 (100.0)	1,350 (100.0)

Note:
Percentages in parentheses.

Table 7. Relationship Between Level of Force and Gender, 2018 and 2019.

	2018 Use of Force	2019 Use of Force	2018 and 2019 Use of Force
Pearson Chi-Square	3.3318	1.3034	4.6982*

$p < .05$* $p < .01$** $p < .001$***
Notes:
Pearson's Chi-Square is calculated for each variable compared to level of force, measured as Level 1 or Level 2 use of force.
The test statistic identifies whether there is statistically significant association between level of force and each variable. Statistically significant findings are noted in the table as (*) based on the significance threshold achieved.

Table 9 indicates that most use of force incidents are with Black subjects, regardless of level of force. When testing whether race or ethnicity is significantly related to the level of force used during an incident, we find no statistically significant relationship (Appendix B). That is, Black subjects are not more likely than White or Hispanic/Latino subjects or subjects of other races to experience different levels of use of force.

Table 8. Logistic Regression and Predicted Probabilities for Subject Gender, 2018 and 2019.

	2018 Use of Force		2019 Use of Force		2018 and 2019 Use of Force	
	Odds Ratio (95% CI)	**Predicted Probability**	**Odds Ratio (95% CI)**	**Predicted Probability**	**Odds Ratio (95% CI)**	**Predicted Probability**
Male Subjects	--	22.2%	--	29.3%		25.5%
Female Subjects	0.722 (0.508 – 1.025)	17.1%	0.820 (0.584 – 1.153)	25.4%	0.765 (0.600 – 0.975)	20.8%
Likelihood Ratio Chi-Square	3.48		1.33		4.85*	
Number of Subjects	1,525		1,318		2,843	

p < .05* p < .01** p < .001***
Notes:
Male is the reference category in the logistic regression models.
Odds ratios are reported with 95% confidence intervals in parentheses.
Analysis excludes three subjects coded as transgender.
Statistically significant findings are noted in the table as (*) based on the significance threshold achieved.

Table 9. Use of Force Subjects by Race or Ethnicity and Level of Force, 2018 and 2019.

	2018 Use of Force				2019 Use of Force			
Race/Ethnicity	**Level 1**	**Level 2**	**Level 3**	**Total**	**Level 1**	**Level 2**	**Level 3**	**Total**
Black	1,048 (87.0)	284 (85.8)	18 (90.0)	1,350 (86.8)	808 (85.6)	328 (86.5)	21 (77.8)	1,157 (85.7)
White	74 (6.1)	26 (7.9)	0 (0.0)	100 (6.4)	77 (8.2)	25 (6.6)	1 (3.7)	103 (7.6)
Hispanic/Latino	18 (1.5)	4 (1.2)	0 (0.0)	22 (1.4)	15 (1.6)	4 (1.1)	0 (0.0)	19 (1.4)
Other	5 (0.4)	1 (0.3)	1 (5.0)	7 (0.5)	2 (0.2)	1 (0.3)	0 (0.0)	3 (0.2)
Unknown/Missing	59 (4.9)	16 (4.8)	1 (5.0)	76 (4.9)	42 (4.4)	21 (5.5)	5 (18.5)	68 (5.1)
Total	1,204 (100.0)	331 (100.0)	20 (100.0)	1,555 (100.0)	944 (100.0)	379 (100.0)	27 (100.0)	1,350 (100.0)

Notes:
Percentages are in parentheses.
Race and ethnicity are mutually exclusive categories for ease of comparison with officer demographics.
Subjects indicated as Hispanic/Latino may be of any race category.
Subjects indicated as "other" race are "American Indian," "Asian," and "East-Indian."

Table 10 details uses of force by subject age category. **Approximately ten percent of force incidents involve a subject under the age of 18. Nearly half of subjects are young adults**

between 18 and 29 years old. When measuring the association between age group and level of force, there is not a statistically significant relationship between level of force and age of subject involved in a use of force incident (Appendix B). This indicates that although a greater proportion of force incidents involve subjects between the ages of 18 and 29, they are not more or less likely to experience Level 2 or Level 1 uses of force than other age groups.

Table 10. Number of Use of Force Subjects by Age Category, 2018 and 2019.

	2018 Use of Force	2019 Use of Force
12 and under	14 (0.9)	4 (0.3)
13-17 years old	162 (10.4)	141 (10.4)
18-29 years old	754 (48.5)	620 (45.9)
30-39 years old	319 (20.5)	290 (21.5)
40-49 years old	114 (7.3)	116 (8.6)
50-59 years old	68 (4.4)	55 (4.1)
60 and older	23 (1.5)	16 (1.2)
Missing age	101 (6.5)	108 (8.0)

Note:
Percentages are in parentheses.
Age is calculated using subject date of birth and the date the use of force incident occurred.
Missing age values occur when subject date of birth is missing in the data. Age was also coded as missing if subject age was an extreme outlier - below zero, zero, or exceeded 100 years old.

USE OF FORCE BY BEHAVIORAL INDICATORS

Excluding cases where behavioral health indicators were unknown or missing, approximately 20 percent of use of force incidents involved a subject exhibiting signs of mental illness or behavioral crisis, with another approximately 20 percent exhibiting signs of being under the influence of drugs or alcohol. Table 11 provides information about whether the subject was experiencing a mental health crisis or under the influence of drugs or alcohol. This information is based on the investigating supervisor's assessment of the incident as documented within 72 hours.

Table 11 and Appendix A show that in nearly 40 percent of cases in 2018 and 2019, a subject's mental or behavioral health state was marked as "unknown." This high level of unknowns suggests

that BPD's 2018 and 2019 data on these behavioral health indicators are not reliable baseline years for future analyses and comparison.

These data also provide the investigating supervisor's assessment of the physical and mental characteristics of individuals involved in a given use of force incident. The data provided by BPD in the Incident and Subject files include information about the reporting officer's perceptions of the subject's physical appearance and mental state during the use of force incident. Bivariate analysis does not indicate that perceived physical ability (CIT_UOF_BUILD) is significantly related to level of force used (Appendix B).

Table 11. Use of Force Subject Behavioral Health Indicators, 2018 and 2019.

	2018 Use of Force	2019 Use of Force	Total Use of Force
Sober	424 (27.8)	425 (33.0)	849 (30.2)
Under the Influence	141 (9.2)	146 (11.3)	287 (10.2)
Mental Illness/Crisis	185 (12.1)	139 (10.8)	324 (11.5)
Unknown	639 (41.9)	453 (35.2)	1,092 (38.8)
NA - Missing	136 (8.9)	125 (9.7)	261 (9.3)
Total	1,525 (100.0)	1288 (100.0)	2813 (100.0)

Notes:
Percentages are in parentheses.
The unit of analysis is a use of force incident and this variable represents the general observation regarding whether subject(s) in the incident were sober, under the influence, or experiencing a mental illness or crisis.
Observations labeled "NA" are considered as missing.

The use of force Incident file includes a variable (CIT_INFL_ASSMT) for whether the subject was sober, under the influence of drugs or alcohol, or experiencing a mental illness or crisis (Table 11). Our ability to quantitatively measure whether subject demeanor is significantly related to higher levels of force is limited, as nearly half of the incidents are coded as "NA" or "Unknown" (9.3 percent and 38.8 percent, respectively). Table 12 indicates the proportions of use of force cases that are Level 1 or Level 2 uses of force for each behavioral health indicator. Based on the available data, it appears that incidents where officers indicate the subject was experiencing a mental illness or mental health crisis were less likely to be Level 2 uses of force than incidents where officers indicated the subject was under the influence of a substance or sober. In 2018, 17.6 percent of use of force incidents were Level 2 uses of force with subjects experiencing mental illness or crisis, as compared to 22.3 percent and 26.4 percent of incidents with subjects that were

sober or under the influence of a substance, respectively. There was a similar trend in the available data for 2019.

The use of force Incident file offers a few variables that provide context to the subject's behavior as perceived by officers, including CIT_CRISIS, CIT_BEHAVIOR, and CIT_VIOLENCE. The variables for the subject(s) behavior are too incomplete to offer an accurate assessment of whether level of force varies by subject behavior or demeanor. The majority of incidents are coded as "NA" for CIT_CRISIS (88.6 percent), CIT_BEHAVIOR (89.1 percent), and CIT_VIOLENCE (88.5 percent).

Table 12. Subject Behavioral Health Indicators by Level of Force, 2018 and 2019.

	2018 Use of Force			2019 Use of Force		
	Level 1	**Level 2**	**Total**	**Level 1**	**Level 2**	**Total**
Sober	324 (77.7)	93 (22.3)	417 (100.0)	295 (70.1)	126 (29.9)	421 (100.0)
Under the Influence	103 (73.6)	37 (26.4)	140 (100.0)	103 (71.0)	42 (29.0)	145 (100.0)
Mental Illness/Crisis	150 (82.4)	32 (17.6)	182 (100.0)	108 (78.3)	30 (21.7)	138 (100.0)
Unknown	484 (76.3)	150 (23.7)	634 (100.0)	317 (70.9)	130 (29.1)	447 (100.0)
NA - Missing	101 (77.7)	29 (22.31)	130 (100.0)	85 (72.7)	32 (27.4)	117 (100.0)

Notes:
The unit of analysis is a use of force incident and this variable represents the general observation regarding whether subject(s) in the incident were sober, under the influence, or experiencing a mental illness or crisis.
Observations labeled "NA" are considered as missing.
Percentages are in parentheses and represent row proportions for each behavioral health indicator by the level of force used in the incident excluding Level 3 use of force incidents.

The Subject file includes two variables related to whether the subject was in crisis at the time of the use of force incident. SELF_RPT_CRISIS indicates whether the subject self-reported they were in crisis and OFF_RPT_CRISIS indicates whether the officer reported the subject was in crisis. These variables also suffer from a large proportion of missing data, making it difficult to draw statistical conclusions (Appendix A). Table 13 provides information about the proportion of Level 2 uses of force for each category of self-reported or officer reported subject crisis. In 2018, 22.1 percent of subjects that did not self-report a crisis experienced a Level 2 use of force. For subjects who self-reported a crisis, 16.1 percent experienced a Level 2 use of force. While 2019 shows a higher percentage of Level 2 uses of force for those self-reporting a crisis (32.6), the degree of missing data for these variables makes it difficult to draw strong conclusions.

The provided data in the Incident file contain a variable describing the de-escalation techniques used by officers during the use of force (CIT_TECHNIQUES). This variable also includes information about whether at least one officer was trained in crisis intervention (CIT), if they used verbalization during the incident, and whether handcuffs were used. Unfortunately, this variable is also coded as "NA" for most incidents (87.1 percent) and thus cannot be used to quantitatively investigate whether these techniques are related to the levels of force used.

Table 13. Subject Experiences of Level 2 Uses of Force by Subject or Officer Reporting Crisis, 2018 and 2019.

	2018 Level 2 Use of Force		2019 Level 2 Use of Force	
	Self-Reported Crisis	**Officer Reported Subject in Crisis**	**Self-Reported Crisis**	**Officer Reported Subject in Crisis**
No	184 (22.1)	155 (21.1)	243 (27.4)	209 (27.0)
Yes	9 (16.1)	28 (20.4)	15 (32.6)	35 (26.5)
Unknown	36 (20.5)	46 (23.7)	45 (34.6)	58 (36.9)
NA	102 (21.7)	102 (21.8)	76 (29.3)	77 (29.6)

Notes:
The unit of analysis is a use of force subject and these variables represent the general observation regarding whether subject(s) in the incident self-reported they were in crisis or whether officers indicated the subject was in crisis.
Observations labeled "NA" are considered as missing.
Percentages are in parentheses and represent row proportions of Level 2 incidents within each crisis assertion. For example, where subjects self-reported crisis in 2018, 16.1 of the incidents were Level 2 uses of force.

USE OF FORCE BY OFFICER DEMOGRAPHICS

Male officers engage in more serious uses of force than female officers, but level of force does not significantly differ by officer age, race, or ethnicity. Table 14 shows that over 90 percent of officers involved in use of force are male and Table 15 indicates that there is a significant relationship between officer gender and level of force used during an incident. Male officers involved in use of force incidents in 2019 appear to be significantly more likely to engage in Level 2 uses of force as compared to female officers, but not in 2018 or when both years are combined.

Table 14. Officers Involved in Use of Force by Gender, 2018 and 2019.

Gender	2018 Use of Force	2019 Use of Force
Male	2,906 (92.8)	2,611 (92.9)
Female	217 (6.9)	191 (6.8)
Unknown/Missing	8 (0.3)	8 (0.3)
Total	3,131 (100.0)	2,810 (100.0)

Note:
Percentages are in parentheses.

Table 15. Relationship Between Level of Force and Officer Gender, 2018 and 2019.

	2018 Use of Force	2019 Use of Force	2018 and 2019 Use of Force
Pearson Chi-Square	0.0031	4.5605*	2.1987

p < .05* p < .01** p < .001***
Notes:
Pearson's Chi-Square is calculated for each variable compared to level of force, measured as Level 1 or Level 2 use of force.
The test statistic identifies whether there is statistically significant association between level of force and each variable. Statistically significant findings are noted in the table as (*) based on the significance threshold achieved.

Table 16 provides the odds ratios and predicted probabilities for a logistic regression estimating the relationship between officer gender and level of force used. The dependent variable is coded one (1) if the officer was involved in a Level 2 uses of force and zero (0) if they were involved in a Level 1 use of force. For 2019, the predicted probability of a male officer being involved with a Level 2 use of force is 32.0 percent as compared to 24.5 percent for female officers. Combining both years, male officers are more likely to engage in Level 2 uses of force, but the relationship is not statistically significant.

Table 16. Logistic Regression and Predicted Probabilities for Officer Gender, 2018 and 2019.

	2018 Use of Force	2019 Use of Force	2018 and 2019 Use of Force

	Odds Ratio (95% CI)	Predicted Probability	Odds Ratio (95% CI)	Predicted Probability	Odds Ratio (95% CI)	Predicted Probability
Male Officers	--	24.7%	--	32.0%	--	28.1%
Female Officers	1.009 (0.731 – 1.392)	24.9%	0.687* (0.486 – 0.971)	24.5%	0.8368 (0.661 – 1.059)	24.7%
Likelihood Ratio Chi-Square	0.00		4.76*		2.25	
Number of Officers	3,086		2,719		5,805	

p < .05* p < .01** p < .001***
Notes:
Male is the reference category in the logistic regression models.
Odds ratios are reported with 95% confidence intervals in parentheses.
Statistically significant findings are noted in the table as (*) based on the significance threshold achieved.

Table 17 indicates the race and ethnicity of officers involved in use of force incidents, by level of force. Among officers involved in the use of force for both 2018 and 2019, a little more than half are White, followed by Black officers, and Hispanic/Latino officers. The distribution of officer race and ethnicity does not vary significantly by level of force, and there is no statistically significant relationship between officer race/ethnicity and level of force used (Appendix B).

Officers involved in use of force had a mean age of 33.5 years old, and have been with the Baltimore Police Department for an average of approximately seven years. An investigation of officer age shows no statistically significant relationship with level of force used (Appendix B).

Table 17. Officers Involved in Use of Force by Race or Ethnicity and Level of Force, 2018 and 2019.

	2018 Use of Force				2019 Use of Force			
Race/Ethnicity	**Level 1**	**Level 2**	**Level 3**	**Total**	**Level 1**	**Level 2**	**Level 3**	**Total**

Black	666 (28.6)	240 (31.4)	8 (32.0)	914 (29.3)	572 (30.6)	244 (28.5)	23 (30.7)	839 (29.9)
White	1338 (57.4)	420 (54.9)	11 (44.0)	1769 (56.7)	975 (52.1)	471 (55.0)	44 (58.7)	1490 (53.2)
Hispanic/Latino	239 (10.3)	71 (9.3)	5 (20.0)	315 (10.1)	221 (11.8)	97 (11.3)	6 (8.0)	324 (11.6)
Other	54 (2.3)	23 (3.0)	0 (0.0)	77 (2.5)	46 (2.5)	21 (2.5)	0 (0.0)	67 (2.4)
Missing	32 (1.4)	11 (1.4)	1 (4.0)	44 (1.4)	56 (2.8)	24 (2.8)	2 (2.7)	82 (2.9)
Total	2329 (100.0)	765 (100.0)	25 (100.0)	3119 (100.0)	1870 (100.0)	857 (100.0)	75 (100.0)	2802 (100.0)

Notes:
These data exclude officers listed as witnesses to the use of force incident.
Percentages are in parentheses.
Officers indicated as Hispanic/Latino may be of any race category.
Officers indicated as "other" race are "American Indian," "East-Indian," "Filipino," "Korean," or "Other Asian."

LIMITATIONS OF THE OUTCOME ASSESSMENT

Several data limitations are provided as context for the findings of this assessment. We are unable to offer a robust analysis of Level 3 uses of force given their infrequency and because data for this level of force are not tracked using the same protocols as Level 1 and Level 2 use of force data. We were able to incorporate some of the Level 3 data but could not offer a statistical comparison between all three levels of force.

The Consent Decree requires an assessment to measure the relationship between uses of force and "the subject's perceived mental health or medical condition, use of drugs or alcohol, or the presence of a disability." The data provided by BPD does not indicate information about subjects' medical condition or disability status. While BPD data does capture some information on subjects' perceived mental health or use of drugs or alcohol, the data are too incomplete to draw conclusions with any confidence.

These data offer the potential for ongoing and frequent assessment of use of force incidents and whether there is a significant relationship between the level of force used during an incident and geographic, subject, and officer contextual variables. This assessment highlights relationships where data are most complete and provides information about where these data need improvement to offer a more complete assessment of uses of force in Baltimore. BPD must work in earnest to develop a process for accurately and completely coding each of the variables that are itemized in paragraph 459(d)(i) in order to achieve compliance. The ongoing effort by BPD to update their RMS will be instrumental in providing a more complete picture of uses of force in Baltimore.

APPENDIX A. VARIABLE SUMMARY BY DATA FILE

Incident File

Variable Name	Description	Percent Missing, Unknown, or "NA"
FILENUM	NIC number of the UOF incident	0.00%
OCCURRED_DT	The date the UOF incident occurred	0.00%
INC_ADDRESS	Address of the UOF incident	0.00%
INCIDENT_TYPE	Level of force – Level 1, Level 2, Level 3	0.00%
UOF_REASON	Reason for use of force – defense of others/self, tactical advantage, suspect resistance, protect property	4.55%
SERVICE_TYPE	Type of service being rendered: call for service, off duty engagement, on view, warrant service, or other encounter	1.46%
LIGHT_CONDITION	Whether the incident occurred in daylight, darkness, or under indoor or outdoor lighting.	3.95%
WEATHER_CONDITION	The weather conditions during the incident with choices such as clear, cold, fog, storm, snow/ice, heat, etc.	4.37%
CIT_ARRESTED	Whether an arrest was made	0.00%
MULT_CITS	Whether multiple citizens were involved in the incident	0.00%
CIT_INFL_ASSMT	Whether the subject was sober, under the influence, or experiencing a mental illness or crisis	48.10%
CIT_UOF_DIST	The distance between the subject and officers when the incident occurred	12.52%
CIT_CRISIS	The type of crisis experienced by the subject – biological or chemically induced	98.22%
CIT_BEHAVIOR	The type of behavior displayed by the subject – belligerent, disorderly, delusional, suicidal, etc.	89.12%
CIT_VIOLENCE	The type of violence the subject engaged in – threatening, injuring, brandishing a weapon	88.48%
CIT_TECHNIQUES	The type of techniques used by officers to deescalate the situation or subdue the subject – presence of CIT officers, verbalization, use of handcuffs, etc.	87.13%
CIT_UOF_BUILD	Officer assessment of the subject(s) build or stature – small, medium, large or extra large	11.13%
CIT_UOF_HEIGHT	The height of the subject.	13.44%
CIT_INJURED	Whether the subject was injured during the incident	0.00%
CIT_HOSPITAL	Whether the subject was hospitalized because of the incident	0.00%
OFF_INJURED	Whether the officer involved in the incident was injured	0.00%
OFF_HOSPITAL	Whether the officer was hospitalized because of the incident	0.00%

Officer File

Variable Name	Description	Percent Missing, Unknown, or "NA"
DOB	Officer date of birth	0.29%
ROLE	Officer involvement type – officer or witness	0.00%
HIRE_DT	Date officer was hired with BPD	0.00%
RACE	Officer race or ethnicity	2.12%
SEX	Officer sex	0.27%
FORCE_USED	The type of force used by the officer	0.00%
UOF_EFFECTIVE	Whether the officer's use of force was effective as intended or in a limited capacity	0.00%
BW_CAMERA	Whether bodyworn camera was worn, was activated, and/or recorded the incident.	32.62%
FORCE_LOCATION	The location or region of the body that force was used, NA assumed uninjured person	0.00%
FORCE_CONTACT	The points of contact upon which force was applied, NA assumed uninjured person	0.00%
OFF_INJURY	The extent of injury sustained by the officer: no injury noted, description of minor injury, serious injury , or hospitalization	3.59%
INJ_LOCATION	The location or region of the body that the officer injury was sustained, NA assumed uninjured person	0.00%
INJ_CONTACT	The points of contact upon which the officer sustained injury, NA assumed uninjured person	0.00%

Subject File

Variable Name	Description	Percent Missing, Unknown, or "NA"
CIT_ROLE	Whether subject was an arrestee, not arrested, complainant, witness, etc.	0.00%
DOB	Subject date of birth	6.02%
RACE	Subject race	4.96%
ETHNIC	Subject ethnicity – Hispanic/Latino or not Hispanic/Latino	4.48%
SEX	Subject sex	0.52%
CIT_CHARGE	Type of subject arrest charges, NA assumed as no charges	0.00%
CIT_ARMED	Whether subject was armed during the incident	25.20%
OFF_RPT_CRISIS	Officer reported the subject was in crisis	37.86%
SELF_RPT_CRISIS	Subject indicated they were in crisis	36.21%
CIT_HOMELESS	Whether the subject was homeless at the time of the incident	36.08%
CIT_LIMITED_ENG	Whether the subject had limited understanding of English language	28.95%
PRI_LANG	The subject's primary language	27.74%
CIT_SEX_ORIENT	The subject's sexual orientation	100.00%
CIT_GENDER_EXPR	The subject's gender expression, including transgender	29.98%
CIT_INJURY	The extent of injury sustained by the subject: no injury noted, description of minor injury, serious injury , or hospitalization	6.54%
INJ_LOCATION	The location or region of the body that the subject injury was sustained, NA assumed uninjured person	0.00%
INJ_CONTACT	The points of contact upon which the subject sustained injury, NA assumed uninjured person	0.00%

APPENDIX B. RELATIONSHIP BETWEEN LEVEL OF FORCE AND KEY EXPLANATORY VARIABLES, 2018 AND 2019

	2018 Use of Force	2019 Use of Force	2018 and 2019 Use of Force
Police District	10.9043	16.4271*	8.3251
Type of Arrest (Violent Crime)	0.3569	1.2219	0.0602
Subject Race or Ethnicity	1.8654	1.0024	0.7245
Subject Gender	3.3318	1.3034	4.6982*
Subject Age (In Categories)	7.0204	10.3930	5.1326
Officer Race or Ethnicity	3.8388	1.9630	0.9824
Officer Gender	0.0031	4.5605*	2.1987
Officer Age (In Categories)	8.4952	8.0585	9.4448
Subject Physical Stature	3.3072	5.4359	5.9148

$p < .05$* $p < .01$** $p < .001$***

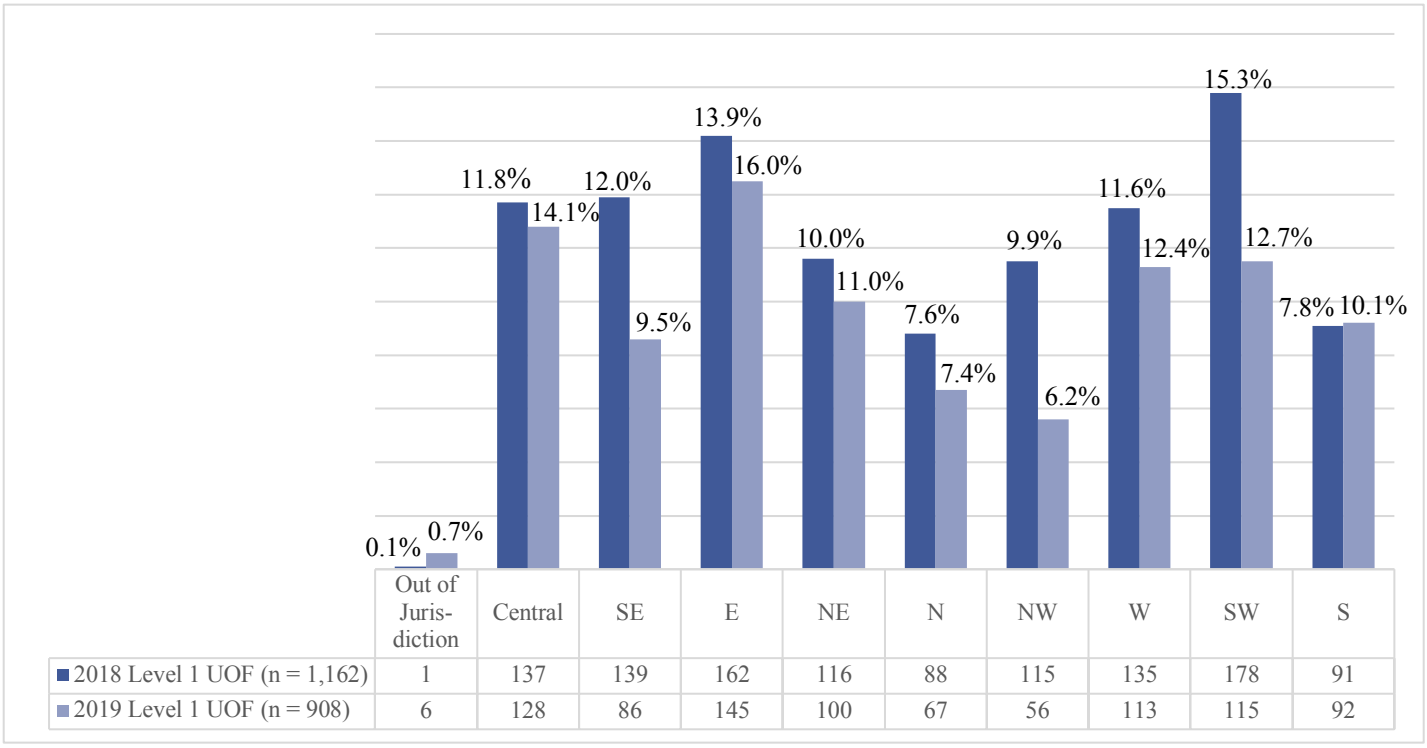
Notes:

Pearson's Chi-Square is calculated for each variable compared to level of force, measured as Level 1 or Level 2 use of force.

The test statistic identifies whether there is statistically significant association between level of force and each variable. Statistically significant findings are noted in the table as (*) based on the significance threshold achieved.

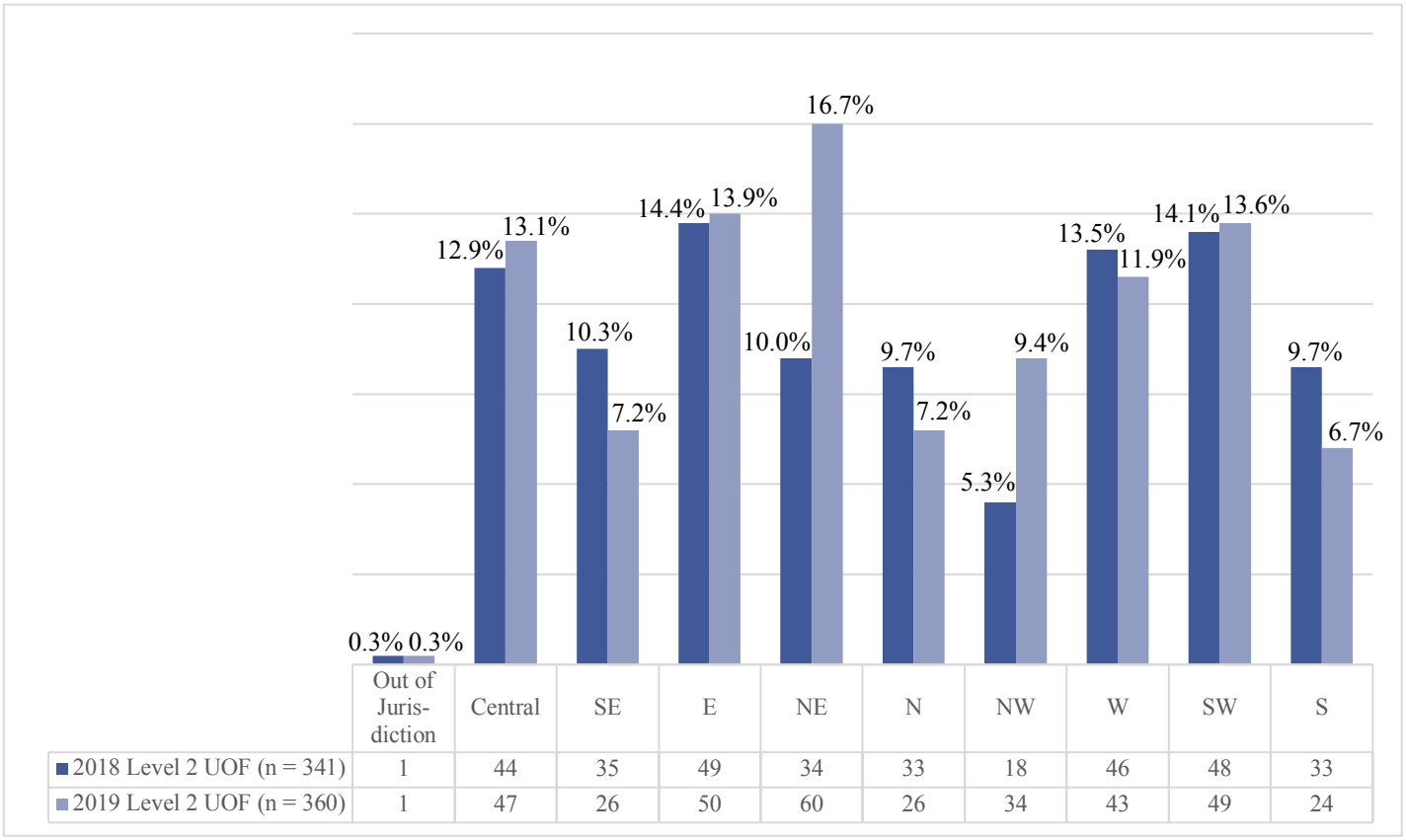
APPENDIX C: ADDITIONAL FIGURES AND TABLES

Figure C1. Level 1 Use of Force Incidents by District, 2018 and 2019.



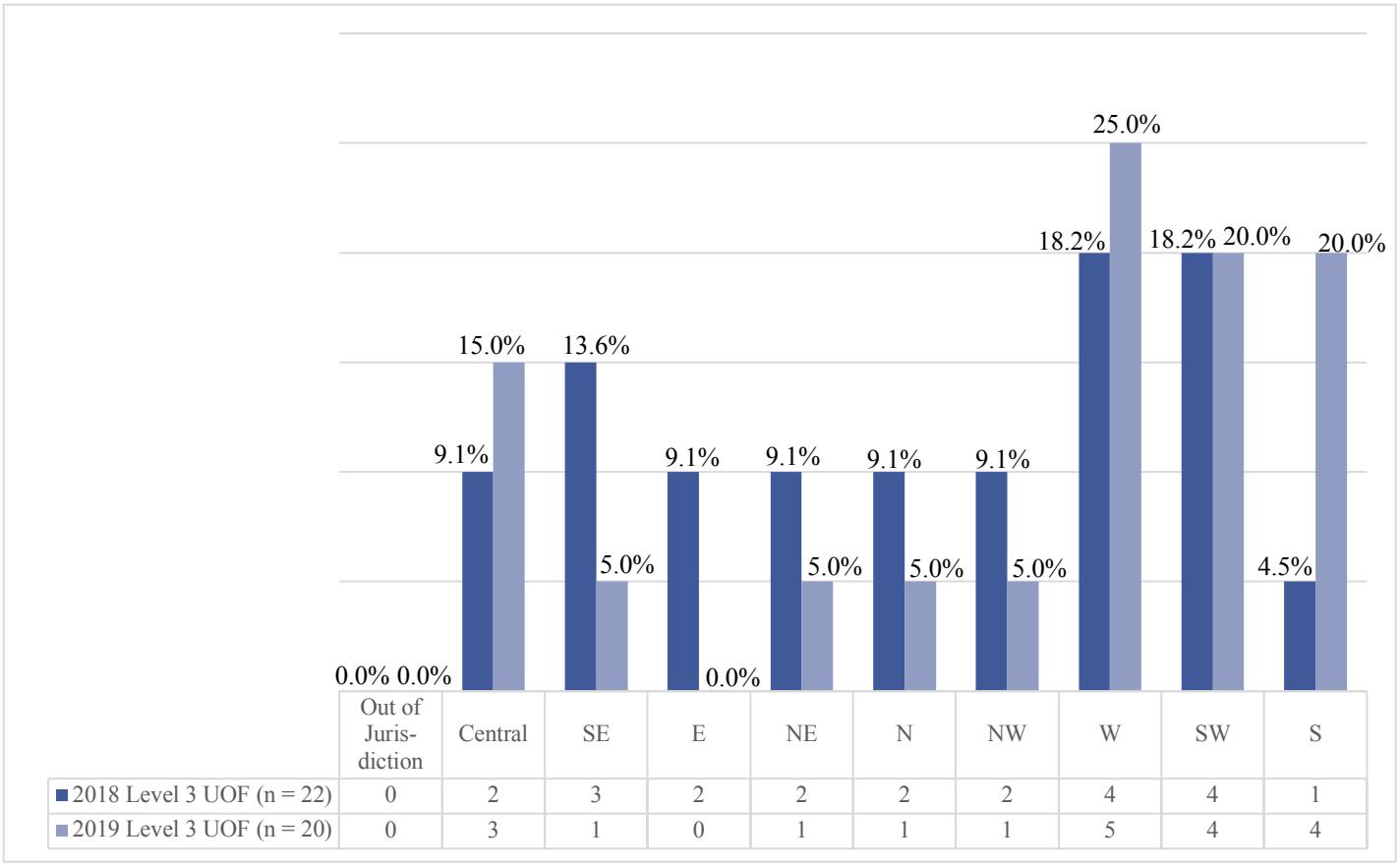
	Out of Juris-diction	Central	SE	E	NE	N	NW	W	SW	S
2018 Level 1 UOF (n = 1,162)	1	137	139	162	116	88	115	135	178	91
2019 Level 1 UOF (n = 908)	6	128	86	145	100	67	56	113	115	92

Figure C2. Level 2 Use of Force Incidents by District, 2018 and 2019.



	Out of Juris-diction	Central	SE	E	NE	N	NW	W	SW	S
2018 Level 2 UOF (n = 341)	1	44	35	49	34	33	18	46	48	33
2019 Level 2 UOF (n = 360)	1	47	26	50	60	26	34	43	49	24

Figure C3. Level 3 Use of Force Incidents by District, 2018 and 2019.



	Out of Juris-diction	Central	SE	E	NE	N	NW	W	SW	S
2018 Level 3 UOF (n = 22)	0	2	3	2	2	2	2	4	4	1
2019 Level 3 UOF (n = 20)	0	3	1	0	1	1	1	5	4	4