

RE: ACLU Matter vs. - REF# 1340012232
Analysis of Coded Single Version ISR
Narratives
July-December 2016
For Input to
Hon. Arlander Keys' (Ret.)
Second Period Report

Technical Report with Addendum
Revised Final Version

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3 ABSTRACT AND EXECUTIVE SUMMARY

3.1 ABSTRACT

Analysis reveals generally continuing high rates of properly premised investigatory stops, and generally low rates of improperly premised pat downs of nonconsenting detainees in the last half of calendar year 2016, based on investigatory stop details. A significant ecological race-linked disparity on the likelihood of an improperly premised pat down does surface, but for several reasons the link should be interpreted with caution. Records do not permit examining links between race and improper searches.

3.2 SUMMARY

Legal assessments were completed on equal size random samples of Black non-Hispanic, White non-Hispanic, and Hispanic civilian investigatory (Terry) stops made by Chicago Police Department officers during the last half of 2016 and reported in only one report version. Interest in this report centers on whether detainee race and ethnicity, and/or racial and ethnic composition of the locale where the stop occurred, affected three outcomes: whether the stop itself was properly premised on reasonable articulable suspicion (RAS); whether a pat down of non-consenting detainees, if it occurred, was properly premised on RAS; and whether a non-consent search, if it occurred, was properly premised on probable cause. Legal assessment of sampled investigatory stop reports (ISRs) generated outcome scores. Only single version ISRs are considered here. Multiple version ISRs are investigated in a separate report on changes in ISRs over versions.

Because a different coding protocol was used for this reporting period (July-December 2016) as compared to the first reporting period (January-June 2016), comparisons of the outcomes across the two periods are not informative. The different coding protocol used in this period compared to the earlier one, along with the exclusion of multiple version investigatory stop reports in Period 2 from this analysis, create plausible alternative explanations for any discrepant findings observed between the two periods.

Investigatory vs. on-view stops. About two thirds (61 percent) of sampled stops were classified as Terry (investigatory) stops and a little more than a third (37 percent) were classified as probable cause or on-view stops. All analyses consider *only* the Terry stops.

Stop basis. Neither detainee race or ethnicity- nor location racial or ethnic composition- affected the chances that the stop was based on RAS. In the data weighted to reflect the entire population of stops, about 94 percent of the stops were assessed to be properly premised on RAS. Some districts had higher fractions of stops predicted to be “bad” stops. The districts where the predicted fraction of “bad” stops was the highest shifted from Period 1 to Period 2.

Pat down basis. Overall, a high fraction of pat downs was sufficiently justified on RAS. Pat down basis did *not* link to either detainee race or ethnicity, but it did link to the racial composition of the beat-within-district. **Pat downs of non-consenting detainees were more likely to lack RAS if the pat down took place in a beat where 70 percent or more of the residents were Black and non-Hispanic. The difference in the predicted probabilities that the pat downs would be unjustified is small numerically because unjustified pat downs are**

rare events. Nevertheless, this rare event, a “bad” pat down, does appear to be differentially distributed across predominantly Black vs. non-predominantly Black police beats. The finding only appears in some models and is based on extremely small numbers of stops in key cells, and does not control for adjacency effects, so it is not known at this time how robust it is. See Section 8.2.4.

Further, the significantly higher relative risk in a predominantly Black non-Hispanic police beat that a non-consenting detainee would experience an improperly premised vs. a properly premised pat down, seen when investigatory stops are considered, *disappears* when probable cause stops are added in with investigatory stops. See Section 10.1.2.

Search basis. Coded reports yielded few searches beyond a protective pat down that lacked probable cause. The low base rate of unjustified searches precluded looking for racial disparities in rates of unjustified searches.

4 PURPOSE

This report presents information assessing the legal basis for investigatory stops of civilians, and when present, pat downs and frisks that occurred after a civilian was stopped. Chicago Police Department officers initiated the stops. Stops were conducted in the last six months of 2016. The data used to answer these questions were legal assessments made by the Consultant of equal-sized random samples of investigatory stop reports (ISRs) for the period. A roughly similar but somewhat different analysis was conducted of sampled stops for the first half of 2016 (Taylor & Johnson, 2017).

For the outcomes of stop premise, pat down premise, and search premise, four main questions arise:

Question 1: What fraction appears to be sufficiently grounded legally? This is just a descriptive question, and does not involve statistical inference.

Question 2: For the first two outcomes, how does that fraction compare to the respective fractions in the first half of 2016? This too is just a descriptive question.

The answer to the second question should be interpreted with caution because coding for the second half of 2016 used a different form and was presented differently compared to the first half. More specifically, in Period 2 the information received for coding did not include race, gender, or district. In short, coding was done “blind” on these issues. Therefore, answers to Question 2 simply describe differences, and do not address whether the differences are statistically significant; that is, whether they represent more than just random variation across the two time frames.

Question 3: Are there differences across the three ethnoracial groups of stopped civilians examined -- Black non-Hispanic, White non-Hispanic, and Hispanic civilians¹ – in the fraction of actions legally grounded? Answering this question does involve statistical inference, that is,

¹ This report focuses on the three mutually exclusive racial/ethnic groups that are most prevalent in Chicago: non-Hispanic Whites, non-Hispanic Blacks, and White Hispanics, referred to simply as Hispanic. Stops associated with other races or ethnicities, including a small number of Black Hispanics, are excluded from analyses.

deciding whether the discrepancies observed represent just random noise in the sample data, or, instead, reflect some substantial differences in the entire set of records from which these samples were drawn.

Differences on outcomes across ethnoracial groups are considered before as well as after controlling for factors describing either the stop context or the stopped civilian. Before controlling for these other factors, the results are describing **gross** ethnoracial impacts. After controlling for these other factors, the results are describing **net** ethnoracial impacts.²

The first two outcomes, the stop itself and a pat down, are legitimate as investigatory procedures if based on reasonable articulable suspicions, as specified in the narrative fields of the ISRs completed by the officers. The third, a search, is legitimate if based on probable cause, as specified in the same way. For each outcome, this report examines the rate at which each of these three outcomes was properly premised.

Question 4: Question 3 can be reframed ecologically so that it becomes: for each outcome, does the fraction of events that was, in legal terms, “properly premised”, differ depending upon whether the police beat where the stop occurred is predominantly Black non-Hispanic in residential composition or not? The same contrast can be investigated for beats that are predominantly Hispanic or non-Hispanic in residential makeup.

4.1 THEORETICAL AND EMPIRICAL BACKGROUND ON LOCATION RACIAL AND ETHNIC CLASSIFICATION

The framing of this question builds on an extensive body of work in community criminology concerned with the racial-spatial divide. Peterson, Krivo and their colleagues (Krivo, Peterson, & Kuhl, 2009; Peterson & Krivo, 2009, 2010) examined connections between racial and ethnic composition of census tracts in close to a hundred cities, and the violent crime rates in those tracts. They found substantial differences between tracts that were 70 percent or more Black non-Hispanic in their makeup compared to tracts that were 70 percent or more White non-Hispanic. Their analyses progressively unpacked these racial disparities, taking into account structural and crime features of the tracts themselves, of neighboring tracts, and of the cities within which the tracts were located. They argued that high levels of socioeconomic disadvantage and associated challenges worsened if tracts were equal to or higher than 70 percent Black and non-Hispanic. Further, they argued that those challenges became even more severe if predominantly Black tracts were surrounded by tracts that also were predominantly Black non-Hispanic. In other words, they argued that sizable racial disparities in residential composition, especially when accompanied by segregation patterns resulting in predominantly Black non-Hispanic tracts being surrounded geographically by other predominantly Black non-Hispanic tracts, created sizable socioeconomic disparities. They argued that these then led to disparities in violent crime.

William Julius Wilson (1996) has maintained a somewhat similar argument. Like Peterson & Krivo, Wilson acknowledged the importance of concentration effects. Wilson’s focus, however, was more specific, centering on working age adolescents and adults in these communities becoming progressively more detached from the legal economy while simultaneously becoming progressively enmeshed in the illegal economy. Crutchfield (2014) highlighted similar racial dynamics, but slightly different economic dynamics, focusing on dualized labor markets. The

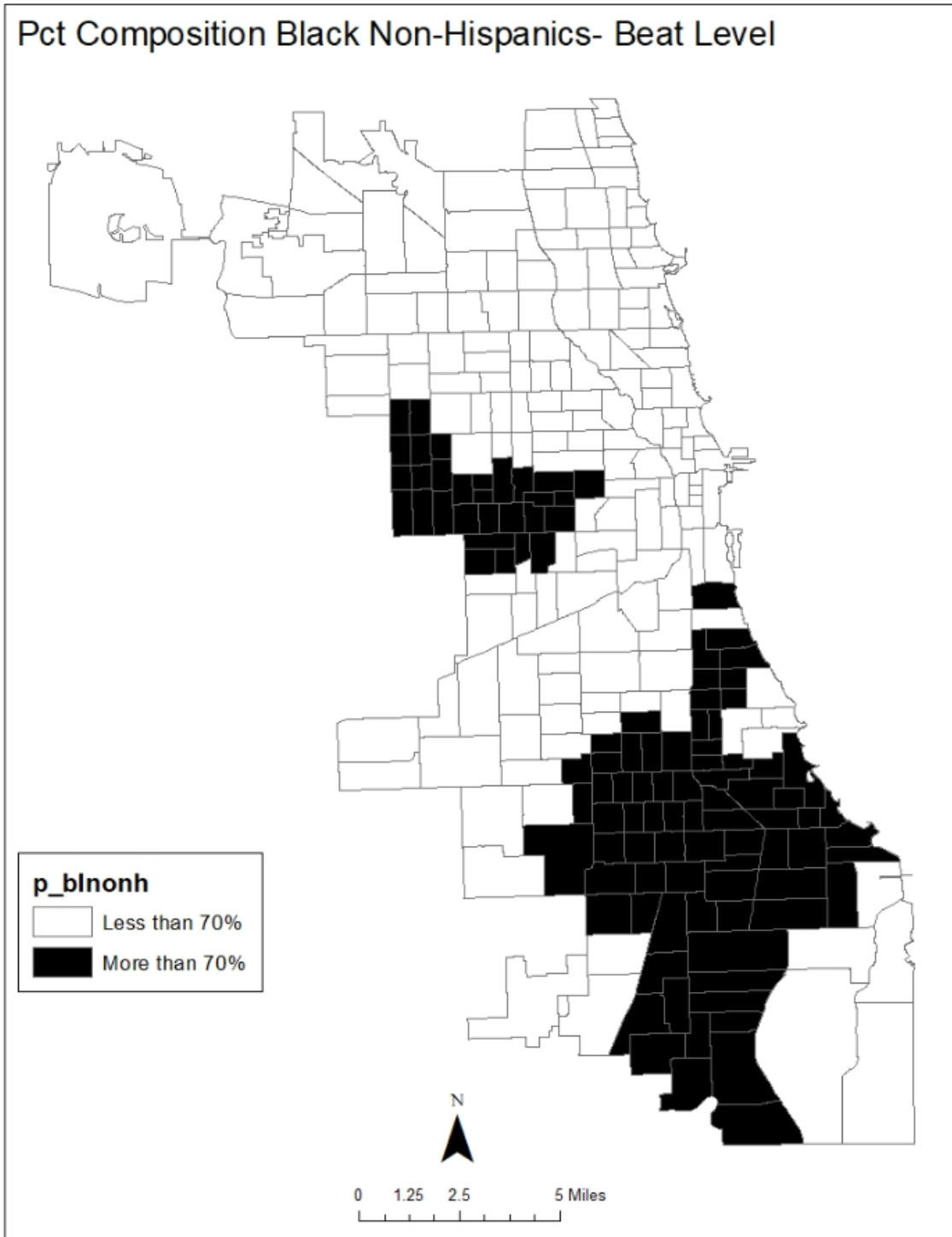
² For more background see section 3.4.2 in Taylor & Johnson (2017)

structure of these dualized labor markets results in the selective availability of good jobs for residents, an availability that depends substantially on community racial composition and location (R. D. Crutchfield, 1989; R.D. Crutchfield & Pitchford, 1997). At a more macro-level of cities and metro regions, these arguments and evidence align with other scholarship on spatial mismatch between job availability and potential workers (Kasarda, 1989, 1992).

Exhibit 1 indicates which beats-within-districts have a residential population that is 70 percent or more Black non-Hispanic. This is the same categorization used by Peterson & Krivo (2010) in their work. The map shows that these beats are located exclusively in one cluster along the western side of mid-Chicago, and, save one beat, in one long cluster in South Chicago.

A note on the limits of the inquiry reported here: at the outset, probable cause stops were excluded because they were not investigatory stops, and the focus of The Agreement is on police investigatory stop protocols. Further, this report focuses only on ISRs generated *in only one version* during the second half of 2016. These are labeled single version ISRs. For each ethnoracial group of interest, ISRs generated in *more than one version* also were sampled and assessed. The multiple version ISRs are considered in a separate legal narrative report that focuses specifically on changes across versions of a report.

Exhibit 1 Beats within districts with residential population 70 percent or more Black non-Hispanic



Note. Based on 2011-2015 Census American Community Survey data allocated geographically to police beats.

5 PROCEDURES

5.1 SELECTING REPRESENTATIVE RANDOM SAMPLES

Simple random sampling procedures generated representative sets of ISRs for each of the three ethnoraical groups of interest: non-Hispanic Whites, non-Hispanic Blacks, and Hispanics.³ Twelve hundred ISRs were sampled from the full set of single version ISRs for each. Results reported here are based on 3,508 (unweighted n) records.

A simple random sampling procedure generated the selected records. Because these are random samples of each group, the sampled records are representative of each group. Therefore, if statistically significant differences appear on an outcome between pairs of the three different ethnoraical groups with the sampled records, it suggests that there are real differences in the full set of records from which the sampled cases were drawn.

5.2 IMPLICATIONS FOR WEIGHTED AND UNWEIGHTED ANALYSES

The equal size subsamples for each ethnoraical group maximize the statistical power of analyses examining race/ethnicity differences. Descriptive information is usually presented for unweighted data, with roughly equal numbers of stops in each of the three racial/ethnic groups. Statistical models are conducted with weighted data. Therefore, patterns of statistical significance from the models using weighted data indicate whether an impact observed with the sample likely applies as well to the full population of records.

Given the samples drawn, none of the results here apply to any other comparisons of racial/ethnic groups (e.g., differences between Asian and White non-Hispanic stopped civilians). Exhibit 2 provides information about the ISRs for each of these three groups. Column 3 indicates how many ISRs were available for each group of detainees for the latter half of 2016. Column 4 shows the percentage of ISRs contributed to the ISRs of all three groups for the timeframe. Column 5 reports the number of sampled and coded ISRs for each ethnoraical group. This number is below 3,600 because duplicate records have been removed. Column 6 shows how much each ethnoraical group contributed to the sampled and coded set of ISRs. Column 7 shows the sampling weights applied. Each group has its own sampling weight. Column 8 shows the weighted number of cases that were coded for each ethnoraical group. Column 9 shows the percentage of sampled and coded records after the weights are applied. Note that the percentages in column 9 equal the percentages shown in column 4.

To simplify, in the weighted analyses, each Black non-Hispanic detainee stands in for two detainees in the full set of records, each White non-Hispanic detainee stands in for about one quarter of a detainee in the full set, and each Hispanic detainee stands in for about two thirds of a detainee in the full set.

³ Because the ISR file had already been merged with the charge file, some duplicate ISR records were created and sampled. These duplicate records were dropped from the 3,600.

Exhibit 2 Sampled records, before and after weighting, by ethnoracial group

1	2	3	4	5	6	7	8	9
Ethnoracial group	Code	N in Period 2 ISRs (July - December 2016)	As percent of original ISRs (3 groups only)	N of sampled and coded ISRs	Percent of sampled and coded ISRs	Sampling weight applied (weight = [% of original records / % of sampled records])	N of sampled and coded ISRs, after weighting	Percent of sampled and coded ISRs, after weighting
Black non-Hispanic	BNH	36,337	70.79%	1,197	34.12%	2.075	2,483.4	70.79%
White non-Hispanic	WNH	4,508	8.78%	1,149	32.75%	0.268	308.1	8.78%
Hispanic	HISP	10,484	20.43%	1,162	33.12%	0.617	716.5	20.43%
		=====	=====	=====	=====	=====	=====	=====
Total		51,329	100.00%	3,508	100.00%		3,508	100

Source: CPD ISR data, July-December 2016

Note. Period 2, July-December 2016. Beyond the three ethnoracial groups of interest, there were 605 additional records (1.16 percent) not considered.

Note. Numbers for "N in Period 2 ISRs" will differ slightly from the numbers in the Period 2 post stop report, because these samples were drawn before verifying the full set of ISR numbers in the file against CPD's master list of verified ISRs for Period 2. The numbers from the Period 2 post stop report are 36,451 for Black non-Hispanic, 4,303 for White non-Hispanic, and 9,969 for Hispanic, yielding a total of 50,723.

5.3 A PRIORI POWER ANALYSES

A priori statistical power analyses showed that with at least 1,800 records, a difference in proportions of five percent would have slightly better than 80 percent statistical power. This is considered an acceptable level of statistical power in many fields (Cohen, 1992). Statistical power analyses specific to the multivariate and mixed effects models conducted here were not estimated.

We sampled close to 3,600 records. After dropping probable cause or "on view" stops from the sample, over 2,150 sampled Terry stops remain. Therefore, in the analyses of sampled Terry stops, when those analyses include *all* the sampled stops, statistical power to detect a significant five percent difference is adequate because 2,150 is greater than 1,800.

Of course, if analyses use only a sub-set of sampled records, statistical power may become compromised.

5.4 ADDING CONTEXTUAL BEAT-LEVEL DEMOGRAPHIC FACTORS

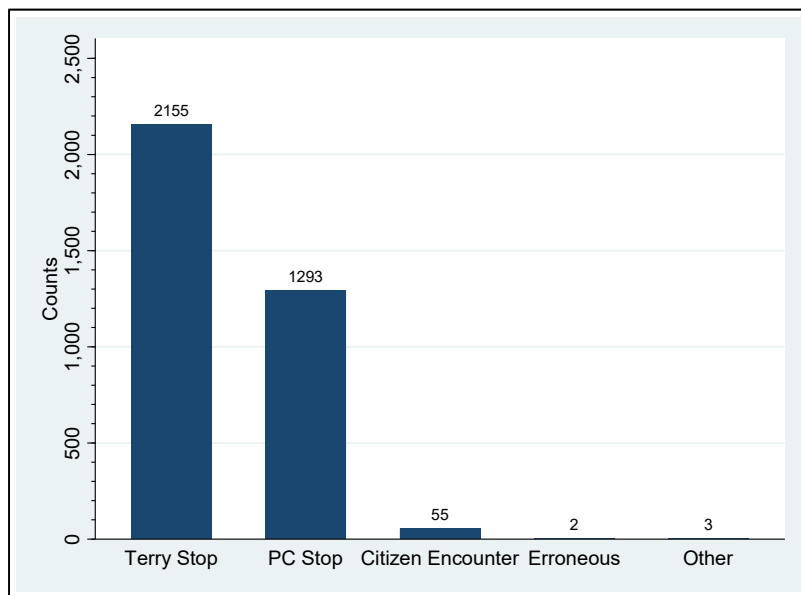
Sampled and coded records were linked to demographic data, based on 2011-2015 American Community Survey Census data. Indicators captured racial and ethnic composition,

socioeconomic status, residential stability, and young population.⁴ Sometimes racial and ethnic composition is captured with just the percentage of residents living in the beat who are Black and non-Hispanic, or Hispanic. Other times, theoretically based (Peterson & Krivo, 2010) categorical racial and ethnic composition variables are used, indicating if a beat population is 70 percent or higher on this feature, or below 70 percent.

5.5 FOCUS ONLY ON TERRY STOPS

The Agreement concerns investigative stops which are Terry stops. Consequently, stops which were not coded as Terry stops were excluded from further analyses. Exhibit 3 shows how many stops of which types were sampled and coded.

Exhibit 3 Distribution of sampled records by stop type



Note. Period 2 sampled and coded ISRs (n=3,508). Includes five stops from outside city. Source: July – December 2016 legal narratives equal race sample of single version ISRs.

Investigative (Terry) stops comprised 61.4 percent of all sampled and coded records, while probable cause on view stops comprised 36.8 percent of all sampled and coded records.

Exhibit 4 shows the number of Terry stops sampled and coded for each ethnoracial group.

⁴ Residential stability was captured with an internally consistent (Cronbach's $\alpha = .73$) multi-item index using percent owner occupied households; percent of all households, currently owner occupied, where the household moved in before 1990; and percent of all households, currently renter occupied, where the household moved in before 2000. Multi-collinearity was not problematic.

Socioeconomic status was captured with an internally consistent (Cronbach's $\alpha = .91$) multi-item index using median house value, median income, the percent of households reporting less than \$20,000 in earnings (reversed), and the percent of households reporting greater than \$60,000 in earnings.

Exhibit 4 Number of sampled and coded records by ethnoracial group: Terry stops only

	N	Percent
White NH	713	33.16
Black NH	754	35.07
Hispanic	683	31.77
Total	2,150	100

Note. Period 2 (July-December 2016) sampled and coded ISRs. Probable cause stops, civilian encounters, errors, and stops outside city not shown. Unweighted data.

6 OUTCOMES

The three outcomes examined are:

- Whether the stop was properly premised on reasonable articulable suspicion (RAS) factors.
- Whether the pat down, if it occurred, was properly premised on reasonable articulable suspicion (RAS) factors. More specifically, the contrast between pat downs of non-consenting detainees which were improperly vs. properly premised, is investigated.
- Whether a search beyond a pat down, if it occurred, was properly premised on probable cause. More specifically, the contrast between searches conducted of non-consenting detainees which were improperly vs. properly premised, is investigated, when these searches followed a pat down.

7 ANALYTIC STEPS

While analyses of post stop outcomes for Period 2 could simultaneously control for the nesting of stops within beats, and beats within districts, that three level approach is not feasible here because of the low number of cases examined. For the same reason it is not possible to control for inter-district variation with district level fixed effects. Most models here simply attempt to control for the clustering of stops either by districts or by beats within districts. Even this is not always feasible. Nevertheless, it is possible to include the within-district factors in all models, and so learn about the impacts of place characteristics on the outcomes.

7.1 STOP PREMISE

Examining sufficiency of the stop premise proceeds as follows.

1. The overall fraction of stops sufficiently premised is noted and contrasted with the corresponding fraction from the first half of 2016. All comparisons on these outcomes between the first and second halves of 2016 (Period 1 vs. Period 2) should be interpreted with *extreme caution*.⁵

⁵ This is for two reasons. First, the Period 1 sampled records included an unknown fraction of multi-version ISRs, and the sampled records examined here for Period 2 include only single version ISRs. Second, the coding protocol differed between the two periods, raising the threat to internal validity of instrumentation (Cook & Campbell, 1979).

2. For each ethnoracial group, the count and portion of properly vs. improperly premised stops are noted. The comparisons use weighted data, so they reflect the entire set of Period 2 investigative stops.
3. Using weighted data, and considering the beat-within-district where the stop took place, the impacts of detainee race and ethnicity on the outcome are examined. This analysis captures **gross impacts** of detainee race and ethnicity while controlling for context.
4. The above analysis is repeated after controlling for various additional features of the stop itself and of the detainee. This analysis captures **net impacts** of detainee race and ethnicity while controlling for context.
5. Using weighted data, and taking into account the beat-within-district where the stop took place, the impacts of the beat ethnic and racial composition on the outcome are examined, while still allowing for additional random variation on the outcome either across beats-within-districts or across districts. More specifically, stop premise sufficiency is contrasted as follows. Four ethnoracial indicators are entered: if the beat is 70 percent or greater Black and non-Hispanic, if the beat is 70 percent or greater Hispanic, percent Asian, and percent other. If all these factors are entered, this leaves as the reference group of beats those that are less than 30 percent Black and non-Hispanic, *and* less than 30 percent Hispanic, *and* 0 percent Asian, *and* 0 percent other; in other words, predominantly White non-Hispanic beats. This analysis captures **gross impacts** of community ethnic and racial composition.
6. The above analysis is repeated after controlling for various additional features of the stop itself and of the detainee. This analysis captures **net impacts** of community ethnic and racial composition.

7.2 PAT DOWN AND SEARCH PREMISE

For the above two outcomes, analyses are similar to what is outlined above, but with minor differences. Most importantly, analyses of gross and net impacts of detainee race and ethnicity, and of gross and net impacts of community ethnic and racial composition, need to control for prior selection. That is, factors that led to a detainee being patted down or not, or being searched or not, need to be considered.

8 RESULTS

8.1 STOP PREMISE SUFFICIENCY

8.1.1 Overall level

Exhibit 5 describes the overall rate of justified and unjustified stops in the sampled data.

Overall, 94.6 percent of the coded stops appeared sufficiently premised, leaving 5.4 percent insufficiently premised. If records are weighted to reflect their contribution to the overall set of records, the overall percentage is quite close: 94.2 percent appear sufficiently premised. The 95 percent confidence interval around this percentage extends from 93.2 percent to 95.2 percent.

Therefore, it is not clear if differences between the first and second half of the year do appear, whether those discrepancies arise from methodological differences or differences in the two sets of sampled records.

This range is the best estimate of the proportion of properly premised stops for the *entire set* of Terry investigative stops during the latter half of 2016. By comparison, the range reported for the first half of 2016 was from 91.99 percent to 93.75 percent (Taylor & Johnson, 2017: Table 11, p. 26, rows with bicycle/sidewalk excluded).

Because the two ranges overlap, the fraction of properly premised investigative stops was the same in the second half of the year compared to the first half.

The results for each ethnoracial group (unweighted data only) show that stops are most likely to be justified if the detainee is White and non-Hispanic (95.2 percent), less likely if the detainee is Hispanic (94.7 percent), and even less likely if the detainee is Black and non-Hispanic (93.9 percent).

Shifting to the proportion of insufficiently premised stops, the proportion was highest for Black non-Hispanic detainees (6.1 percent), lower for Hispanic detainees (5.3 percent), and even lower for White non-Hispanic detainees (4.8 percent) (unweighted data).

8.1.2 Gross differences across ethnoracial groups

Continuing with a focus on the proportion of investigative stops not properly premised, one can compare proportions for the two groups of interest, Black non-Hispanic and Hispanic detainees, with the corresponding proportion for White detainees. Contrasting the percentages, the ratio of improperly premised stops for Black non-Hispanic detainees relative to White detainees is 1.28. This means that the percentage of poorly premised stops was 28 percent higher for Black non-Hispanic detainees relative to the corresponding percentage for White non-Hispanic detainees.

Exhibit 5 Proportion of stops sufficiently premised on reasonable articulable suspicion

Group	N	Mean (proportion yes, justified)	Standard error of mean	95 percent confidence interval	
				LCL	UCL
All: unweighted	2,150	0.946	0.005		
All: weighted	2,150	0.942	0.005	0.9319	0.9517
Each group: Unweighted	N	mean			
White NH	713	0.952			
Black NH	754	0.939			
Hispanic	683	0.947			
		Proportion not justified			
White NH		0.048			
Black NH		0.061			
Hispanic		0.053			
Black/White unjustified ratio		1.279			
Hispanic/White unjustified ratio		1.105			

Note. Period 2 (July-December 2016) sampled and coded ISRs. *Only* investigative (Terry) stops shown. Probable cause stops, civilian encounters, errors, and stops outside city not shown. *Unweighted* data in all rows except second row. NH = non-Hispanic. Question coded was: “Does the ISR establish that there was reasonable articulable suspicion for the stop in that the subject had been, was, or would soon be engaged in criminal activity? (CPD Special Order S04-13-09 IV.A).”

That comparison ratio of 1.28 is *lower* than the ratio of 2.33 reported for the first half of 2016 (Taylor & Johnson, 2017: Table 11, p. 26, bicycle/sidewalk excluded). For the Hispanic/White non-Hispanic comparison, the ratio of 1.11 in the second half of 2016 also proves lower than the corresponding ratio of 1.37 for the first half of 2016.

This drop in the Black/White stop insufficiency comparison ratio from the first half of the year to the second half is descriptively intriguing. Nevertheless, it would be unwise to test either of these differences for statistical significance. The threat to internal validity of instrumentation clouds the interpretation of results. “There is a threat when an effect might be due to a change in the measuring instrument” (Cook & Campbell, 1979: 52). Here, different coding instruments were used in the first and second half of the year. Further, multi-version ISRs were not included in these Period 2 records. Consequently, the safest conclusion is that this shift is intriguing but difficult to interpret. Descriptively, the disparity between non-Hispanic Whites and Blacks is less, but this could be due to several alternative explanations, or it could simply be noise in the data.

8.1.3 Estimating net racial and ethnic impacts

Turning back to only the group differences for the last half of 2016, to gauge whether significant differences emerge between the three ethnoracial groups on stop premise sufficiency, models controlling for data clustered by beat were run with two predictors: whether the detainee was Black and non-Hispanic, and whether the detainee was Hispanic.⁶ With this set up, the average score of the White non-Hispanic detainees is captured in a parameter called a constant. The model parameter associated with the Black or Hispanic group captures the average difference on the outcome between the White non-Hispanic detainees and the comparison group.

These models were run with weighted data so the contribution of each ethnoracial group to the results was proportional to each group's composition in the overall stops in Period 2. The models were run with beat as the grouping variable, and again with district as the grouping variable.

It was not possible to run “flat” logistic regression models with fixed effects for districts while also retaining all of the sampled and coded cases. If all the cases in a district scored similarly on the outcome, the analysis dropped those cases. This flat model “lost” 190 cases.

The models were run again controlling for additional features of the detainee or context.

Additional detainee features included:

- Age (centered on the mean)
- Male

Additional stop context features included:

- Time of day in three-hour blocks
- Whether the stop took place on a weekend
- The month in which the stop took place
- Whether it was a pedestrian stop

Additional geographic context features at the beat level included:

- Socioeconomic status of residents
- Residential stability
- Whether the residential population in the police beat was 70 percent or more Black non-Hispanic (1) or not (0)
- Whether the residential population in the police beat was 70 percent or more Hispanic

Descriptive statistics for the outcome, and the predictors, appear in Exhibit 6.

Within each approach to grouping – district vs. beat-within-district, models were run:

- With only detainee race and ethnicity
- With all detainee factors
- With all detainee factors and stop features

⁶ These were mixed effects logistic regression models. “Plain” single level models with fixed effects at the district level were attempted as well.

- With only beat-level ethnic and racial composition, some models using percentages, other models using theoretically-grounded categorical variables for ethnic and racial composition
- With all beat-level factors, including residential stability and residential socioeconomic status, in addition to race and ethnicity
- With only detainee race and ethnicity along with beat-level race and ethnicity
- Finally, with all detainee factors, all stop factors, and all beat factors.

Whichever type of model was run made no difference to the significance pattern for ethnicity or race of the detainee, or the significance pattern of the racial or ethnic composition of the beat. Part of the reason the models were relatively well behaved, that is, did not shift markedly depending on which predictors were in or which predictors were out, was because the predictors only correlated loosely with one another (all VIFs below 4, all tolerances above .3).

In all the models run, neither detainee race or ethnicity, nor beat racial or ethnic composition, had a significant influence on whether the stop was sufficiently premised. It did not matter if only race and ethnicity were considered by themselves, or alongside other stop or beat characteristics. The same was true for beat ethnic and racial composition.

Results from a typical “full” model with all predictors appears in Exhibit 7. This model uses categorical variables to capture beat ethnicity and racial composition; similar results appear using continuous beat racial and ethnic composition variables.

For Black non-Hispanic detainees, the odds of being in a [properly vs. improperly premised] stop were slightly lower than the odds for white non-Hispanic detainees; the odds ratio was .739.⁷ This means that Black non-Hispanic detainees’ odds, compared to White non-Hispanic detainees’ odds of being in a [properly vs. improperly premised] stop were (1 - .739) 26.1 percent lower.

But the difference was nowhere close to statistical significance ($z = -.73$) suggesting that in the full set of Terry stops for the latter half of 2016, there were no differences on this outcome between Black non-Hispanic and White non-Hispanic detainees.

To reiterate, this non-significant difference appeared *regardless* of what other predictors were or were not in the model. If only detainee race and ethnicity were entered, the contrast with White non-Hispanic detainees was still non-significant.

The story was the same for Hispanic detainees. Their odds of being in a [properly vs. improperly premised] stop were lower than the odds for White non-Hispanic detainees. More specifically, their odds were 38 percent lower (OR = .62).⁸ But, again, this discrepancy failed to prove statistically significant, suggesting that in the full set of Terry stops for the period, there were no notable differences between Hispanics and non-Hispanic Whites on quality of stop premises.

Further, the Black non-Hispanic vs. White non-Hispanic disparity remained quite non-significant (z values always less than $|1|$) regardless of what other predictors were included, and regardless of whether stops were clustered at the beat or district level.

⁷ The odds ratio is the exponentiated coefficient ($b = -.302$) that appears in Exhibit 7.

⁸ The b weight for the difference was $-.474$. Exponentiated this = $.622$. $1 - .622 = .38$.

Racial and ethnic composition of the residents surrounding the location of the stop similarly proved unimportant, regardless of whether detainee factors were included, and regardless of what other context factors were included. Again, z values were always less than |1|.

In these models, only two factors proved consistently influential: the detainee being male, and the detainee being older.

Stops of male detainees had significantly higher chances of being sufficiently vs. insufficiently premised. This impact appeared in all models. Details appear in Exhibit 8. Whereas only about five percent of male detainees' stops were improperly premised, about ten percent of female detainees' stops were improperly premised.

Stated differently, in the full set of records from which the samples came, it is likely that stops of females had *lower* chances of being sufficiently vs. insufficiently premised.

Exhibit 6 Descriptive statistics: Stop basis, and predictors

	Variable	Label	N	Min	Max	Mean	Median	SD	
Outcome	Stop sufficiently premised (1) or not (0)	q3_yn	2,150	0	1	0.942	1	0.234	
Predictors									
Detainee	Black NH (1, 0 else)	dblack	2,150	0	1	0.719	1	0.450	
	Hispanic (1, 0 else)	dhisp	2,150	0	1	0.193	0	0.395	
	Male (1, 0 else)	dmale	2,150	0	1	0.876	1	0.330	
	Age (years) ^(a) ^(b)	age3	2,150	7	74	29.735	25	13.093	
Stop context	Pedestrian stop (1, 0 else)	dpedstop	2,150	0	1	0.804	1	0.397	
	August (1, 0 else)	daug	2,150	0	1	0.170	0	0.376	
	September (1, 0 else)	dsep	2,150	0	1	0.173	0	0.378	
	October (1, 0 else)	doct	2,150	0	1	0.199	0	0.399	
	November (1, 0 else)	dnov	2,150	0	1	0.151	0	0.358	
	December (1, 0 else)	ddec	2,150	0	1	0.115	0	0.319	
	3:00 - 5:59 (1, 0 else)	dhr0306	2,150	0	1	0.030	0	0.172	
	6:00-8:59 (1, 0 else)	dhr0609	2,150	0	1	0.036	0	0.186	
	9:00 - 11:59 (1, 0 else)	dhr0912	2,150	0	1	0.116	0	0.320	
	12:00 - 14:59 (1, 0 else)	dhr1215	2,150	0	1	0.165	0	0.372	
	15:00 - 17:59 (1, 0 else)	dhr1518	2,150	0	1	0.136	0	0.343	
	18:00 - 20:59 (1, 0 else)	dhr1821	2,150	0	1	0.216	0	0.412	
	21:00-23:59 (1, 0 else)	dhr2123	2,150	0	1	0.204	0	0.403	
	Weekend (SA, SU) (1, 0 else)	wknddum	2,150	0	1	0.254	0	0.435	
	Geographic context	Residential stability ^(c)	stabindx	2,142	-1.879	2.180	-0.187	-0.231	0.672
		Residential socioeconomic status ^(d)	sesindx2	2,150	-1.732	1.749	-0.284	-0.400	0.704
Beat >= 70 % Black NH (1, 0 else)		p_k_bla	2,150	0	1	0.573	1	0.495	
Beat >= 70% Hispanic (1, 0 else)		p_k_his	2,150	0	1	0.143	0	0.350	

Note. Period 2 (July-December 2016) sampled and coded ISRs. *Only* investigative (Terry) stops shown. Probable cause stops, civilian encounters, errors, and stops outside city not shown. *Weighted* data. NH = non-Hispanic. All VIFs < 4, all tolerances > .30.

^(a) 42 missing cases were set to average age.

^(b) Analyses will use a centered age variable, reflecting how much older or younger the detainee is compared to an average aged (29.7 years old) detainee.

^(c) Residential stability was captured with an internally consistent (Cronbach's $\alpha = .73$) multi-item index using percent owner occupied households; percent of all households, currently owner occupied, where the household moved in before 1990; and percent of all households, currently renter occupied, where the household moved in before 2000. Multi-collinearity was not problematic.

^(d) Socioeconomic status was captured with an internally consistent (Cronbach's $\alpha = .91$) multi-item index using median house value, median income, the percent of households reporting less than \$20,000 in earnings (reversed), and the percent of households reporting greater than \$60,000 in earnings.

Exhibit 7 Predicting stop sufficiency basis: Full model

Fixed effects	Variable name	OR	b	se of b	z	p <
Predictor						
Black NH (1, 0 else)	dblack	0.739	-0.302	0.416	-0.730	ns
Hispanic (1, 0 else)	dhispanic	0.622	-0.474	0.456	-1.040	ns
Male (1, 0 else)	dmale	2.454	0.898	0.267	3.370	.001
Age	age3	0.965	-0.035	0.007	-4.890	.001
Pedestrian stop (1, 0 else)	dpedstop	0.589	-0.529	0.313	-1.690	ns
August (1, 0 else)	daug	0.886	-0.121	0.319	-0.380	ns
September (1, 0 else)	dsep	1.950	0.668	0.382	1.750	ns
October (1, 0 else)	doct	1.050	0.049	0.331	0.150	ns
November (1, 0 else)	dnov	1.162	0.151	0.345	0.440	ns
December (1, 0 else)	ddec	0.823	-0.194	0.362	-0.540	ns
3:00 - 5:59 (1, 0 else)	dhr0306	1.221	0.200	0.730	0.270	ns
6:00-8:59 (1, 0 else)	dhr0609	3.205	1.165	0.970	1.200	ns
9:00 - 11:59 (1, 0 else)	dhr0912	1.378	0.320	0.453	0.710	ns
12:00 - 14:59 (1, 0 else)	dhr1215	1.153	0.143	0.408	0.350	ns
15:00 - 17:59 (1, 0 else)	dhr1518	1.601	0.471	0.452	1.040	ns
18:00 - 20:59 (1, 0 else)	dhr1821	1.044	0.043	0.388	0.110	ns
21:00-23:59 (1, 0 else)	dhr2123	0.993	-0.007	0.390	-0.020	ns
Weekend (SA, SU) (1, 0 else)	wknddum	1.191	0.175	0.245	0.710	ns
District 1, the Loop (=1, 0 else)	d_dist1	0.491	-0.710	1.090	-0.650	ns
Beat >= 70 % Black NH (1, 0 else)	p_k_bla	1.243	0.217	0.567	0.380	ns
Beat >= 70% Hispanic (1, 0 else)	p_k_his	1.161	0.149	0.579	0.260	ns
Beat: Percent other races/ethnicities	p_other	1.101	0.096	0.154	0.620	ns
Beat: Percent Asian	p_asian	0.991	-0.009	0.025	-0.380	ns
Residential stability	stabindx	1.096	0.091	0.280	0.330	ns
Residential socioeconomic status	sesindx2	1.205	0.186	0.378	0.490	ns
Constant	_cons	61.411	4.118			
Random effects			variance	se of		
			(residual)	residual		
			1.476	0.545		

Likelihood ratio chi squared test vs. logistic model: χ^2 (df=1) = 28.75; p < .001

Wald χ^2 (df=25) = 48.58; p < .01

N = 2,142; BIC = 1082.5

Note. Period 2 (July-December 2016) sampled and coded ISRs. *Only* investigative (Terry) stops shown. Probable cause stops, civilian encounters, errors, and stops

Outcome = 1 (stop sufficiently premised) or 0 (not sufficiently premised)

Results from mixed effects logit model, with stops nested within beats.

Exhibit 8 Stop premise sufficiency and gender

Does ISR establish RAS for the stop?		Sex of detainee		Total
		Female	Male	
No	N	27	99	127
	Column %	10.11	5.21	5.82
Yes	N	243	1,807	2,050
	Column %	89.89	94.79	94.18
Total	N	270	1,906	2,177
	Column %	100	100	100

Note. Period 2 (July-December 2016) sampled and coded ISRs. *Only* investigative (Terry) stops shown. Probable cause stops, civilian encounters, errors, and stops outside city not shown. *Weighted* data.

The sex difference persists even after controlling for many other factors. The coefficient shown for males in Exhibit 7 ($b = .898$) translates to odds of [being in a sufficiently vs. insufficiently premised stop] were almost *145 percent higher* [OR = 2.45]. Because this sex disparity is highly statistically significant ($p < .001$), chances are less than one in a thousand that this is *not* a real difference in the full set of Period 2 investigatory stops. For the first half of 2016, sex did not affect whether the stop premise was sufficient, considering only investigatory stops (Taylor & Johnson, 2017: Table 17).

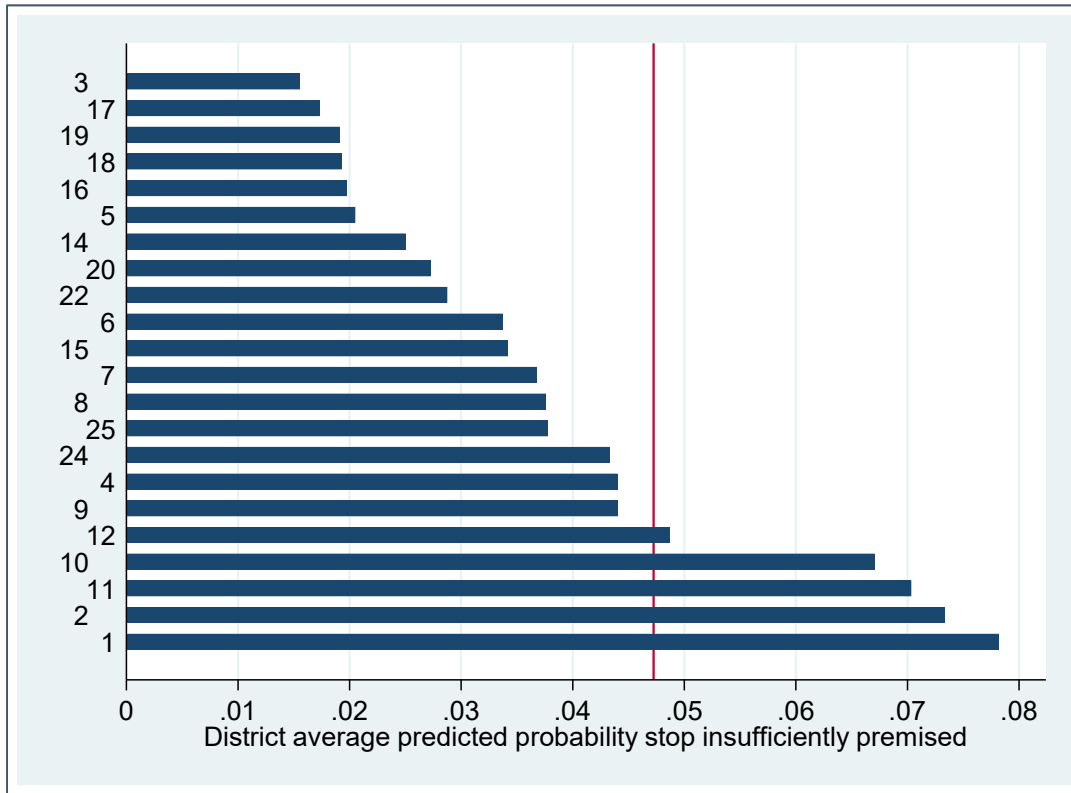
Age was the only other consistently significant factor affecting stop premises. Stops of older detainees were significantly *less* likely to be properly premised. For each additional year of age, the odds of the detainee’s stop being [properly vs. improperly premised] declined approximately 3 percent. In the first half of 2017 set of sampled stops, the age link to stop premise went in the similar direction, but the connection was not statistically significant (Taylor & Johnson, 2017: Table 17).

The predicted probabilities that a stop was insufficiently premised, generated from the full model, can be mapped by police district. We arrive at the conclusion that the predicted probability of the stop is *insufficiently* premised just by subtracting (1 – predicted probability the stop is *sufficiently* premised).

Geographic variation in the portion of stops predicted to be “bad” stops, based on the factors used in the “full” model (Exhibit 7), appears in Exhibit 9. These are the average predicted probabilities that a stop would be *insufficiently* premised, for each district.

Some districts are predicted to have only one to two percent of their stops considered to be insufficiently grounded (Districts 3, 17, 19). By contrast, other districts, such as District 1 (The Loop) and 2, are predicted to have more than seven percent of their stops insufficiently premised.

Exhibit 9 District level average predicted probabilities stops improperly premised



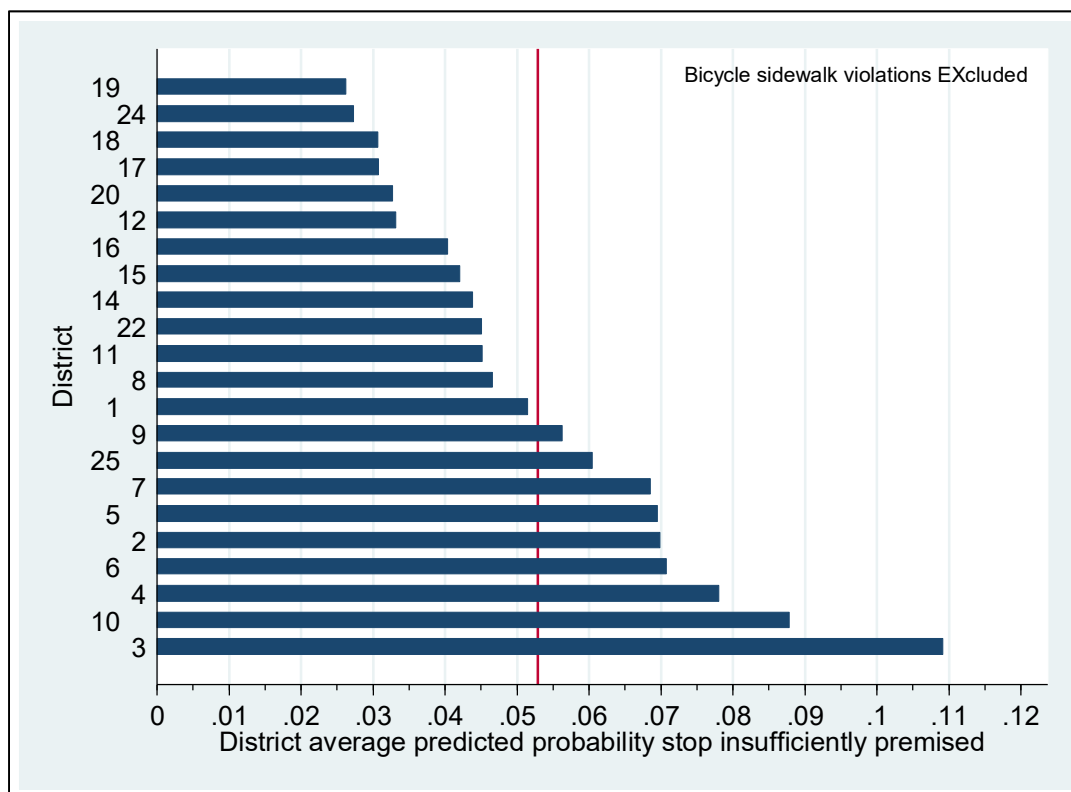
Note. District numbers on vertical axis. Length of bar reflects district average. Averages based on N = 2,142 Period 2 (July-December 2016) sampled and coded ISRs judged to be Terry stops. Probable cause stops, civilian encounters, errors, and stops outside city not shown. *Weighted* data. Values shown are $[1 - (\text{predicted probabilities})]$ from the model shown in Exhibit 7. Analyses used weighted data. Vertical reference line corresponds to the average predicted probability (.047) that the stop was insufficiently premised.

Bearing in mind the aforementioned cautions about comparing Period 2 with Period 1 results, the geographic distribution of proportions of predicted “bad” stops can be compared across the two periods. Exhibit 10 below reproduces Figure 8 from the Period 1 report (Taylor & Johnson, 2017). In comparing the two charts, bear in mind that the two graphs have horizontal axes with different maximum values.

Comparing the current geographic pattern in Exhibit 9 with the corresponding geographic pattern from the first half of 2016 in Exhibit 10 shows a different ordering of districts. District 1 was below average in the first half of the year but is now at the top on this metric in the second half of the year. District 11 was below average for the first half of the year but is now third highest.

Of course, there are consistencies as well. For example, Districts 18, 14, 20 and 22 were a few of several districts which were below the overall average predicted probability of a “bad” stop in both periods.

Exhibit 10 From Period 1 (Jan-June 2016): District level average predicted probabilities stops improperly premised



Note. N = 3,310. Predicted probabilities from model with main effects and weighted data. Higher probability means greater likelihood that stop lacked reasonable articulable suspicion factors. Source: Jan.-Jun. 2016 legal narratives equal race sample. Vertical reference line represents overall average predicted probability. Figure originally appeared as (Taylor & Johnson, 2017: Figure 8)

8.2 REASONABLE ARTICULABLE SUSPICION FOR A PAT DOWN

8.2.1 Overview

This section examines the relationship between pat down basis and race/ethnicity, before and after controlling for civilian age and gender as well as district context. Because some stopped civilians were selected to receive a pat down and others were not, analyses of the pat down basis need to take that into account. Whether a pat down occurred depended on CPD officers’ marking the appropriate box. This analysis also needs to consider whether the detained civilian consented to the pat down.

There are four possible outcomes:

- A. Stopped civilian receives a **properly** premised protective pat down (PPD) but had **not consented** to the pat down.
- B. Stopped civilian receives an **improperly** premised protective pat down (PPD) but had **not consented** to the pat down.
- C. Stopped civilian grants officer consent to conduct a protective pat down (PPD).

D. Stopped civilian does not receive a protective pat down (PPD).

With the period 2 coding instrument, if the detainee granted the officer consent for the pat down, whether the protective pat down was based on reasonable articulable suspicion was not assessed.

The key contrast of interest here is outcome (B.) vs. outcome (A.). Among non-consenting detainees, what factors are associated with receiving an [improperly premised vs. properly premised] pat down? The models will simultaneously take additional contrasts into account.⁹ More specifically, they will contrast (C.) vs. (A.) and (D.) vs. (A.). But only the first contrast is of interest.

Each model run will generate a predicted probability for each stopped civilian, based on the factors in the model, for each of these four outcomes. For each stopped civilian, the four predicted probabilities necessarily sum to 100 percent. Of greatest interest here are effects of race/ethnicity, controlling for age and gender, on the predicted probability among non-consenting detainees of being subjected to an improperly premised search.

As in the earlier models, context must also be considered if the proportion of properly premised pat downs among consenting detainees varies across districts which it does. Therefore, the appropriate type of model is a multilevel multinomial model with the data weighted so that results reflect the overall population of stops. This is carried out using generalized structural equation models.

Because the model used simultaneously recognizes which specific outcome is linked to each investigatory stop, all outcomes are jointly considered.

8.2.2 Descriptive pattern

The distribution on the protective pat down variable appears in Exhibit 11.

Using weighted data and looking only at Terry stops, 33 percent of sampled and coded Terry stops included a protective pat down (PPD). That percentage varied depending on ethnicity and race of the detainee. Although 36 percent of Hispanic detainees received a PPD, only 21 percent of White non-Hispanic detainees had a similar experience. In between these two numbers, 33 percent of Black non-Hispanic detainees received a PPD.

⁹ All four outcomes need to be considered simultaneously in one model rather than in multiple models of pairwise comparisons. Otherwise different civilians are in different analyses, and predicted probabilities across the four outcomes for a civilian may not total to 100 percent. (Long, 1997: 151).

Exhibit 11 Count and proportion patted down by ethnoraical group

Did officer conduct a protective pat down?		Race/ethnicity of detainee			Total
		White NH	Black NH	Hispanic	
No	N	152	1,046	268	1,466
	Column %	79.38	66.84	63.69	67.33
Yes	N	39	519	153	711
	Column %	20.62	33.16	36.31	32.67
Total	N	191	1,564	421	2,177
	Column %	100	100	100	100

Note. Period 2 (July-December 2016) sampled and coded ISRs. *Only* investigative (Terry) stops shown. Probable cause stops, civilian encounters, errors, and stops outside city not shown. *Weighted* data.

The Period 2 coding instrument captured, if a PPD occurred, whether the detainee had consented. Results indicated that approximately half of patted down detainees consented. (See Exhibit 12). Overall, 48 percent of those receiving a PPD agreed to it. Descriptively, that percentage was higher for White non-Hispanic detainees (54 percent) than the other two ethnoraical groups (47-48 percent).

Exhibit 12 Cases with protective pat down: Consent

Was the pat down based on consent?		Race/ethnicity of detainee			Total
		White NH	Black NH	Hispanic	
No	N	18	272	81	371
	Column %	46.26	52.4	52.82	52.15
Yes	N	21	247	72	340
	Column %	53.74	47.6	47.18	47.85
Total	N	39	519	153	711
	Column %	100	100	100	100

Note. Period 2 (July-December 2016) sampled and coded ISRs. *Only* investigative (Terry) stops shown. Probable cause stops, civilian encounters, errors, and stops outside city not shown. *Weighted* data. Records only shown if a protective pat down occurred

As mentioned above, with the coding instrument used, the question of whether the PPD was properly premised is considered only for those who received such a pat down while simultaneously *not* consenting to it. There are 371 such (weighted) cases. The differences in stop

premises for *just* these records, by ethnoracial group, appear in Exhibit 13. Speaking descriptively, the proportion of unjustified PPDs proves higher for Black non-Hispanic detainees (14 percent) than for White non-Hispanic detainees (9 percent). The weighted numbers of stops in these two categories, however, are small because such a large portion of these non-consented-to pat downs (87 percent) were sufficiently grounded in RAS.

Exhibit 13 Pat down basis and ethnoracial group: Non-consenting detainees receiving pat downs only

Does the ISR establish the RAS basis for the protective pat down?		Race/ethnicity of detainee			Total
		White NH	Black NH	Hispanic	
No	N	2	39	7	48
	Column %	8.82	14.5	8.4	12.89
Yes	N	17	232	74	323
	Column %	91.18	85.5	91.6	87.11
Total	N	18	272	81	371
	Column %	100	100	100	100

Note. Period 2 (July-December 2016) sampled and coded ISRs. *Only* investigative (Terry) stops shown. Probable cause stops, civilian encounters, errors, and stops outside city not shown. *Weighted* data. Records only shown if (a) a protective pat down occurred and (b) detainee did not consent to the pat down.

Exhibit 14 shows all four categories of protective pat down, and how those categories distribute across the three ethnoracial groups. As mentioned earlier, the key contrast of interest is between category (B) vs. (A): when PPDs happen, without consent, and are improperly premised (B) vs. properly premised and without consent (A).

Modeling this contrast will be challenging given the extremely small numbers of cases in these two categories of the outcome.¹⁰

8.2.3 Statistical impacts of detainee race and ethnicity

Models were conducted with only detainee race and ethnicity, and again with gender and age added. Given the extremely small numbers of weighted cases in some cells, additional detainee or stop factors are not included.

¹⁰ More specifically, this will translate to large standard errors, which will make it difficult to find statistical significance.

Exhibit 14 Categories of protective pat down (PPD)

Outcome category		Race/ethnicity of detainee			
		White NH	Black NH	Hispanic	Total
(A) PPD occurs, no consent, RAS present	N	17	232	74	323
	Column %	8.7	14.85	17.57	14.84
(B) PPD occurs, no consent, no RAS	N	2	39	7	48
	Column %	0.84	2.52	1.61	2.2
(C) PPD occurs, consent	N	21	247	72	340
	Column %	11.08	15.78	17.13	15.63
(D) No PPD	N	152	1,046	268	1,466
	Column %	79.38	66.84	63.69	67.33
Total	N	191	1,564	421	2,177
	Column %	100	100	100	100

Period 2 (July-December 2016) sampled and coded ISRs. *Only* investigative (Terry) stops shown. Probable cause stops, civilian encounters, errors, and stops outside city not shown. *Weighted* data. PPD = protective pat down. RAS = reasonable articulable suspicion.

Models with only detainee race and ethnicity, or with the addition of gender and age, all indicated no significant impact of ethnicity or race on the odds that a pat down would be [improperly vs. properly premised] among non-consenting detainees, (Detailed results not shown.) With these four factors included, the exponentiated coefficient, or odds ratio (OR), was about twice as high for Black non-Hispanic detainees as compared to White non-Hispanic detainees. However, since there were so few cases, the standard error was high, which resulted in a non-significant z test ($b = .71$; $se = .85$; $z = 0.83$; $p = .405$; $OR = 2.03$). Given how few cases are considered here, this difference should be attributed to noise or random variation.

8.2.4 Models using beat racial and ethnic composition categorical variables

Various models were conducted using different mixes of factors describing the beat in which the stop occurred. Specifically, for racial and ethnic composition, two approaches were followed. One used four continuous racial and ethnic variables: percent Black non-Hispanic, percent Hispanic, percent Asian, and percent Other. One used the latter two variables, along with the two categorical variables based on the work of Peterson & Krivo (2010): a dummy variable for 70 percent or higher Black non-Hispanic, and a dummy variable for 70 percent or higher Hispanic. The implicit contrast is with beats that are less than 30 percent Black non-Hispanic *and* less than 30 percent Hispanic *and* with zero percent Asian *and* with zero percent Other, in other words, beats that are predominantly White and non-Hispanic in their residential makeup.

It will turn out that the categorical Black non-Hispanic beat-level variable proves important. We can grow our way into understanding the patterns revealed by starting with a simple cross-tabulation.

Exhibit 15 indicates how the pat down outcome categories were distributed in different ways depending on whether the beat where the stop took place was 70 percent or higher Black non-Hispanic in residential composition. To start, the far-right column shows that, across all beats, 2.2 percent of the coded stops involved an insufficiently premised pat down of a non-consenting detainee. Does this percentage shift depending on whether the beat happened in a predominantly Black non-Hispanic beat (70 percent or higher), or a beat that was not predominantly Black non-Hispanic in residential makeup?

Looking at that same row in the table – unjustified pat down, no consent – the percentage *did* seem to shift a bit depending on the type of beat where the stop took place. When the beat was predominantly Black non-Hispanic, 3.2 percent of the Terry stops resulted in an unjustified pat down of a non-consenting detainee. In contrast, when the beat was less than 70 percent Black non-Hispanic in makeup, the percentage of stops for that group was lower. In these beats, only 0.9 percent of the stops involved an unjustified pat down of a non-consenting detainee.

In short, it appears that, among investigatory stops, the fraction of those stops that both involved non-consenting detainees *and* an unjustified pat down was higher if the stop took place in a predominantly Black non-Hispanic locale.

Exhibit 15 Pat down four category outcomes and beat ethnoraical composition

	Beat ethnoraical composition				Total N	Total Column Percent
	Less than 70 percent Black non-Hispanic		70 percent or more Black non-Hispanic			
	N	Column Percent	N	Column Percent		
Justified pat down, no consent	132	14.2	191	15.3	323	14.8
Unjustified pat down, no consent	8	0.9	40	3.2	48	2.2
Pat down with consent	148	15.9	192	15.4	340	15.6
No pat down	641	69	825	66.1	1,466	67.3
Total	929	100	1,248	100	2,177	100

Note. Period 2 (July-December 2016) sampled and coded ISRs. *Only* investigatory (Terry) stops shown. Probable cause stops, civilian encounters, errors, and stops outside city not shown. *Weighted* data.

But a cautionary note is in order. The (weighted) numbers of stops in question here, 8 and 40, are quite small.¹¹ Further, the percentage differences are correspondingly small (3.2 vs. 0.9). These

¹¹ If unweighted numbers are examined, they are similarly small for this category of the outcome: 16 (1.2 percent) for beats less than 70 percent Black and non-Hispanic, and 20 (2.6 percent) for beats 70 percent or more Black and non-Hispanic.

matters should be kept in mind when considering the practical significance of the patterns that will be reviewed because it turns out that these discrepancies do prove statistically significant.

Exhibit 16 Predicting insufficiently vs. sufficiently premised no-consent protective pat down using beat predictors.

Predictor	RR	b	se of b	Z	p <	95 % Confidence Interval		
						LCL	UCL	
Beat >= 70 % Black NH (1, 0 else)	1.p_k_bla	7.1058	1.9609	0.7897	2.48	.05	0.4130	3.5088
Beat >= 70% Hispanic (1, 0 else)	1.p_k_his	1.3678	0.3132	0.8845	0.35	ns	-1.4204	2.0468
Beat percent other	p_other	0.9444	-0.0572	0.1736	-0.33	ns	-0.3974	0.2831
Beat percent Asian	p_asian	0.9826	-0.0176	0.0637	-0.28	ns	-0.1423	0.1072
Residential socioeconomic status index (beat)	sesindx2	2.2895	0.8284	0.4594	1.8	ns	-0.0720	1.7287
Residential stability index (beat)	stabindx	0.8254	-0.1918	0.3041	-0.63	ns	-0.7878	0.4042
Constant		0.0528	-2.9409	0.7263				
Variance (residual) at district level			0.0918	0.0588				

Period 2 (July-December 2016) sampled and coded ISRs. *Only* investigative (Terry) stops shown. Probable cause stops, civilian encounters, errors, and stops outside city not shown.
 Results from mixed effects multinomial model, with stops clustered at the district level using generalized structural equation models, predicting a four-category outcome: (1) PPD occurs, no consent, RAS present; (2) PPD occurs, no consent, no RAS; (3) PPD occurs, consent; (4) No PPD. (1) was the reference category.
 Results shown only for the contrast of (2) vs. (1).
 PPD = protective pat down. RAS = reasonable articulable suspicion.
 ns = non-significant. RR = relative risk ratio, that is risk relative to the base category (non-consenting detainee, justified pat down)

Results of one model using beat context predictors appear in Exhibit 16. It suggests that protective pat downs of non-consenting detainees occurring in predominantly Black non-Hispanic beats were significantly ($p < .05$) more likely to lack a proper premise compared to pat downs of non-consenting detainees occurring in predominantly White non-Hispanic beats. Stated differently, among stops involving pat downs of non-consenting detainees, the chances were much higher that the pat down would be improperly premised if the stop took place in a beat where the residential population was 70 percent or more Black non-Hispanic.

How much higher were the chances? The relative risk ratio is 7.1. This means that the odds of an [improper vs. proper] pat down were six times higher in predominantly Black non-Hispanic beats after taking other structural beat features into account.

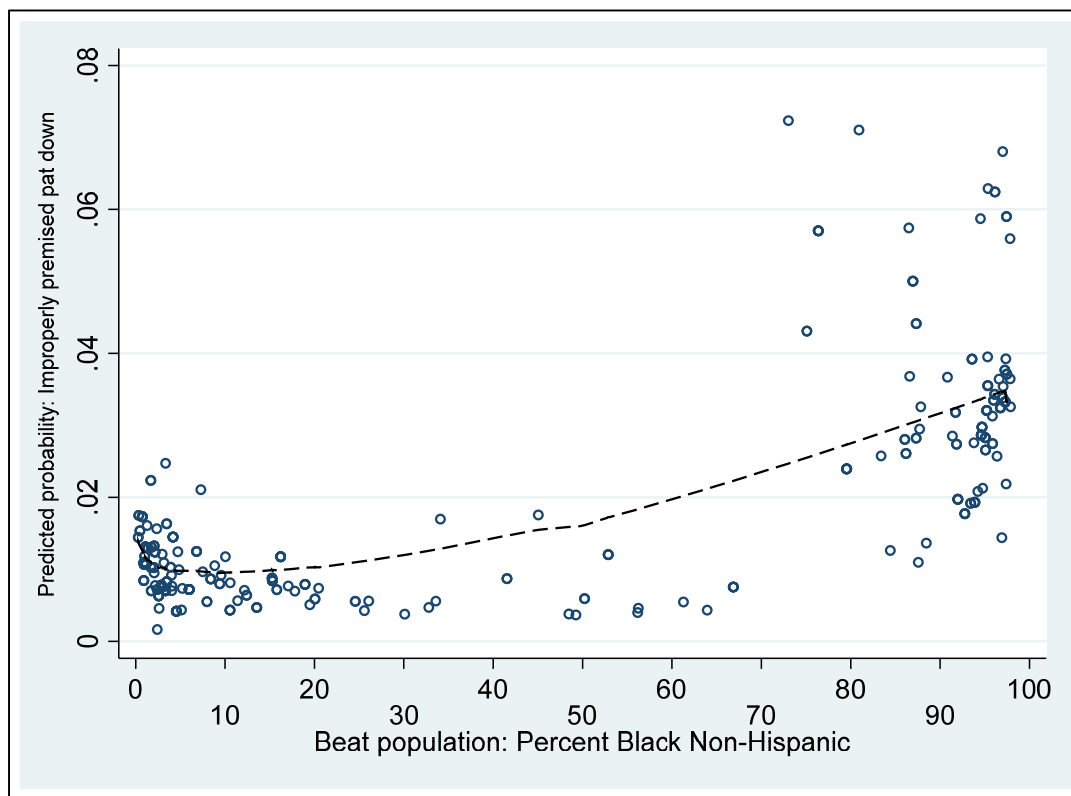
When consideration moves to the size of the difference in the full set of records from which the samples were taken, after sampling error is factored in, the 95 percent confidence interval for this impact ranges from a relative risk ratio of 1.5 to 33.4. That is, in the full set of investigatory

stops there is a better than 95 percent chance that the rate of non-consent pat downs ranged anywhere from 1.5 times higher to 32 times higher in beats that were predominantly Black non-Hispanic in residential population. Because the numbers of cases relevant to this contrast, as shown earlier, are relatively small, and because a lot of sampling error is factored in, this results in extremely wide confidence intervals.

Because the result is statistically significant ($p < .05$), predominantly Black non-Hispanic residential composition seems likely, 95 times out of a hundred, to represent a notable impact in the full set of Terry stops from which these records were sampled.

Exhibit 17 displays the relationship between the predicted probability that the detainee would be non-consenting and would experience an unjustified pat down based on the full contextual model. Data are shown only for those detainees who did not consent, and who experienced a pat down. Those predicted probabilities range from close to zero to above .07 or seven percent. The scatterplot shows that these predicted probabilities increase markedly if the stop happens in a beat that is more than 70 percent Black non-Hispanic in residential composition.

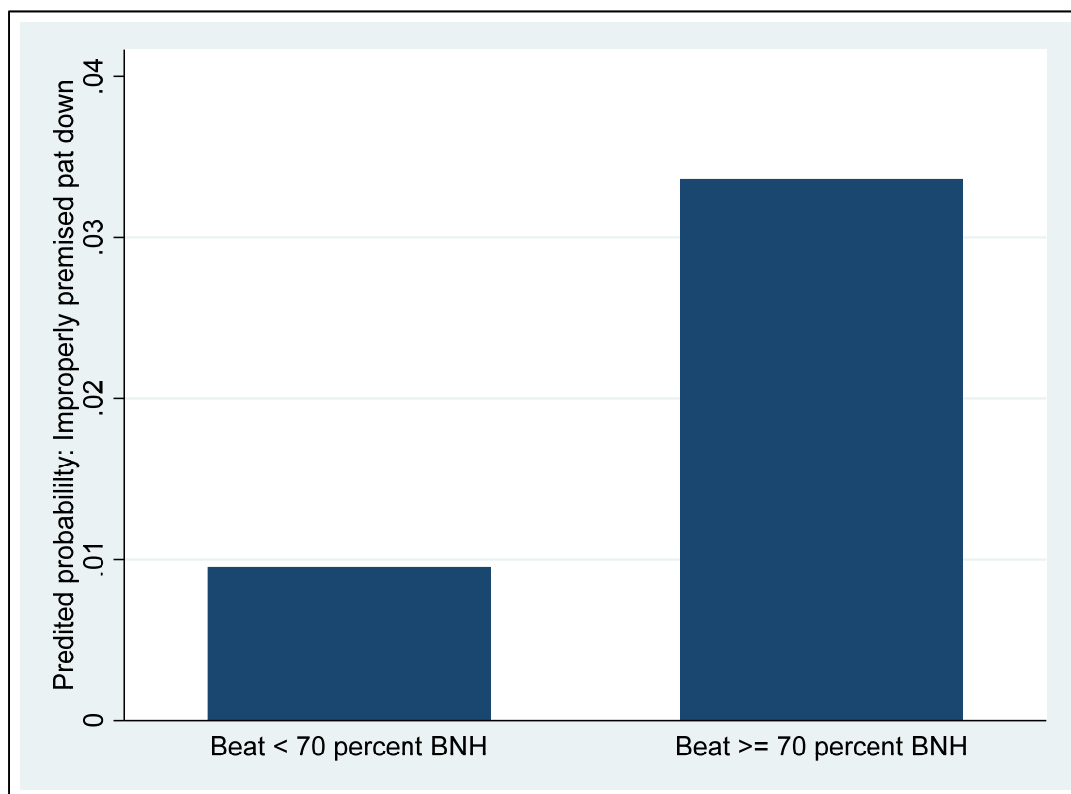
Exhibit 17 From full contextual model: Predicted probability and beat racial composition



Note. Period 2 data, July-December 2016 ISRs from CPD. Data shown *only* for detainees who experienced a pat down and did not consent to it. Results represent predicted probabilities that the detainee experience an insufficiently premised pat down. The predicted probabilities that the detainee would be in this category derive from the model with the full set of beat predictors shown in Exhibit 16. The dotted line shown is a LOWESS curve (Cleveland, 1979). It shows that these predicted probabilities increase markedly if the beat population is more than 70 percent Black and non-Hispanic. *Results should be interpreted with caution given low counts in some cells of the model.*

Exhibit 18 takes these same data and organizes them using the categorical racial composition variable rather than the continuous racial composition variable. In predominantly Black non-Hispanic beats among non-consenting detainees who received a pat down, the predicted probability their pat down would be improper is slightly over three percent. In beats that were not predominantly Black non-Hispanic in residential makeup, the same predicted probability is slightly less than one percent.

Exhibit 18 Predicted probabilities non-consenting detainees experience an improper pat down



Note. Period 2 data, July-December 2016 ISRs from CPD. Average predicted probability of an improperly premised pat down, organized by categorical beat racial composition variable. BNH = Black non-Hispanic. *Only* detainees who were patted down, and who did not consent to the pat down, included.

Some features of this model and of other models in the series, however, suggest interpreting this result with **considerable caution**. First, as already mentioned, there are small numbers of cases in some outcome cells. Second, whether the racial composition variable proves significant at $p < .05$, or instead generates a higher and non-significant probability level, depends on which other specific predictors get entered. Third, the size of the odds ratio itself as well as its significance level, varies markedly depending on which other contextual factors are included.¹² Next, the standard error associated with the impact of this variable inflates noticeably. Finally, this

¹² If just categorical race and ethnicity are entered, the racial composition categorical variable has the following characteristics: OR = 1.36; $p < .01$). If percent Other and percent Asian are added, the racial composition categorical variable has OR = 1.21; $p = .06$.

significant result only appears if stops are clustered at the district level. Models with clustering at the beat level do not generate a significant difference based on beat racial composition.

At this juncture it is probably best to interpret this link as correlational rather than causal. **We don't know if it is beat racial composition itself that is causing this difference in the outcome, or some feature of the locale associated with the beat residents being 70 percent or more Black non-Hispanic, or some feature of adjoining beats.** The model does control for residential stability of the beat, and socioeconomic status of the residents, but other features of the beat, or of nearby beats, could be driving the relationship seen here. Perhaps the biggest gap is that local violent crime rates, and associated police deployment levels, both of which link to community racial composition, have not been taken into account.

Additionally, the predicted probabilities between the two types of beats differ by slightly more than two percent. That may lead some to question the practical significance of the disparity. That is probably an important discussion to have.

On the other hand, the reason the predicted probabilities are low in the first place is because improper pat downs were relatively rare events. What the pattern suggests is that the occurrence of these events, though rare, plays out differently in beats where residents are predominantly Black non-Hispanic.

In sum, neither individual detainee race nor ethnicity link to whether a no-consent pat down was properly premised on RAS or not. But beat racial composition was significantly linked to this outcome. The link is visible. At the same time, caution about this link is in order given the small numbers of cases involved, model results that depend significantly on several factors, the size of the differences under discussion, and crucial questions about how the link works given the lack of localized violent crime data.

8.3 PROBABLE CAUSE FOR SEARCH

8.3.1.1 *Search occurrences beyond a protective pat down as coded*

Using coded results, 99 (4.6 percent) out of 2,150 coded Terry stop ISRs included a search beyond a protective pat down (SBPP). When the data are weighted to reflect the population of records, 114 (5.2 percent) out of 2,177 weighted records included a search beyond a protective pat down.

Bear in mind that, given the framing of the search question, the question about whether a SBPP occurred is *not* the same as the police recording a search (See Exhibit 19). There were 77 (weighted) cases where CPD officers marked the search box but the search was not coded as an SBPP. Therefore, this discrepancy is understandable. Seventy five of these 77 weighted cases (68 out of 69 unweighted cases) occurred where there was a search, but police did not mark the pat down box.

Less easily explained, however, **is the discrepancy when the narrative coding says a SBPP occurred and CPD officers did not mark the search box. There were 33 weighted (30 unweighted) coded ISRs with this discrepancy.** This represents 1.8 percent of all weighted sampled records where CPD indicated a search did not occur (1,801 = weighted N; 1.6 percent

and 1,818 unweighted N). See Exhibit 19. Learning more about this discrepancy would require closer examination of these 30 (unweighted; 33 weighted) records.

Exhibit 19. Coded searches beyond a pat down, and police search checkbox

	N	Police ISR Search Check Box (search_i)		Total N	Total Column Percent
		No Column Percent	Yes Column Percent		
Was there a search beyond the pat down?					
No	520	28.9	77	597	27.4
Yes	33	1.8	81	114	5.2
Not reported	1249	69.3	217	1466	67.3
Total	1801	100	375	2177	100

Note. Period 2 (July-December 2016) sampled and coded ISRs. *Only* investigative (Terry) stops shown. Probable cause stops, civilian encounters, errors, and stops outside city not shown. *Weighted* data.

The “not reported” line in the above table refers either to coded records where no searches occurred, in which case no search was coded, or to searches that did *not* follow a protective pat down.

8.3.1.2 Search occurrence and probable cause when no other factors relevant

Attention turns to the rate at which searches following a protective pat down appear justified by probable cause as reflected in the narratives provided. This consideration will exclude searches that had a different justification than probable cause, as revealed by assessing the narratives. More specifically, the following cases are excluded for the following reasons

- N=44 (35 unweighted): Detainee consented to search
- N=4 (3 unweighted): Custodial search incident to arrest

The analysis includes one search-following-a-protective-pat-down or SFPP where an arrest occurred, but the arrest itself, based on the narrative reviewed, did *not* appear to be a reason for the search.¹³

After dropping these 38 cases where either the detainee consented or the search was incident to arrest, 66 weighted cases remained (3 percent of the remaining weighted 2,129; 61 unweighted or 2.9 percent of remaining 2,112 unweighted cases) where an SBPP took place.

Examining the 66 weighted cases where an SBPP took place, 59 (89 percent) had sufficient probable cause given the narrative reviewed while 7 (11 percent) did not. The corresponding

¹³ Looking at the unweighted data, there were four ISRs where CPD checked the arrest box, and the detainee consented to the search; two ISRs where CPD checked the arrest box and the detainee consented to the search, and one instance where CPD checked the arrest box but it appeared to the coder that, beyond the probable cause basis, there was neither a consent basis for the search nor a custodial basis. Therefore, the analyses reported here include one unweighted record where CPD indicates an arrest occurred, but the legal assessment indicates the search was not incident to arrest.

unweighted cases were 56 (92 percent) out of 61 properly premised and 5 (eight percent) lacking probable cause.

Given these low numbers of non-consenting searched detainees where the search lacked probable cause and followed a protective pat down, there is no point in conducting a statistical analysis because there would be no statistical power. In other words, **because there is only a handful of sampled records with improper searches when the search followed a protective pat down, it is not possible to examine disparities on this outcome using either detainee race or racial composition of surround.**

8.3.1.3 Factors providing basis for SBPP

The factors providing the basis for the SBPP were coded. For each case, as many factors as applied could be coded. Exhibit 20 indicates how often various factors were noted.

Exhibit 20 Bases for search beyond probable cause

Factor	Weighted N	Percent
Plain touch	18	35
Search of personal possessions based on RAS that there was a concealed weapon within reach	26	50
Search of personal possession on plain view	7	15

9 DISCUSSION

The current report presents findings about both the base rate and racial disparities associated with the following features of investigatory stops completed by Chicago police officers during the second half of 2016: whether the stop was sufficiently premised on reasonable articulable suspicion; whether a pat down, if it occurred, was sufficiently premised on reasonable articulable suspicion; and whether a search beyond a protective pat down, if it occurred, was sufficiently premised on probable cause. The focus in the main report is solely on investigatory stops; probable cause or "on view" stops are excluded. An addendum (Section 10) repeats select descriptive and statistical examinations including probable cause stops as well as investigatory stops. Doing so makes for some different findings.

There are three major reasons that comparisons between patterns found in this reporting period and those for the previous timeframe are problematic. First, in this timeframe the sampled records provided to the Consultant for coding excluded information on race, ethnicity, gender, and police district. Second, different coding protocols were used in the second half of calendar year 2016 to record the Consultant's assessments of the sampled stops. Third, in this timeframe, but not the previous one, only investigatory stops which generated one version of a report are considered. In the previous timeframe, multiple version investigatory stop reports were included as well and made up roughly five percent of sampled stops.

9.1 MAIN POINTS

Bearing in mind limitations about comparing between the first and the last half of the year, the following points are noted. The relatively high rate of properly premised stops observed in the first half of 2016 appears for the latter half of the year as well. The rate at which these reports suggest that the investigatory stops were legally justified remains unchanged.

Further, no connection surfaces either between the race and ethnicity of the detainee and the sufficiency of the stop premise; or between the racial or ethnic composition of the beat where the stop took place and the sufficiency of the stop premise.

Although the overall rate of predicted "good" stops is relatively high in both time frames, the specific districts with the highest fraction of predicted "bad" stops does shift from the first to the last half of the year. Reasons for these shifts are not known at this time. There is extensive scholarship on the organizational sociology of police districts (Klinger, 1997; Taniguchi, 2010). This work discusses how norms develop at the district level in response to crime and related pressures that vary across locations. Does the shift from the first to the last half of the year in which districts had the highest fraction of unjustified stops arise from changing district norms? Or could it arise from some other cause, such as shifts over time in the composition of the detainees the officers encounter during their investigatory stops, or shifts over time in the context in which these detainees are encountered, or crime and disorder related shifts that alter how officers at the district level select whom to detain and investigate? At this time, we don't know.

The examination of pat down basis concentrated on two different groups: those patted down without consent where the pat down appeared sufficiently grounded in reasonable articulable suspicion; and those patted down without consent where the pat down failed to be sufficiently grounded. This examination also simultaneously considered what was happening with the other two groups – those patted down with consent, and those not patted down at all – but the results reported just concentrate on these first two groups.

Among nonconsenting detainees who were patted down, no disparities based on detainee race or ethnicity surfaced. There was, however, a difference in pat down basis in predominantly Black non-Hispanic versus other police beats. The predicted probability that the pat down would be improperly justified was higher if the pat down took place in a beat that was 70 percent or more Black non-Hispanic in residential composition. Because this impact was statistically significant ($p < .05$, two tailed), it suggests a disparity that applies to the entire set of investigatory stops for the latter half of the year. That said, this disparity merits extreme caution in interpretation for several reasons. The number of sampled records involved is small because the rate of *properly* justified pat downs was generally so high. Further, the statistical significance does not appear in all models. Additionally, the analysis does not control for features of nearby beats. This means that it could be arising in part from the concentration effects discussed and measured by Peterson & Krivo (2010). Moreover, given the small difference in predicted probabilities, some may question the practical significance of the disparity. Finally, the significant difference does *not* replicate when probable cause stops are included alongside investigatory stops (see Addendum).

Looking ahead, it may be possible to learn more about this concern by shifting the sampling strategy for the next reporting period. For example, we could oversample investigatory stops with pat downs. We also could oversample in particular geographies to increase the number of sampled records in certain locations. Along a different line, more attention could be paid to race

adjacency effects in order to better gauge how much of this connection arises from concentration effects.

Turning to searches and their legal basis, because of the extremely low number of investigatory stops where searches beyond pat downs took place, it was not possible to say anything definitive about racial or ethnic disparities either based on detainees themselves or based on the locations where the stops took place. This limitation persists even if probable cause stops are included as well.

9.2 STRENGTHS, LIMITATIONS, LOOKING AHEAD

The work here has some strengths. These findings are based on representative samples of investigatory stops, and therefore apply to the full set of investigatory stops recorded during the last half of 2016. Further, information provided for the legal coding of each individual stop excluded detainee race and ethnicity, detainee gender, and the district in which the stop took place. In short, the coder was "blind" to these features of the stops. In addition, the sampled records were randomly sorted so that the coder was unlikely to encounter several stops together from the same district or occurring in about the same time. Finally, because we compiled demographic information about police beats, and because these beats were sufficiently numerous, we were able to incorporate beat level demographic features into some models. Doing so aligns the current work more closely with some of the types of models used in both the Bailey et al. v. City of Philadelphia case (Rudovsky, Messing, & Lin, 2017), and the work of Fagan on the Floyd case in New York City (Fagan, 2012).

Offsetting these strengths are some limitations of the work. Most importantly, the relatively low rates of improper pat downs of nonconsenting detainees, as well as the extremely low rate of searches following protective pat downs, made it difficult to observe statistically significant racial or ethnic disparities. That said, in at least one instance, a significant disparity did arise. There is a suggestion here that although things like an improperly premised pat down of a nonconsenting detainee is a rare event, it is a rare event that is not distributed evenly across Black and non-Black police beats.

Of course, a relatively low rate of improper pat downs, and a relatively low rate of nonconsenting searches of detained civilians, are both good outcomes from the public's perspective. ***That these low rates create statistical challenges for detecting disparities certainly should not overshadow the public benefit of these low rates.***

Another limitation of the work arises from the sample sizes used. Although the sampled records as a total group allowed for statistical analyses with sufficient statistical power, they did not permit splitting records into two random samples so the robustness of patterns across subsets of records could be estimated. It may be possible to partially overcome this limitation in future analyses by employing Full Bayes analytic methods for some models. Alternatively, as mentioned above, it may be possible in future work to use a more deliberate sampling strategy that increases the numbers of cases whose features are of key interest.

Further, now that the ecological analytics for Period 2 are drilling down to the beat-within-district level, in contrast to Period 1 models operating only at the district level, it is more

important to incorporate controls for spatial autocorrelation on outcome variables (Cliff & Ord, 1973).

Yet another limitation is that the key finding here linking improper pat down basis and beat racial composition – a significant link *not* replicated when probable cause stops are thrown into the mix – should certainly at this point be considered correlational in nature rather than causal. Further model diagnostics, using models that might get us closer to causal interpretation like propensity scoring models, and additional attention to adjacency dynamics, are all needed to further clarify how to interpret this link.

9.3 SUMMARY

In sum, analysis reveals generally continuing high rates of properly premised investigatory stops, and generally low rates of improperly premised pat downs of nonconsenting detainees. A significant ecological race-linked disparity on the likelihood that a pat down would be improper does surface. But for several reasons, the link should be interpreted with caution, including the fact that it goes away when probable cause stops are included. Records do not permit examining links between race and improper searches.

10 ADDENDUM

Parties to the Agreement have expressed an interest in learning about the rate of justified and unjustified pat downs and searches when probable cause stops are included alongside investigatory stops. This addendum repeats key descriptive and statistical analyses appearing earlier in this report, but includes both probable cause stops as well as investigatory stops.

10.1 PAT DOWNS AND CONSENT

10.1.1 Descriptive patterns

Exhibit 21 cross tabulates ethnoracial group with the occurrence of a pat down. The pattern here can be compared to that seen in Exhibit 11 based only on investigatory stops. With the weighted sample of both probable cause and Terry stops, 909 pat downs took place in a sample of 3,461 (weighted N) for a pat down prevalence rate of 26.3 percent in the weighted sample.

Exhibit 21 Count and proportions patted down by ethnoracial group: Probable cause stops and investigatory stops combined

Did officer conduct a protective pat down?		Race/ethnicity of detainee			
		White NH	Black NH	Hispanic	Total
No	N	251	1,811	490	2,552
	Column %	83.19	73.73	69.65	73.73
Yes	N	51	645	213	909

	Column %	16.81	26.27	30.35	26.27
		-----	-----	-----	-----
Total	N	301	2,456	703	3,461
	Column %	100	100	100	100

Note. Period 2 (July-December 2016) sampled and coded ISRs. Investigative (Terry) stops plus probable cause stops included. Civilian encounters, errors, and stops outside city not shown. *Weighted* data.

Exhibit 22 shows for each ethnoracial group and for the entire weighted sample the fraction of detainees consenting to a pat down. The overall consent rate was 50.7 percent. The consent rate among patted down detainees was 53 percent for non-Hispanic Whites, 52 percent for Hispanics, and 50 percent for non-Hispanic Blacks in the weighted sample.

Exhibit 22 Pat down basis and ethnoracial group: Investigatory plus probable cause stops

Was the pat down based on consent?		Race/ethnicity of detainee			Total
		White NH	Black NH	Hispanic	
		-----	-----	-----	-----
No	N	24	322	103	448
	Column %	46.56	49.84	48.27	49.29
Yes	N	27	324	110	461
	Column %	53.44	50.16	51.73	50.71
Total	N	51	645	213	909
	Column %	100	100	100	100

Note. Period 2 (July-December 2016) sampled and coded ISRs. Investigative (Terry) stops *and* probable cause stops shown. Civilian encounters, errors, and stops outside city not shown. *Weighted* data. Records only shown if a protective pat down occurred.

Focusing just on patted down and consenting detainees, Exhibit 23 shows the proportion of stops in each ethnoracial group where the pat down was properly premised on RAS. The numbers here can be contrasted with those in Exhibit 13.

Exhibit 23 Pat down basis and ethnoracial group considering nonconsenting detainees: Investigatory plus probable cause stops

Does the ISR establish the RAS basis for the protective pat down?		Race/ethnicity of detainee			
		White NH	Black NH	Hispanic	Total
No	N	3	52	14	68
	Column %	11.36	16.13	13.17	15.2
Yes	N	21	270	89	380
	Column %	88.64	83.87	86.83	84.8
Total	N	24	322	103	448
	Column %	100	100	100	100

Note. Period 2 (July-December 2016) sampled and coded ISRs. Investigative (Terry) and probable cause stops shown. Civilian encounters, errors, and stops outside city not shown. *Weighted* data. Records only shown if (a) a protective pat down occurred and (b) detainee did not consent to the pat down.

Here we see an overall unjustified pat down rate of 15 percent. This is a couple of percentage points higher than the rate seen, 12.9 percent, when only investigatory stops were examined (Exhibit 13). As was seen with just the investigatory stop reports, the unjustified pat down rates vary by ethnoracial group. Before, the Black non-Hispanic unjustified pat down rate was higher than the White non-Hispanic unjustified pat down rate (14.5 percent vs. 8.8 percent). That is still true with probable cause stops included (16.1 percent vs. 11.4 percent). Exhibit 24 shows all four categories of outcomes involving combinations of protective pat downs or not, and consenting or non-consenting detainee.

Exhibit 24 categories of protect pat down (PPD): Probable cause and investigatory stops

Outcome category		Race/ethnicity of detainee			
		White NH	Black NH	Hispanic	Total
(A) PPD occurs, no consent, RAS present	N	21	270	89	380
	Column %	6.94	10.98	12.72	10.98
(B) PPD occurs, no consent, no RAS	N	3	52	14	68
	Column %	0.89	2.11	1.93	1.97
(C) PPD occurs, consent	N	27	324	110	461
	Column %	8.99	13.18	15.7	13.32

	N	251	1,811	490	2,552
(D) No PPD	Column %	83.19	73.73	69.65	73.73
	N	301	2,456	703	3,461
Total	Column %	100	100	100	100

Note. Period 2 (July-December 2016) sampled and coded ISRs. Investigative (Terry) and probable cause stops shown. Civilian encounters, errors, and stops outside city not shown. *Weighted* data.

Outcome category B is of special interest. Detainees here did not consent, and received an unjustified pat down. For each ethnoracial group, the percent of that group experiencing an improperly premised protective pat down, to which the detainee was not consenting, is quite close to the corresponding percentage seen when only investigatory stops are examined (see Exhibit 14). For each ethnoracial group, the percent of the group in category B is within .one-half of a percent of the corresponding group percentage when only investigatory stops are examined.

Not only are the proportions of non-consenting detainees patted down improperly (category B) small, so too is the corresponding number of stop reports for each group. The caution noted earlier about contrasting category B vs. A remains given the extremely small number of cases for each group in category B.

Exhibit 25 shows the distribution of stop reports for the four category pat down outcome, organized by beat ethnracial composition, where beats 70 percent or more Black and non-Hispanic are contrasted with beats less than 70 percent on this variable. Both investigatory and probable cause stops are included. The relevant contrast considering only investigatory stops is shown in Exhibit 15.

10.1.2 Statistical models

Adding in the on-view stop reports seems to dilute one of the key contrasts seen earlier. With only investigatory stop reports, the percent of stops resulting in improper pat downs of non-consenting detainees differed noticeably between stops in vs outside of predominantly Black non-Hspanic beats (3.2 percent vs. .9 percent (see Exhibit 15)). With probable cause stops added to the mix, that same difference is barely one percent (2.4 percent vs. 1.3 percent).

Exhibit 25 Pat down four category outcome and beat ethnoraical composition: Terry and probable cause stops

	Beat ethnoraical composition					
	Less than 70 percent Black non-Hispanic		70 percent or more Black non-Hispanic		Total	
	N	Column Percent	N	Column Percent	N	Column Percent
(A) PPD occurs, no consent, RAS present	150	10.3	230	11.5	380	11
(B) PPD occurs, no consent, no RAS	19	1.3	49	2.4	68	2
(C) PPD occurs, consent	203	13.9	258	12.9	461	13.3
(D) No PPD	1,084	74.5	1,467	73.2	2,552	73.7
Total	1,456	100	2,005	100	3,461	100

Period 2 (July-December 2016) sampled and coded ISRs. Investigative (Terry) stops and probable cause stops shown. Civilian encounters, errors, and stops outside city not shown. *Weighted* data. PPD = protective pat down. RAS = reasonable articulable suspicion.

A number of different multi-level multinomial models were run.¹⁴ These separate models included detainee race and ethnicity only, all detainee features, beat race and ethnicity only, or all beat features.

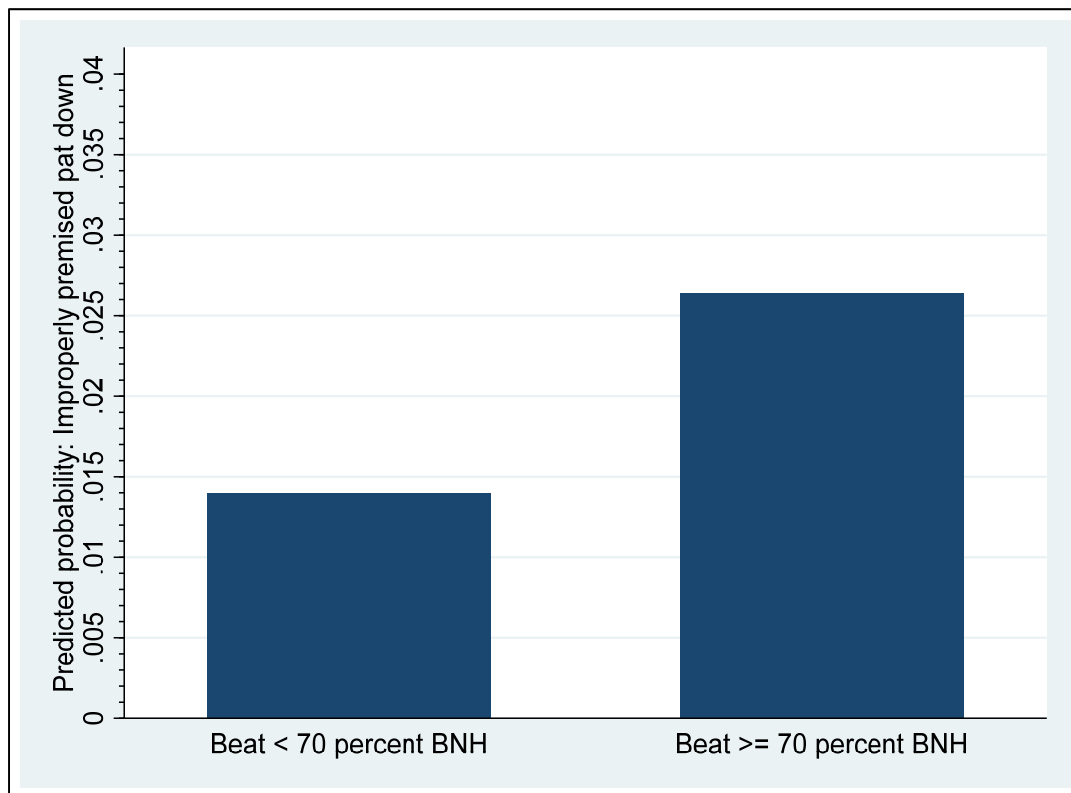
None of the models revealed a significant impact of detainee race or ethnicity, or beat racial or ethnic composition, on the likelihood that a non-consenting detainee who was patted down experienced an improper (outcome category B) vs. a proper (outcome category A) pat down. Re-doing the model with the exact same predictors as shown in Exhibit 16 showed the following. The relative risk ratio was higher (RRR=1.87) for ≥ 70 percent Black non-Hispanic vs. < 70 percent Black non-Hispanic beats. But the confidence interval was extremely wide (95 percent confidence interval: .65 - 5.36). This translated to a non-significant impact of the beat racial composition variable ($z=1.17$, $p = .24$).

To illustrate, consider Exhibit 26. It shows the average predicted probability that a non-consenting detainee would be improperly patted down. These predicted probabilities come from an ecological model identical to the one whose results appear in Exhibit 16. The predicted probabilities are organized into two groups: stops taking place in beats whose residents are less than 70 percent Black non-Hispanic (left bar); and those stops taking place in beats whose residents are 70 percent or more Black non-Hispanic (right bar).

In short the significantly higher relative risk in a predominantly Black non-Hispanic police beat that a non-consenting detainee would experience an improperly premised vs. a properly premised pat down, seen when only investigatory stops are considered, disappears when probable cause stops are added in with investigatory stops.

¹⁴ These were two-level models, the stop reports clustered by district.

Exhibit 26 Predicted probabilities, by beat classification: Non-consenting improper pat down



Note. Period 2 data, July-December 2016 ISRs from CPD. Average predicted probability of an improperly premised pat down, organized by categorical beat racial composition variable. BNH = Black non-Hispanic. *Only* detainees who were patted down, and who did not consent to the pat down, included. Investigative (Terry) stops and probable cause stops shown. Civilian encounters, errors, and stops outside city not shown. Weighted data.

The disappearance of the significant beat racial composition effect previously seen (Exhibit 16) makes sense from a criminal justice decision making perspective. The probable cause stops, as compared to the investigatory stops, automatically provide the detaining officer with more legal latitude. He or she has witnessed something wrong. Consequently, the detaining officer requires less from the stop context or from the detainee to justify proceeding to a pat down. Thus, adding in this group of stops further lowers the already low rate of improper pat downs among non-consenting detainees. With those lower rates, it is harder to find a difference.

10.2 SEARCH OCCURRENCES BEYOND A PROTECTIVE PAT DOWN

10.2.1 Descriptive patterns

10.2.1.1 Search rate

Using coded results, 152 (161 weighted n) out of 3,448 (3,461 weighted n) stops involved a search beyond a protective pat down (4.4 percent unweighted; 4.6 percent weighted). These

percentages are quite close to the percentages seen when considering investigatory stops only (4.6 percent unweighted; 5.2 percent weighted).

10.2.1.2 Exclusions

To consider the relationship between a search and a corresponding probable cause basis, cases are excluded if they had a different justification besides probable cause. The following cases are excluded for the following reasons:

- N = 61 (62 unweighted): Detainee consented to search
- N = 6 (5 unweighted): Custodial search incident arrest

If we remove these 67 cases, we are left with:

- 94 (n = 85 unweighted) searches beyond a protective pat down among 3,394 coded reports (n = 3,381 unweighted) for a search rate of 2.76 percent (2.51 unweighted). These search rates are quite close to the percentages when looking at only Terry stops (3 percent, 2.9 percent unweighted).

10.2.1.3 By detainee race and ethnicity

Here is what the search beyond a protective pat down rates look like for the three ethnorracial groups

- 1.36 percent for White non-Hispanic detainees (unweighted percentage identical)
- 2.75 percent for Black non-Hispanic detainees (unweighted percentage identical)
- 3.41 percent for Hispanic detainees (unweighted percentage identical)

10.2.1.4 By beat: Predominantly vs. non-predominantly Hispanic with predominantly Black removed

With these same 67 cases removed, search rates can be contrasted between different types of beats. If we remove predominantly Black non-Hispanic beats, and contrast predominantly Hispanic beats with beats less than 70 percent Hispanic in racial composition, the search rates are as follows:

- 3.6 percent (3.9 percent unweighted) in predominantly Hispanic beats (16 out of 456; 28 out of 711 unweighted) vs.
- 1.7 percent (1.5 percent unweighted) in non-predominantly Hispanic beats that are also *not* predominantly Black and non-Hispanic (17 out of 966; 22 out of 1,460 unweighted)

Removing the stops in predominantly Black non-Hispanic beats contrasts Hispanic beats with those beats that will be primarily White non-Hispanic beats (reference string beats), while ignoring the Asian and Other race variables in the mixed effects models.

Descriptively speaking, the non-consenting search rate appears to be twice as high in beats that are predominantly Hispanic in makeup compared to beats that are neither predominantly Hispanic nor predominantly Black non-Hispanic in makeup. This descriptive disparity surfaces in a broader overall context of extremely low non-consenting search rates.

10.2.1.5 *By beat: Predominantly vs. non-predominantly Black non-Hispanic with predominantly Hispanic removed*

If we remove stops occurring in predominantly Hispanic beats, and contrast the non-consenting search rate in predominantly Black non-Hispanic beats vs. beats where the residential population is less than 70 percent Black non-Hispanic, we see the following search rates:

- 3.1 percent (3 percent unweighted) in predominantly Black non-Hispanic beats (61 out of 1,940; 35 out of 1,179 unweighted) vs.
- 1.7 percent (1.5 percent unweighted) in beats that are less than 70 percent Black non-Hispanic *and* less than 70 percent Hispanic in residential makeup (17 out of 966; 22 out of 1,460 unweighted).

From a descriptive perspective, the search rate appears to be higher in beats that are predominantly Black and non-Hispanic in residential makeup compared to beats that are neither predominantly Hispanic nor predominantly Black non-Hispanic in residential composition.

10.2.1.6 *Variation by district and by beat within district*

One last descriptive point bears mentioning. With this outcome, reports weighted, and reports excluded where the search relied on a different basis, the variation in the outcome was substantial at the district level, but more substantial at the beat-within-district level. The intraclass correlation (r_{icc}) captures the fraction of the outcome variation associated with each level in the model (Snijders & Bosker, 2012: 17).¹⁵ Twenty-six percent of that variation resides at the beat-within-district level and 4.5 percent at the district level. After taking sampling error into account, both of these variance indicators were estimated to be above zero. In other words, *both* within district, cross-beat differences on this outcome, *and* between-district differences on the outcome, contribute to overall variation. **The 26 percent of the outcome variation at the beat-within-district level underscores the sizable within-district heterogeneity on this outcome.**

10.2.2 Statistical patterns: Beat-level predictors

To learn whether beat racial or ethnic composition had a statistically significant *net* impact on whether a search occurred while excluding searches justified on a different basis, we ran mixed effects models. These were three-level models, with stops nested within beats, and beats nested within districts. Entered predictors included:

- Categorical beat racial composition (70 percent or higher Black non-Hispanic vs. less than 70 percent)
- Categorical beat ethnic composition (70 percent or higher Hispanic vs. less than 70 percent)
- Percent Asian
- Percent other races
- Socioeconomic status index
- Residential stability index

¹⁵ These intraclass correlations were based on the ANOVA three level model, with only random effects at the beat-within-district and the district levels.

Results showed only a marginal, (“almost”) significant impact ($p < .10$, two tailed test) of beat racial and ethnic composition. As we have done throughout in these reports, we are treating marginally significant results as non-significant impacts.

The net impact of beat racial composition suggested a non-consensual search was about two and a half times more likely in a predominantly Black non-Hispanic beat compared to a predominantly white non-Hispanic beat, after controlling for other beat factors ($b = 1.24$, $se = .71$, $z = 1.76$, $p = .078$ (two tailed), $OR = 3.47$). Although this was a sizable odds ratio, when sampling error was considered, the 95 percent confidence interval of the odds ratio is extremely large ($LCL = .87$; $UCL = 13.8$). Since the range of the confidence interval includes 1.0, we cannot be sure that there was an impact of beat racial composition in the full set of records from which these were sampled.

The story was similar for beat ethnic composition. Although non-consensual searches were 2.8 times more likely in predominantly Hispanic vs. predominantly White non-Hispanic beats ($b = 1.33$, $se = .69$, $z = 1.93$, $p = .053$ (two tailed), $OR = 3.78$), the impact was not statistically significant. Again, the 95 percent confidence interval was extremely wide for the odds ratio ($LCL = .98$; $UCL = 14.6$).

Three-level models also investigated impacts of only beat racial and ethnic composition. Racial and ethnic composition always proved non-significant no matter what other beat factors were included or excluded (results not shown).

The conclusion is that neither beat racial composition nor beat ethnic composition demonstrates a significant impact on the chances, among this set of investigatory plus probable cause stops, that a non-consensual search and one unrelated to taking a detainee into custody is significantly more likely in predominantly Black or predominantly Hispanic beats.

10.3 SEARCH OCCURRENCES BEYOND A PROTECTIVE PAT DOWN AND SEARCH BASIS

10.3.1 By race and ethnicity of detainee

10.3.1.1 *Descriptive*

Focusing only on searches which did not have some other justification, including consent, the proportion of searches justified with a probable cause basis was as follows for each ethnoracial group:

- 93 percent (93 percent unweighted) for White non-Hispanic detainees (3.7 out of 4; 14 out of 15 unweighted);
- 87.5 percent (87.5 percent unweighted) for Black non-Hispanic detainees (58 out of 66; 28 out of 32 unweighted); and
- 87.2 percent (87.2 percent unweighted) for Hispanic detainees (21 out of 24; 34 out of 39 unweighted).

10.3.1.2 *Statistical testing*

Entering all detainee factors into a three-level (reports, beats-within-districts, districts) mixed effects logit model predicting search justification generated highly non-significant net impacts of

detainee race and ethnicity (detailed results not shown). The same pattern appeared if detainee race and ethnicity were the only predictors.

10.3.2 By beat: Predominantly vs. non-predominantly Hispanic with predominantly Black removed

If we remove searches with other bases and also remove searches in predominantly Black non-Hispanic beats, then contrast predominantly Hispanic beats with beats less than 70 percent Hispanic in racial composition, the *percent of searches justified by a probable cause basis*, for each group, is as follows:

- 85 percent (85 percent unweighted) of searches in predominantly Hispanic beats appeared soundly grounded in probable cause (14 out of 16; 24 out of 28 unweighted), compared to
- 94.9 percent (91 percent unweighted) of searches in beats *neither* predominantly Hispanic *nor* predominantly Black and non-Hispanic in ethnoracial composition (16.3 out of 17.2; 21 out of 23 unweighted).

Note that the number of searches here does not add up because the above contrasts remove all searches taking place in predominantly Black non-Hispanic beats.

10.3.3 By beat: Predominantly Black and non-Hispanic vs. non-predominantly Black non-Hispanic with predominantly Hispanic removed

If we remove searches with other bases, and remove searches in predominantly Hispanic beats, then contrast predominantly Black and non-Hispanic beats with beats *neither* predominantly Black non-Hispanic *nor* predominantly Hispanic in ethnoracial composition, the *percent of searches justified by a probable cause basis*, for each group, is as follows:

- 86 percent (89 percent unweighted) of searches in predominantly Black non-Hispanic beats appeared soundly grounded in probable cause (53 out of 61; 31 out of 35 unweighted), compared to
- 95 percent (91 percent unweighted) of searches in beats *neither* predominantly Black non-Hispanic *nor* predominantly Hispanic in residential (16 out of 17; 21 out of 23 unweighted).

10.3.4 Statistical testing at the beat level

Given the extremely small numbers of *unjustified* searches in different categories of beats classified by the race or ethnicity of their residents, ***we did not conduct statistical tests to learn whether these differences represented substantial disparities in the full set of Period 2 investigatory and probable cause stops.*** In some categories within the unjustified search group, there are less than a handful of unweighted cases present.

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12 APPENDIX A: SINGLE VERSION CODING FORM

Following multiple conversations with the parties to the settlement, Hon. Arlander Keys (Ret.) and Robin Cozette developed a final coding form. Each sampled ISR received by Judge Keys was coded using this form. That form appears starting on the next page if you are examining the pdf version of this file.

Only sampled ISRs that appeared in just a single version were coded using this form. An expanded form was developed for coding ISRs that appeared in multiple versions.

2RP LEGAL ANALYSIS OF NARRATIVES

1. ISR NUMBER: _____ PAGE NUMBER OF PDF: _____

TERRY ID & REASONABLE ARTICULABLE SUSPICION

2. Type of Stop Event **[CHECK ONLY ONE]**

- a. Terry Stop
- b. Probable Cause Stop **(skip to Q. 6)**
- c. Citizen Encounter (i.e., the officer responded to a call of a person in need of assistance, responded to a call for a well-being check, or engaged in a social contact or other voluntary, non-custodial interview) **(skip to Q. 6)**
- d. Error (ISR generated in error) **(skip to Q20)**
- e. Other (specify in Notes/Comments)

NOTES/COMMENTS _____

3. Does the ISR establish that there was reasonable articulable suspicion for the stop in that the subject had been, was, or would soon be engaged in criminal activity? (CPD Special Order S04-13-09 IV.A)
- Yes **(go to Q4, skip Q5)**
 - No **(go to Q5, skip Q4)**

If you answered "yes" to Question 3, go to Question 4 (skip Q.5). If you answered "no" to Question 3, go to Question 5 (skip Q.4).

FACTORS ESTABLISHING RAS FOR THE STOP

4. What factor(s) set forth in the ISR provided RAS for the stop? **[CHECK ALL THAT APPLY]**

- a. Actions indicative of engaging in a drug transaction?
- b. Fits description of offender as described by victim or witness?
- c. Fits description from Flash Message
- d. Actions indicative of "casing" victim or location
- e. Proximity to the reported crime location
- f. Met the standards of the gang or narcotics loitering ordinance

- g. Subject's physical behavior (e.g., manner of movement, body language)
- h. Circumstances of the encounter (e.g., the time of day, nature of the neighborhood, location on street, proximity to crime scene)
- i. Subject's words (e.g., statements, answers to questions, representations)
- j. Officer's prior knowledge about the subject (e.g., prior interactions, and/or knowledge of subject's criminal history or criminal *modus operandi*)
- k. Additional/Other (specify in Notes/Comments)

NOTES/COMMENTS _____

REASONS WHY RAS NOT ESTABLISHED

5. Why doesn't the ISR establish RAS for the initial stop? **[CHECK ALL THAT APPLY]**
- a. Reliance on location without other sufficient justification
 - b. Reliance on evasion/nervousness of subject without other sufficient justification
 - c. Reliance on innate/immutable subject characteristic(s) (e.g., race/gender) without other sufficient justification
 - d. Reliance on uncorroborated, anonymous tip without other sufficient justification
 - e. For a stop based on a complaint, the description of subject did not match description of alleged offender
 - f. Reliance on conclusory statements rather than facts without other sufficient justification
 - g. Incomplete documentation/narrative (e.g., insufficient facts articulated or incomplete data provided such that stop justification could not be readily determined one way or another)
 - h. Failed to meet the standards of the gang/narcotics loitering ordinance and the stop is not otherwise justified by reasonable suspicion
 - i. Additional/Other (specify in Notes/Comments):

NOTES/COMMENTS _____

PROTECTIVE PAT DOWN CONDUCTED?

6. Did the officer conduct a protective pat down during the stop?
- Yes
 - No **(go to Q 19)**

7. Was the protective pat down based on consent?

- Yes **(go to Q. 11)**
- No

RAS FOR PROTECTIVE PAT DOWN?

8. Does the ISR establish RAS for the protective pat down, in that a reasonable officer under the circumstances would have suspected that the stopped subject may have been armed and dangerous or presented a danger of attack to the officer or another? (CPD Special Order S04-13-09 VI.A.1)

- Yes **(go to Q 9, skip Q 10)**
- No **(go to Q 10, skip Q 9)**

If you answered "yes" to Question 8, go to Question 9 (skip Q.10). If you answered "no" to Question 8, go to Question 10 (skip Q.9).

FACTORS ESTABLISHING RAS FOR PROTECTIVE PAT DOWN

9. What factor(s) set forth in the ISR provided reasonable grounds for conducting the pat down? **[CHECK ALL THAT APPLY]**

- a. Verbal threats of violence by suspect
- b. Knowledge of suspect's prior criminal violent behavior/use of force/use of weapon
- c. Actions indicative of engaging in violent behavior
- d. Violent crime suspected
- e. Suspicious bulge/object
- f. The basis for the stop itself (e.g., factors that justified making the initial stop also/by extension justified the protective pat down)
- g. Observable subject behavior consistent with carrying a weapon or firearm (e.g., failing to comply with instructions, failing to keep hands in sight of officer(s))
- h. Additional/other (specify in Notes/Comments)

NOTES/COMMENTS _____

REASONS WHY RAS FOR PROTECTIVE PAT DOWN NOT ESTABLISHED

10. Why doesn't the ISR establish RAS for the protective pat down? **[CHECK ALL THAT APPLY]**

- a. Missing pat down narrative/reason for protective pat down description (i.e., does not indicate presence of danger or threat of attack)
- b. Factors articulated fail to establish sufficient grounds for RAS
- c. Additional/other factors (specify in Notes/Comments)

NOTES/COMMENTS _____

INITIAL SEARCH BEYOND A PPD CONDUCTED?

- 11. Was a search beyond a protective pat down conducted?
 - Yes
 - No (**Go to Q.16**)

BASIS FOR THE INITIAL SEARCH BEYOND A PPD?

- 12. Was there probable cause for the initial search beyond the protective pat down?
 - a. Yes (**Go to Q. 14, skip Q. 15**)
 - b. No (**Go to Q. 13, skip Q. 14**)

- 13. If there was NOT probable cause for the initial search beyond the protective pat down, was there another valid basis for that initial search?
 - a. Consent (Go to Q. 15)
 - b. Custodial (search incident to arrest) (Go to Q. 15)
 - c. None of the above (Go to Q. 15)

NOTES/COMMENTS _____

- 14. What factors, as set forth in the ISR, provided the basis for the initial search beyond a pat down? [**CHECK ALL THAT APPLY**]
(go to Q. 16 answering this question, skip Q. 15)
 - a. Plain touch (e.g., officer felt what he or she believed to be a weapon or contraband) (CPD Special Order S04-13-09 VI.B)
 - b. Search of personal possessions based on RAS that there was a concealed weapon within reach
 - c. Search of personal possessions based on plain view (e.g., officer viewed contraband in personal possessions)
 - d. Other (specify in Notes/Comments)

NOTES/COMMENTS _____

15. Why doesn't the ISR establish probable cause for the initial search beyond a pat down? (Check all that apply)

- a. Missing search narrative/reason for search description
- b. Factors articulated fail to establish sufficient grounds (**please specify; consider factors listed in Q 14**)

SPECIFY _____

- c. Additional/Other factors (specify in Notes/Comments)

NOTES/COMMENTS _____

HIT RATES

16. Did the officer discover contraband, drugs, weapons or firearms during the PPD and/or search pursuant to the PPD? (regardless of justification for the action)

- Yes
- No (**go to Q19, skip Q17 and Q18**)

If you answered "yes" to Question 16, answer Question 17 and, if a search pursuant to a PPD also conducted, also answer Question 18. If you answered "no" to Question 16, skip to Question 19.

17. Indicate what was found during the protective pat down: **[CHECK ALL THAT APPLY]**

- Contraband (other than drug substances)
- Drugs
- Weapons
- Firearms

18. Indicate what was found during the search pursuant to the PPD: **[CHECK ALL THAT APPLY]**

- Contraband (other than drug substances)
- Drugs
- Weapons
- Firearms

ADDITIONAL QUESTIONS ABOUT STOP ENCOUNTER

19. Does the ISR show an inconsistency between the narrative field and check boxes? (specify in Notes/Comments)

Yes

No

NOTES/COMMENTS _____

20. ISR NUMBER (RE ENTER) _____

NOTES/COMMENTS _____

PREPARED BY: _____

DATE COMPLETED: _____