

City of Milwaukee Settlement Agreement **Analysis of 2020 Traffic Stops, Field Interviews, No-action Encounters, and Frisks**



Prepared by the Crime and Justice Institute

SEPTEMBER 2021

The photo on this cover depicts a mural at the House of Peace in Milwaukee painted by artist Brad Anthony Bernard, who was assisted by George Gist.

TABLE OF CONTENTS

Introduction.....	6
Data Sources.....	8
Encounter Data from Milwaukee Police Department.....	8
The Merge Process.....	8
Data Cleaning and Data Loss	12
Population and Sample Characteristics.....	14
Missing Demographic Data	15
Wisconsin Department of Transportation Drivers' License Data	15
U.S. Census American Community Survey	16
Milwaukee Crime Data	17
The City of Milwaukee Population Demographics	19
Stop Rate Analysis (SA V.A.5).....	21
Stop Rate Regression Methodology	22
Stop Rate Regression Analysis Findings.....	25
IOARS Analysis (SA V.A.6).....	29
IOARS Regression Analysis.....	30
Frisk and Contraband Hit Rate Analysis (SA V.A.7.a)	33
Contraband Hit Rate Regression Analysis.....	33
District-Level Encounters by Crime Hit Rate Analysis (SA V.A.7.b).....	36
Discussion of Findings.....	38
Limitations	38
Summary of Findings	40
Contributors	42
Appendix A: Population and Encounter Tables & Figures.....	43
A-1: Persons involved in Encounters by Quarter and Type.....	43
A-2: Data Loss by Quarter and Encounter Type	44
A-3: Encounters by Type and District.....	45
A-4: Share of Encounters with Missing Demographic Information.....	46
A-5: Population Race and Ethnic Composition by District.....	47
Appendix B: Stop Rate Analysis Tables.....	48

B-1: Traffic Stops per 100 Drivers by Race, Ethnicity, and District.....	48
B-2: Field Interviews per 1,000 Residents by Race, Ethnicity, and District.....	49
B-3: No-Action Encounters per 1,000 Residents by Race, Ethnicity, and District....	50
B-4: Frisk Rates per 1,000 Residents by Race, Ethnicity, and District.....	51
B-5: Ratio of Stop Rates for Black and Hispanic/Latino Drivers or Residents to Stop Rates for White Drivers or Residents	52
B-6: Summary of Variables in Traffic Stop Rate Analysis	53
B-7: Traffic Stop Rate Estimation Results.....	54
B-8: Summary of Variables in Field Interview Rate Analysis.....	55
B-9: Field Interview Rate Estimation Results.....	56
B-10: Summary of Variables in No-Action Encounter Rate Analysis.....	57
B-11: No-Action Encounter Rate Estimation Results.....	58
B-12: Summary of Variables in Frisk Rate Analysis.....	59
B-13: Frisk Rate Estimation Results.....	60
B-14: Frisks per Encounter Type by Race/Ethnicity.....	61
B-15: Individual-Level Frisk Regression Analysis Estimation Results	62
B-16: Predicted Probabilities of Frisks by Race and District	63
Appendix C: IOARS Analysis Tables.....	64
C-1: IOARS for Sampled Encounters by Race/Ethnicity and Quarter	64
C-2: IOARS for Sampled Frisks by Race/Ethnicity and Quarter	65
C-3: IOARS for Sampled Encounters by District and Quarter	66
C-4: IOARS for Sampled Frisks by District and Quarter.....	67
C-5: Summary of Variables in IOARS Analysis of Sampled Stops.....	68
C-6: IOARS Stop Regression Estimation Results	69
C-7: Summary of Variables in IOARS Analysis of Sampled Frisks.....	70
C-8: IOARS Frisk Regression Estimation Results	71
C-9: Predicted Probabilities and Average Marginal Effects of IOARS for Sampled Stops and Sampled Frisks.....	72
Appendix D: Hit Rate Analysis Tables.....	73
D-1: Frisks and Contraband Discovery by Race.....	73
D-2: Contraband Regression Results, All Contraband.....	74
D-3: Contraband Regression Results, Weapons and Drugs	75

D-4: Predicted Probabilities Contraband Discovery by Type of Contraband and Race/Ethnicity.....	76
Appendix E: Hit Rates to Crime Analysis Tables	77
E-1: Ratio of Stops to Crime Rate.....	77
E-2: Ratio of Majority Black and Hispanic/Latino Districts to White Districts.....	78
Appendix F: Data Linkages Chart.....	79
Appendix G: Encounter Data Linkages Charts.....	80

INTRODUCTION

This report provides a detailed explanation of the process and findings of the annual data analysis required by the Settlement Agreement among the Parties to *Charles Collins, et al. v. City of Milwaukee, et al.*¹ The full report required by the Settlement Agreement (SA V.A.9)² provides determinations of compliance for each stipulation detailed in the Agreement. A summary of the detailed findings offered in this report is presented in the Compliance chapter of the CJI's Third Annual Report.³

The Settlement Agreement (SA V.A.5-8) stipulates that the Consultant (CJI) utilize specific data sources, regression protocols, and hit rate analyses to measure the Milwaukee Police Department's (MPD) compliance with the Fourteenth Amendment of the U.S. Constitution and Title VI of the Civil Rights Act of 1964 in conducting traffic stops, field interviews, no-action encounters, and frisks. The intent of the analysis in this report is to determine the impact of a person's race or ethnicity on the likelihood of a police encounter while controlling for crime and population characteristics of each of the police districts.

The first annual data analysis was published in September 2020 as a companion to CJI's Second Annual Report and provided information about the 2019 police encounter data. Last year's report, entitled "[Analysis of 2019 Traffic Stops, Field Interviews, No-action Encounters, and Frisks](#)," described significant racial and ethnic disparities in traffic stops, field interviews, and frisks in encounters that occurred during the first year of implementation of the Settlement Agreement's requirements. The results of that first analysis identified a baseline assessment of police encounters, within the context of data limitations and MPD's ongoing iterative efforts to improve both documentation standards and policies throughout the year. The 2019 analysis provided a first look at racial and ethnic disparities in police encounters as the Settlement Agreement provisions were underway.

The analyses conducted for the current report are based on quarterly police encounter data provided to CJI for the calendar year 2020. These data are also submitted to the Fire and Police Commission and Plaintiffs' counsel per the Settlement Agreement. CJI's Third Annual Report provides more details about the data elements, completeness, and differences between the data included in each quarterly extraction. Per SA V.A.3 descriptive reports on the samples used for the analysis of individualized, objective,

¹ Order and Settlement Agreement (July 23, 2018). *Charles Collins, et al. v. City of Milwaukee, et al.*, (17-CV-00234-JPS) United States District Court Eastern District of Wisconsin Milwaukee Division.

² Citations to a specific paragraph of the Settlement Agreement follow the text that relies on that paragraph and appears in parentheses containing "SA" followed by the paragraph number.

³ Crime and Justice Institute. (September 2021). *City of Milwaukee Settlement Agreement: Third Annual Report*.

articulable, reasonable suspicion (IOARS) of traffic stops, field interviews, no-action encounters, and frisks were published in October 2020 and April 2021.⁴

Consistent with the 2019 analysis of police encounters, four main analyses are detailed in this report on 2020 encounter data:

1. (SA V.A.5) Regression analysis regarding traffic stops, field interviews, no-action encounters, and frisks.
2. (SA V.A.6) Regression analysis regarding individualized, objective, and articulable reasonable suspicion (IOARS).
3. (SA V.A.7a) Hit rate analysis of frisks and contraband discovery.
4. (SA V.A.7b) Hit rate analysis at the police district level to test for the possibility that traffic stops, field interviews, no-action encounters, or frisks may be higher for all people in majority Black or majority Hispanic/Latino neighborhoods.

As allowed by the Settlement Agreement (SA V.A.8.d) we have augmented the required analysis with additional robustness checks and present them in this report where relevant.

The report begins with a section describing the data sources used in the analysis and how datasets were developed. This includes a detailed description of how the MPD encounter data files were merged together by CJI in order to develop a complete picture of data available for each person involved in each police encounter. The second section provides population information about the city of Milwaukee and demographic information about the seven MPD districts. Subsequent sections of this report provide a detailed discussion of findings for each of the four main analyses listed above. A summary and conclusions provided in the final section of this report are also presented in the Third Annual Report.

⁴ <https://city.milwaukee.gov/fpc/Reports/Crime-and-Justice-Institute-Reports.htm>

DATA SOURCES

Data sources referenced in this report include: MPD encounter data, U.S. Census Bureau's 2019 American Community Survey 5-Year Estimates, and Wisconsin Department of Transportation (DOT) drivers' license data. Subsections below provide information about each of these data sources and how they were developed for use in this analysis.

ENCOUNTER DATA FROM MILWAUKEE POLICE DEPARTMENT

The analysis for this report is based on data extractions provided to the Parties of the Settlement Agreement and CJI by the MPD for calendar year 2020. Data were provided quarterly, within 45 days from the end of each quarter. Table A-1 summarizes the data delivery date, and encounter totals by type and quarter.

The analysis of 2019 data was challenged by iterative changes to the quarterly datasets for 2019 as MPD improved their data extraction protocols and worked to include the required data elements that the Settlement Agreement prescribes. Nonetheless, analysis of the year's data was possible because the foundational database query (driving the core data for police encounters) was the same and CJI worked to develop a merge process for the quarterly data that adjusted for relative inconsistencies. In contrast, the 2020 quarterly datasets were stable throughout the year, providing more confidence in comparability by quarter and in analyses representing the four quarters of data as one calendar year.

Per paragraphs IV.A.3.a-l the Settlement Agreement requires MPD to provide specific data elements for traffic stops, field interviews, and no-action encounters that indicate the nature of the encounter, details about when and where it occurred, information about the officer(s) involved in the encounter, and written narratives by officers that detail the IOARS for making the stop or carrying out any frisks or searches during the encounter. A full listing of the data elements provided by MPD in the extractions and the completeness of those records is detailed in the Analysis section of the Compliance chapter of the Third Annual Report. The following section discusses how the data files provided by MPD were merged together to develop the data sets analyzed for this report and data sets developed for the above-referenced semiannual reviews of IOARS published in using these data.

The Merge Process⁵

The extraction comes from four different databases: MPD's Computer Aided Dispatch (CAD), MPD's records management system (RMS), the state of Wisconsin's Traffic and Criminal Software application (TraCS), and MPD's Administrative Investigations Management (AIM) system. No-action encounters and field interviews are documented

⁵ The merge process describes how we link data files together to create data sets for analysis.

in RMS and traffic stops are documented in TraCS. The encounters in RMS and TraCS are associated with the CAD information via the CAD or call number, which is a nine digit number MPD utilizes as the unique encounter identifier for these data. The data linkages chart in Appendix F offers a graphic representation of the data files provided in the extraction process and how we link the files together for the purposes of our analysis. Appendix G offers a more general look at how the data files connect to each other within each of the databases.

To begin, we merge data files containing the involved officer(s) for each field interview and a data file containing the involved officer(s) for each no-action encounter with the department roster file based on the badge number of each officer. This associates officer names to badge numbers in RMS data files.⁶

We merge the CAD database files as the first in an iterative process to associate TraCS, RMS, and AIM information to the CAD, or dispatch, information for each traffic stop, field interview, and no-action encounter. To merge the CAD files, we begin with officer information. We associate a data file containing CAD call keys to data containing each squad (car) unit that responded to a given call and a data file containing each officer that responded to a given call.⁷ The squad unit data is merged by the call key number, and the responding officer data is merged on both the call key and the unit key that is specific for the unit or squad involved on the call. To merge district information, we associate the CAD call key data to the reporting district information.⁸ The resulting file represents an observation (row) for each CAD call in the extraction data and the associated date, time, location, CAD-specific call types, and officer involvement (e.g., arresting officer, officer assisting, supervisor or approval officer). We then begin to incorporate the CAD file with the three different encounter types present in the data.

To connect the no-action encounter files to the CAD information, we merge the no-action encounter data files with data containing the involved officer(s) for each no-action encounter and data containing the person information for each individual no-action encounter. Both of these data files are merged based on the unique identifier

⁶ “INFORM_FIELDINTERVIEWOFFICER” and “INFORM_NOACTIONENCOUNTEROFFICER” are merged with “DEPARTMENT_ROSTER” via “officername_code” in the RMS files and “badge” in the department roster file.

⁷ “CAD_PCARSCALLUNITASGN” provides individual officer information, “CAD_PCARSCALLUNIT” is the file for each squad, and “CAD_PCARSCALL_Joined” is the file containing the main CAD information. These files are associated with each other using the “callkey” field.

⁸ “CAD_PCARSCALL_Joined” has a field called “rep_dist” that associates with “area” in “Reporting_districts.”

given for each no-action encounter event.⁹ We merge the no-action encounter file with the no-action encounter file containing person (subject of the encounter) information. This creates a file consisting of all no-action encounters where each row is a unique person involved in the no-action encounter. We then merge the CAD encounters file with the person-level no-action encounter file using the CAD number.¹⁰ The no-action encounter data in the file entitled “CAD_NOACTIONENCOUNTER_DISPOSITIONS” include a code for the disposition or result of the call, and we use the provided CAD disposition file as a descriptor for the disposition codes.¹¹ This merge process results in a merged file for no-action encounters that represents an observation for each person involved in a no-action encounter and the associated CAD information.

To relate the field interview files to the CAD information, we merge the field interview data files with data containing the involved officer(s) for each field interview and data containing the person information for each individual involved in a field interview.¹² These are both merged using the unique field interview identifier. Similar to the merged no-action encounter file, we create a field interview file representing an observation for each person by merging the field interview file with the field interview file containing the person information. We then merge the aforementioned CAD encounter file with the merged field interview file using the CAD number.¹³

The state of Wisconsin requires all law enforcement agencies to document traffic stops using the TraCS database. TraCS includes a contact summary form which consists of information about the nature of the encounter and demographic information about the subject involved. We merge data containing encounter-level information for a given traffic stop with data containing information for each individual involved in a traffic stop using the database-generated primary key of a given traffic stop.¹⁴

⁹ The “noactionencounter_id” is the unique no-action encounter identifier in “INFORM_NOACTIONENCOUNTEROFFICER” and “INFORM_NOACTIONENCOUNTERPERSON” that links to “id” in “INFORM_NOACTIONENCOUNTER_JOINED.”

¹⁰ “INFORM_NOACTIONENCOUNTER_JOINED” indicates the CAD number is “cadnumber” and this is matched with “call_no” in “CAD_PCARSCALL_Joined.”

¹¹ MPD provides a PDF file that lists the descriptions for each CAD disposition code. For example, “C21” is the CAD disposition code for “no-action encounter.”

¹² The “fieldinterview_id” field is the unique field interview identifier in “INFORM_FIELDINTERVIEWOFFICER” and “INFORM_FIELDINTERVIEWPERSON” files that link to “id” in “INFORM_FIELDINTERVIEW_JOINED.”

¹³ “INFORM_FIELDINTERVIEW_JOINED” indicates the CAD number is “cadnumber” and this is matched with “call_no” in “CAD_PCARSCALL_Joined.”

¹⁴ The keys are indicated in the data linkages charts presented in Appendix F, and are called “collkey” in “TRACS_INDIVIDUALS” and “TRACS_LOCATION” and “prdkey” in “TRACS_CONTACTSUMMARY_JOINED,” “TRACS_CONTACTSUMMARY_INDIVIDUAL,” and “TRACS_CONTACTSUMMARY_UNIT.”

We merge the contact summary narrative file with the contact summary file containing involved individuals.¹⁵ This creates a file consisting of all contact summaries where each row is a unique person. We then merge the person-level contact summary information (i.e., consent to search, a search or frisk basis, contraband discovery) with the data file containing each individual involved in a traffic stop by a database-generated individual key.¹⁶ We also merge information from a data file containing details of any vehicle search that may have occurred (“TRACS_CONTACTSUMMARY_UNIT”), and we use the TraCS location file to associate the contact summary with the geographic information available for the encounter.¹⁷ To associate any warnings that were issued for the stop, we use the database-generated primary key (“prdkey”) to merge warning data with warning violation data, which includes the outcome of the stop.¹⁸

The TraCS data file structure is such that each form (contact summary, electronic citations (ELCI)¹⁹, non-traffic citations (NTC), or warning) is represented as an observation in the “TRACS_PRD_HEADER” file, which contains the badge information for the involved officer, a contact descriptive narrative, and any case numbers generated from the TraCS form. In order to associate each type of form with the location and individual information that exists for the form, we merge “TRACS_INDIVIDUALS” and “TRACS_LOCATION” with each of the TraCS forms prior to merging the forms into “TRACS_PRD_HEADER” using a process similar to the associations for contact summaries described above.

We merge the TraCS header file with a data file containing imported citations that are matched to a person-level identifier, the Master Name Index (MNI), in TraCS using the case number.²⁰ We then merge all of the ELCI files together to create a single file with all of the ELCI data, where each observation is a unique person per ELCI. We complete this process for NTCs, warnings, and contact summaries. We then merge the TraCS

¹⁵ “TRACS_CONTACTSUMMARY_JOINED” merges with “TRACS_CONTACTSUMMARY_INDIVIDUAL” using “prdkey.”

¹⁶ “TRACS_INDIVIDUALS” is a file for the demographic information (race, date of birth, and sex) for each person listed on a form in TraCS (contact summary, citation, or warning). This file is merged with contact summaries by associating “collkey” in “TRACS_INDIVIDUALS” with “prdkey” in “TRACS_CONTACTSUMMARY_INDIVIDUAL.”

¹⁷ “TRACS_LOCATION” is associated with “TRACS_CONTACTSUMMARY_JOINED” via “collkey” and “locationcolkey” in the two files, respectively.

¹⁸ “TRACS_WARNING_JOINED” and “TRACS_WARNING_VIOLATION” are associated with encounter data through the “TRACS_PRD_HEADER” file using “prdkey” and the link.

¹⁹ MPD also refers to electronic citations (ELCI) as “uniform traffic citations,” or UTC.

²⁰ Merging the MNI number provided in “INFORM_ELCI” to “TRACS_PRD_HEADER” is the only means by which to associate a specific person (based on their MNI) with a traffic encounter. MNI is an identification number associated with each person that has information in MPD’s databases. A person may have more than one MNI associated with their name if they have aliases in the databases.

header data file with each of the TraCS form files (contact summary, ELCl, warning, and NTC) using the primary key “prdkey”. This creates a file in which each observation represents a form from TraCS and the available location, officer, and person information associated with that form. We then associate the TraCS form file to CAD based on the CAD number represented in the merged CAD encounter file.²¹

Finally, we append the files containing no-action encounters, field interviews, and traffic stops. This creates a file representing all encounters in a given quarter where each observation represents a unique person involved in the encounter. MPD provides a file from their Administrative Investigations Management system (AIM), a database to which supervisors and command staff record and track, among other administrative information, uses of force that occur during encounters in that time period. The AIM file is merged with the final file using the CAD number as the unique encounter identifier.²² We also merge in the CAD segments which represent additional narrative for traffic stops.²³

Data Cleaning and Data Loss

There are a number of fields present in the encounter data files that represent manually-entered information, denoted in the data dictionaries provided by MPD with the data extractions. As it is used as the primary encounter identifier for these data, the CAD number is an important field that brings together all associated information about a given police encounter across multiple databases. While the CAD number in the CAD database files is automatically generated when dispatch is notified about an encounter, the CAD number field represented in RMS (“cadnumber”) and TraCS files (“documentpolicenumber”) must be manually entered by officers when documenting field interviews or no-action encounters in RMS or contact summaries in TraCS.

Relying on manual entry for any coded field poses a risk to data loss if the field is intended to be associated with other data within or between databases. For example, the CAD number generated by dispatch may be 505050505, but the officers enter “50-505-0505” into TraCS or RMS when filling out forms associated with the call. To prevent data loss, we clean the CAD number field for TraCS and RMS data to remove obvious data errors such as dashes or spaces. The amount of CAD numbers that we are unable to match up after cleaning has greatly decreased from quarter to quarter

²¹ The CAD number in TraCS forms files in the extraction data is represented as “documentpolicenumber” and associates to “call_no” in the “CAD_PCARSCALL_joined” file.

²² “cad_call_number” in “AIM_USE_OF_FORCE” is associated with “documentpolicenumber” in TraCS form files and “call_no” in “CAD_PCARSCALL_Joined.”

²³ “call_no” in “CAD_REGULAR_STOPREASON_CALLSEGMENTS” and “CAD_EMBEDDED_STOPREASON_CALLSEGMENTS” is associated with the call number in the primary CAD file.

as MPD has improved their data entry. Matching CAD information to TraCS or RMS information is essential in order to gain a complete understanding of the data elements present or missing from documentation of each encounter.²⁴

The ability to combine information about a given police encounter hinges on the accuracy of the encounter identifier (the CAD number) across data files derived from multiple databases. Table A-2 represents CAD and AIM data we are unable to merge with other encounter information and thus are not incorporated into the merged encounter files for analysis. These data may represent additional encounters but without the documentation provided in the TraCS and RMS databases, we are unable to appropriately categorize them by encounter type. Overall, the amount of data loss for 2020 is far less than experienced in the 2019 data files, providing a more complete estimation of police encounters in Milwaukee.

Table A-1 provides estimated encounter totals by quarter and type of encounter, including a column for encounters categorized as “Citation or Warning Only.” These totals represent the number of citations or warnings we are unable to categorize as traffic stops or field interviews because they do not match to contact summaries or field interview forms in those databases. MPD indicates that there are several possible reasons why citations may not match to other encounter data. First, a citation or warning form may have been generated by mistake, duplicated, or restarted by officers. For example, if an officer meant to create a field interview form in RMS but accidentally started a contact summary form, the officer might type into the CAD number field a series of zeros, “void,” “delete” or other notations. A second explanation may be that the CAD number was mistyped or improperly typed by officers on the form, preventing it from being associated with other information for the stop. A third explanation may be that the citation is not associated with a CAD number or other TraCS or RMS forms because there was not a dispatch record (e.g., the CAD technology was down or it was a non-traffic citation generated from a walk in at a district office) even though it does represent a traffic stop or field interview as defined by the Settlement Agreement.

The structure and association of the TraCS files requires each of the different forms (contact summary, electronic citation, warning, and non-traffic citation) to relate back to the TraCS header file before creating datasets that represent all the associated information present for a person involved in a given police encounter. Invalid CAD numbers in citation and warning forms present the greatest challenge to this process in that the only way to associate citations or warnings to contact summaries or field

²⁴ We clean other coded fields as needed or necessary. For example, the variable “address_district_code” in “INFORM_FIELDINTERVIEW_JOINED” represents manually-entered district information. Officers usually use numerical representations of the districts but sometimes enter “DISTRICT 4” or “D1” in the field and these are recoded to their corresponding numerical representations.

interviews is to rely upon valid CAD numbers that match across the different forms. For example, if an officer makes a traffic stop and decides to issue a citation for speeding, documentation for the traffic stop would be present in the CAD files and there would be a row in the TraCS header file for the contact summary for the person involved in the traffic stop and another row for the speeding citation. Additional rows represent any warnings the officer may issue or additional contact summaries for passengers that may need to be documented. Associating all of this information in order to represent one traffic stop requires the officer to record the correct CAD number on each form that matches the dispatched CAD number for that particular traffic stop.

Starting with the first quarter of 2020, MPD developed a process to identify voided data in the data extraction process and exclude such data from the quarterly data files. MPD personnel indicate that the extraction protocols isolate records that say “void” or similar language in the CAD number field and exclude these records from the extraction. This does not correct mistyped CAD information, but does give a clearer picture of forms that represent valid citations.

Population and Sample Characteristics

The encounter data provided by MPD for 2020 includes an estimated 40,543 traffic stops, 2,717 field interviews, and 207 no-action encounter events documented by officers.²⁵ Of these encounter events, 997 encounters involved frisks. Frisks are defined as “forcible frisks” which excludes frisks that are conducted for conveyance in a squad car (e.g., transporting a person from one place to another) or as searches incident to arrest (i.e., a cursory check before placing a person in a squad car after an arrest decision has been made). In TraCS officers can select “patdown” in the “individual search basis” field and in RMS officers can select “yes” in the “pat down description” field. If officers select “arrest” as an additional search basis in TraCS or note an arrest in RMS, we further explore the officer-written narratives to understand whether the frisk was actually a search incident to arrest that occurred after the arrest determination was made. We also explore encounter information when officers indicated a search occurred to identify whether officers conducted a search or frisk. We search for the keywords “pat down,” “patdown,” and “frisk,” in the search basis and narrative field to denote any instances where a frisk occurred rather than or in addition to a search. The frisk totals represented in Table A-4 (and other tables referencing frisks) are frisks that occur as a part of the police encounter, excluding procedural frisks that are conducted as a requirement prior to conveyance or after an arrest determination has been made.

²⁵ A random person per event was selected to represent each encounter event to prevent estimates from being biased by multiple-person stops.

Table A-3 summarizes the data by encounter type and district. An additional category of encounter called “Citation or Warning Only” is included in the table and represents citations or warnings that do not have corresponding contact summaries in TraCS or field interview information in RMS. The information available for these encounters does not allow us to categorize them as traffic stops or field interviews so they are not represented in the traffic stop or field interview stop rate analyses.

As shown in Table A-3, the fewest number of police encounters occurred in District 1 (3,425 encounters or 6.6% of encounters for 2020) and the most encounters occurred in District 7 (10,098 encounters or 19.4% of encounters for 2020). District 7 was the leader in number of traffic stops (8,128) while District 5 recorded the highest number of field interviews and no-action encounters for the year (646 field interviews and 43 no-action encounters).

Missing Demographic Data

We discuss missing data by each data element in the Compliance chapter of the Third Annual Report to assess MPD’s compliance with the 14 percent missing data threshold as stipulated by SA V.1.d.i-iii. Table A-4 summarizes missing demographic information by quarter and type of encounter to offer information about how missing race, ethnicity, age, and gender information influences the analysis of the data at the encounter level. Missing demographic and location data has shown marked improvement in 2020 as compared to 2019. Approximately three to five percent of traffic stops, field interviews, and frisks lack information on race/ethnicity, gender, age (if needed), or location data. No-action encounters appear to lack the most demographic or location information at 13 to 15 percent missing each quarter. The majority of the missing demographic information for no-action encounters involves cases where officers mark “unknown” in the race, ethnicity, or gender fields when documenting no-action encounters.

Comparison of the type of encounters with and without missing demographic data does not indicate a patterned exclusion of demographic information by encounter type. A patterned exclusion would suggest that the estimates developed in this analysis would be significantly different if we were able to include the stops with missing demographic data. We determined that the estimates are not biased by this exclusion by comparing proportions of encounters by district, call type, and other non-missing information that would help inform whether the encounters with missing demographics over-represent any particular demographic profile.

WISCONSIN DEPARTMENT OF TRANSPORTATION DRIVERS’ LICENSE DATA

On November 15, 2019 CJI requested electronic copies of the Wisconsin Department of Transportation Division of Motor Vehicles’ records detailing licensed drivers and registered vehicles for the years 2018 and 2019 that provides the race, zip code, year of birth, gender, city, license type, issue date, expiration date, and status of licensed drivers. The Wisconsin Department of Transportation was unable to fulfill the request

for the years requested, indicating that it would require many thousands of dollars to produce a new record and divert resources away from existing efforts and legislative mandates.²⁶ However, on December 19, 2019 the state provided to CJI the 2015 data produced for the Plaintiffs in 2017 since it is an existing report.²⁷ Given the stability of the distribution of licensed drivers, using 2015 data as a proxy for 2020 is an acceptable solution for the current analysis.

Drivers' license data were limited to regular, valid licenses with expiration years of 2015 or later. A count of licensed drivers within each zip code was summed by total drivers and total drivers by each of the listed demographics. The quarterly 2015 U.S. Department of Housing and Urban Development zip code to Census tract crosswalk files were used to associate drivers to Census tracts. Esri ArcGIS software was used to identify proportionate representation of zip codes to Census tracts for cases in which a Census tract represented more than one zip code.

To calculate the number of drivers within each Milwaukee Police Department district, we summed the count of licensed drivers in all Census tracts within each district. We used Esri ArcGIS software to identify proportionate representation of Census tracts to police districts for cases in which a Census tract fell within more than one police district. Land area was used in this calculation to exclude the water area for Census tracts along Lake Michigan.

U.S. CENSUS AMERICAN COMMUNITY SURVEY

We used the U.S. Census Bureau's 2019 American Community Survey 5-Year Estimates to represent population data for this analysis.²⁸ The data include population demographic characteristics by age, race, ethnicity, and sex at the Census tract level. To calculate these population demographics within each Milwaukee Police Department district, we followed the same protocol used in the drivers' license data to apportion population for Census tracts that fall within more than one district.

The following race and ethnicity classifications were constructed from the Census data:

²⁶ The Wisconsin Department of Transportation is not required to create a new record which does not already exist, compile existing information in a new format, or obtain a record from another agency. Wis. Statute 19.35(1)(L). The Wisconsin Department of Transportation is required to provide only documents in existence at the time of a request. A continuing request for records that may be obtained, updated or created by DOT in the future is unreasonable and may be denied. 73 Op. Atty. Gen. 37,44 (1984).

²⁷ The Wisconsin Department of Transportation indicated that the data provided to the Plaintiffs in 2017 was only disclosed because the data were generated in response to a previous request, and thus was not a new report generated in 2017.

²⁸ U.S. Census Bureau, 2019, American Community Survey 5-Year Estimates, Tables B02001, B03002, S0101, S2301.

- Individuals considered “white” are those who self-report as “white” and “not Hispanic or Latino.”
- Individuals considered “Black” are those who self-report as “Black or African American.”
- Individuals considered “Hispanic/Latino” are those who self-report as “Hispanic or Latino” but do not report their race as “Black or African American.”
- Individuals considered “other” are those who self-report as “Asian,” “Native Hawaiian or other Pacific Islander,” “American Indian or Alaskan Native,” “Two or more races,” and “Other Race.”

We constructed a categorical age variable from the Census data to be able to identify younger adults. Recent Census publications discuss the young adult population as individuals between 18 and 34 years old.²⁹ We use two categories to look at age composition: “young” indicating an adult under 35, and “older” indicating an adult 35 or older. Age is typically used as both a variable of interest and a control variable in explorations of police encounters as lifestyle characteristics of young adults make them more likely to come into contact with police.

We also use Census information to construct an unemployment rate for each police district.

MILWAUKEE CRIME DATA

The MPD provided Part I and Part II crime data for 2019 by district and suspect race (if known). Crime data from the previous year is used in the regression estimates because past crime may influence current crime rates or police behavior in responding to crime. The analyses for the current report require inclusion of three crime variables: total crime rate, violent crime rate, and property crime rate. Violent crime categories in the data provided by MPD include Part I violent crimes (homicide, rape, robbery, and aggravated assault) and Part II crimes against persons (e.g., negligent manslaughter, simple assault). Property crime categories include Part I property crimes (burglary, theft, motor vehicle theft, and arson) and Part II crimes against property (e.g., destruction, damage, or vandalism). The total crime category adds violent and property crime together, as well as Part II crimes against society (e.g., drug violations, weapons law violations, disorderly conduct).³⁰ District-level crime rates were

²⁹ Vespa, J., & U.S. Census Bureau. (2017). *The changing economics and demographics of young adulthood: 1975-2016* (Ser. Current population reports. p20, population characteristics, 579). U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau.

³⁰ Part I violent crime includes: homicide, rape, robbery, and aggravated assault. Part I property crime includes: burglary, motor vehicle theft, theft, arson, human trafficking (commercial sex acts), and human trafficking (involuntary servitude). Part II crimes against persons includes: negligent manslaughter, forcible fondling, simple assault, intimidation, incest, and statutory rape. Part II crimes against property includes: extortion/blackmail, counterfeiting/forgery, false pretenses/swindle/confidence game, credit

developed by dividing the total, violent, or property crime totals by the resident population totals generated from the U.S. Census Bureau's 2019 American Community Survey 5-year estimates for each district.

card/ATM fraud, impersonation, welfare fraud, wire fraud, embezzlement, stolen property, destruction/damage/vandalism, bribery, bad checks, and trespassing. The total crime category additionally includes Part II crimes against society: drug/narcotic violations, drug equipment violations, pornography/obscene material, prostitution, assisting or promoting prostitution, purchasing prostitution, weapons law violations, disorderly conduct, DUI, non-violent family offenses, and all other offenses.

THE CITY OF MILWAUKEE POPULATION DEMOGRAPHICS

The City of Milwaukee is the largest city in Wisconsin, with a population of nearly 600,000 residents. According to the U.S. Census Bureau's 2019 American Community Survey 5-Year Estimates, males and females made up nearly the same percentage of the Milwaukee population, with the percentage of males slightly lower at 48 percent. Thirty-one percent of Milwaukee residents were between the ages of 18 and 34.³¹ The estimated median household income for residents of Milwaukee in the 2019 Census was \$41,838, with approximately 17 percent of Milwaukee residents' incomes below the poverty level. The unemployment rate for the city was 4.4 percent, compared to the national average of 3.4 percent.³²

The unemployment rates for each police district tell a different story of the City.³³ District 1, containing the University of Wisconsin-Milwaukee, the Lake Park, Lower and Upper East Side, Historic Third Ward, and the downtown business district, had an unemployment rate of 4 percent according to the 2019 data.³⁴ District 2, which includes Walker's Point, Historic Mitchell Street, and Clarke Square, had an unemployment rate of 7 percent. Districts 3, 4, 5, and 7, comprising neighborhoods such as Avenues West, Miller Valley, Dretzka Park, Woodlands, Riverwest, Harambee, Sherman Park, and Enderis Park, had unemployment rates between 8 and 9 percent. District 6, home to Jackson Park, Bay View, and Mitchell International Airport, had an unemployment rate of 4 percent.³⁵

Based on the American Community Survey 5-year population estimates (2019), Black residents accounted for 38 percent of the population of Milwaukee, white residents comprised 35 percent, Hispanic/Latino residents constituted 19 percent, and residents of other races made up 8 percent.³⁶ However, when we look across police districts, similar to the unemployment rate, we see a very different picture. Figure A-5 illustrates the racial composition by police district in Milwaukee. Districts 1 and 6 have the highest

³¹ U.S. Census Bureau, 2019, American Community Survey 5-Year Estimates, Tables B02001, B03002, S0101, S2301

³² U.S. Census Bureau, 2019, American Community Survey 5-Year Estimates, Table DP03

³³ Milwaukee Police Department, 2009 Annual Report 5, https://city.milwaukee.gov/ImageLibrary/Groups/mpdAuthors/Documents/2009_Annual_Report.pdf

³⁴ U.S. Census Bureau, 2019, American Community Survey 5-Year Estimates, Tables B02001, B03002, S0101, S2301

³⁵ Milwaukee Police Department, 2009 Annual Report 5, https://city.milwaukee.gov/ImageLibrary/Groups/mpdAuthors/Documents/2009_Annual_Report.pdf; U.S. Census Bureau, 2019, American Community Survey 5-Year Estimates, Tables B02001, B03002, S0101, S2301

³⁶ U.S. Census Bureau, 2019, American Community Survey 5-Year Estimates, Tables B02001, B03002, S0101, S2301

proportion of white residents (76 and 61 percent, respectively). District 2 has the highest proportion of Hispanic/Latino residents (70 percent). Districts 3, 4, 5, and 7 have the highest proportion of Black residents (46, 63, 72, and 67 percent, respectively). Notably, District 3 has the narrowest differences in proportions of white and Black residents than any other district.

STOP RATE ANALYSIS (SA V.A.5)

The stop rates for this analysis are provided by race, ethnicity, and police district to offer information about how stop rates may differ by residential population. According to the U.S. Census data used in this analysis, Districts 1 and 6 include residential populations that are primarily white, District 2 has a primarily Hispanic/Latino residential population, and Districts 4, 5, and 7 are majority Black residential populations. District 3 represents a mixed racial and ethnic population, with 46 percent Black residents, 34 percent white residents, 9 percent Hispanic/Latino residents, and 11 percent of residents of other races or ethnicities.

For ease of interpretation, the stop rates are presented per 100 drivers for traffic stops and per 1,000 residents for field interviews, no-action encounters, and frisks. Due to the relatively low number of field interviews, no-action encounters, and frisks compared to the residential population, we present stop rates for these encounters per 1,000 residents rather than per 100 residents.³⁷

The traffic stop rate calculation uses licensed drivers as the base population to which the number of traffic stops are compared. We view this as a more appropriate base population for traffic stops than residential population because not all residents within a geographic area drive a personal vehicle and thus are not “at risk” for a traffic stop. Using licensed drivers as a base population is an established method to approximate the driving population within a given area and offers a consistent approach to estimating traffic stop rates.

Tables B-1 through B-4 provide the traffic stop, field interview, no-action encounter, and frisk rates by district and race or ethnicity. Comparing the stop rates across districts, we find that District 5, which has a residential population that is 72 percent Black, has the highest stop rates overall. Traffic stops range from 9 per 100 drivers in District 1 to 21 per 100 drivers in District 5 with the stop rate for the city estimated to be 14 per 100 drivers (Table B-1). District 5 also has the highest field interview rate at 11 per 1,000 residents, with District 6 at the lowest field interview rate of 2 per 1,000 residents (Table B-2). Table B-3 shows the no-action encounter rate is 0.7 per 1,000 residents in District 5 and lowest in District 6 (0.1 per 1,000 residents). The frisk rates in Table B-4 show a stark difference in frisks by district with District 5 much higher than the average for the city overall (5.9 frisks per 1,000 residents in District 5 compared to 1.6 frisks per 1,000 residents for the city overall).

Table B-5 shows the ratio of each stop rate for Black, Hispanic/Latino, and other races as compared to white stop rates and provides a comparison across all districts in

³⁷ Readers who wish to equalize the stop rates across categories can multiply the traffic stop rates by 10 to obtain the traffic stop rate per 1,000 drivers. For example, the traffic stop rate is 9 per 100 drivers in District 1. This rate is equivalent to 90 traffic stops per 1,000 drivers in District 1.

Milwaukee. In 2020, the traffic stop rate for Black drivers was five times higher than for white drivers and the traffic stop rate for Hispanic/Latino drivers was three-and-a-half times higher than for white drivers. The field interview rates for Black residents were four times higher than for white residents. No-action encounter rates, while rare overall, were five-and-a-half times higher for Black residents than for white residents. The differences in frisk rates were the most racially and ethnically disparate – the frisk rate for Black subjects was over ten times higher than the frisk rate for white subjects.

While descriptive of possible racial or ethnic disparities in police encounters within the city of Milwaukee, these rates do not account for factors beyond race or ethnic population in the districts that could influence differences in stop rates. The stop rate regression analysis accounts for other individual (age and gender) and district-level (crime and sociodemographic variables) characteristics that are known to influence the likelihood of a police encounter.

STOP RATE REGRESSION METHODOLOGY

Regression analysis is specified in the Settlement Agreement to determine whether the racial and ethnic disparities in police encounters described above could be explained by other non-racial or non-ethnic factors present within the districts. The stop rate regression analyses were conducted using a linear probability model with robust standard errors clustered by district. Ten different regression specifications are prescribed by the Settlement Agreement to estimate the influence of race or ethnic identity on the likelihood of a police encounter, relative to the likelihood that white residents will encounter police:³⁸

1. Estimate of the average difference in stop rates for Black, Hispanic/Latino and other race categories relative to white stop rates, without any further controls.
2. Estimate introduces a variable to control for the encounter subject's gender.
3. Estimate introduces a variable to control for the encounter subject's age, specified as younger than 35 or 35 or older.
4. Estimate introduces district-level racial composition variables measuring the percent Black, percent Hispanic/Latino, and percent other race categories of the district.
5. Estimate introduces district-level age variable measuring the proportion of the district that is younger than 35 years old.
6. Estimate introduces a district-level gender variable measuring the proportion of the district that is male.

³⁸ SA V.A.5.a and SA V.A.5.b are specified in one model below as the data do not allow for investigation of race by ethnicity. Regression specifications 8, 9, and 10 that include total, violent, and property crime rates are omitted from the regression tables because these variables are significantly correlated with the unemployment rate and necessarily drop out of the model.

7. Estimate introduces district-level unemployment rate to control for the relationship between the share of the district population that is unemployed and the likelihood that it influences the initiation of police encounters.
8. Estimate introduces district-level total crime rate to control for the relationship between the level of total crime in the district and the likelihood that it influences the initiation of police encounters.
9. Estimate introduces district-level violent crime rate to control for the relationship between the level of violent crime in the district and the likelihood that it influences the initiation of police encounters.

Estimate introduces district-level property crime rate to control for the relationship between the level of property crime in the district and the likelihood that it influences the initiation of police encounters.

The regression specifications required by the Settlement Agreement necessitate constructing stop rates for each combination of race or ethnicity, age, gender, and district (n=112). The data for analyzing no-action encounter rates does not involve the age dimension since that information is not collected during no-action encounters (n=56). To account for potential changes over time, we also calculated stop rates to reflect time (quarter) in the traffic stop analysis, producing a total sample of 448 age-race-gender-district-quarters for analysis.

The data for these models develop stop rates for each demographic combination within each district. For example, the traffic stop rate for young Black males in District 3 during quarter 1 is 36 per 100 young Black male drivers licensed in District 3. The traffic stop rate for young white males in District 3 during quarter 1 is 2 per 100 young white male drivers licensed in District 3. Rates are constructed in this fashion for the remaining combinations of demographics (n=16) for each district (n=7) per quarter (n=4). This strategy allows each demographic profile of stops to be compared to the same demographic profile in the base population. This rate construction means that the model coefficients will be robust to additions of district-level control variables as this information is incorporated into the rates themselves.

For traffic stops, the outcome of interest in this analysis is the stop rate per 100 drivers of a given race or ethnicity (r), age group (a) and gender (g) in a given district (d) and quarter (t). Variables were then added to the model as specified by the Settlement Agreement: indicator for young (one for individuals under 35 years old and zero for 35 or older), indicator for male (coded one for males and zero for females), and district level racial composition, unemployment, and crime rates.

$$Traffic\ Stop\ Rate_{ragdt} = \frac{Total\ Traffic\ Stops_{ragdt}}{Total\ Drivers_{ragdt}} * 100$$

Analysis of field interviews, no-action encounters, and frisks follow the same protocols. For field interviews, the outcome of interest in this analysis is the stop rate per 1,000

residents of a given race or ethnicity (r), age group (a) and gender (g) in a given district (d). Given the lower field interview totals in the encounter data, estimates were not calculated by quarter and rather pooled for the full year.

The outcome of interest for no-action encounters is the stop rate per 1,000 residents of a given race or ethnicity (r), and gender (g) in a given district (d). Age is not a required field for officers to document for no-action encounters and thus is omitted in the analysis. Given the lower no-action encounter totals in the encounter data, estimates were not calculated by quarter and rather pooled for the full year.

For frisks, the outcome of interest is explored two ways. The Settlement Agreement specifies to estimate frisk rates by district in the same fashion as the other stop rates. The outcome of interest in this analysis is the frisk rate per 1,000 residents of a given race or ethnicity (r), age group (a) and gender (g) in a given district (d). Given the lower frisk totals in the encounter data, estimates were not calculated by quarter and were pooled for the full year.

Frisks were also investigated using a logistic regression model at the individual level where the outcome of interest (whether a frisk occurred during an encounter) is coded as one (1) if a frisk occurred during an encounter and zero (0) if documentation for the encounter did not indicate a frisk occurred. Estimates are reported using odds ratios and predicted probabilities to develop a specific understanding of the estimated differences by race and ethnicity of a frisk occurring during an encounter with police. In statistical analysis, odds ratios represent the odds of an event occurring in one group, in this case a frisk, to the odds of it occurring in another group. Predicted probabilities represent an estimate of the likelihood of something occurring for a specific group while taking into consideration the factors that may additionally influence the likelihood of that event occurring. In the current analysis, predicted probabilities represent the estimated likelihood of a frisk occurring during a police encounter for racial or ethnic group while taking into consideration other known factors that may also be influencing the likelihood of a frisk occurring. In this statistical context, prediction refers to the likelihood of a frisk based on the data for 2020 and does not refer to future predictions of police encounters. Three regression specifications are used for the individual-level frisk analysis:

1. An estimate of the log odds and predicted probability of a frisk occurring for Black or Hispanic/Latino drivers or residents within a district, without any further controls.
2. The second specification introduces independent variables for gender and age to control for the possibility that these attributes contribute to a person's odds of being frisked during a police encounter.
3. The third specification adds fixed effects for time of day, quarter of the year, and district the stop occurred. The time of day is specified into four time intervals (9:00 am to 2:59 pm, 3:00 pm to 8:59 pm, 9:00 pm to 2:59 am, and 3:00 am to 8:59 am). Quarters of the year follow the calendar year with the first

quarter January through March, second quarter as April through June, third quarter as July through September, and fourth quarter as October through December.

We also estimated district by race interactions to identify whether the probability of a frisk for a given race or ethnic category is higher or lower in certain police districts.

A discussion of the potential impact of the COVID-19 pandemic that began in March 2020 and the racial justice movement that intensified in June 2020, both major historical events, is presented in the Limitations section of this report.

STOP RATE REGRESSION ANALYSIS FINDINGS

The regression analysis for rates of traffic stops, field interviews, no-action encounters, and frisks are presented in Appendix B, Tables B-6 through B-13. Tables B-6 and B-7 present the summary of variables in the traffic stop regression analysis and the results for the regression specifications detailed above. While controlling for all known predictors (Model 7), the results indicate that on average over the four quarters of 2020, the MPD stop rate was higher for Black drivers than white drivers by 14.16 per 100 drivers. The stop rate was higher for Hispanic/Latino drivers than white drivers by 3.23 stops per 100 drivers. These differences from zero are statistically significant at the 99 percent confidence level.

By order of magnitude, we are able to compare the predicted traffic stop rate for white drivers using Model 1 to understand the relative difference in traffic stop rates by race. The estimated average traffic stop rate for white drivers is 1.67 per 100 drivers. This indicates that the estimated traffic stop rate for Black drivers is 9.5 times higher than the traffic stop rate for white drivers, or a rate that is 848 percent higher. The estimated traffic stop rate for Hispanic/Latino drivers is 2.9 times higher than the traffic stop rate for white drivers, or 193 percent higher.³⁹

Tables B-8 and B-9 present the summary of variables in the field interview regression analysis and the results for the regression specifications. While controlling for all known predictors (Model 7), the results indicate that in 2020 the MPD field interview rate was higher for Black residents than white residents by 3.20 stops per 1,000 residents. This difference was statistically significant at the 95 percent confidence level. Given the estimated average field interview rate for white residents, the field interview rate for Black residents is 5.71 times higher than the field interview rate for white residents, or a 471 percent difference. The field interview rate for Hispanic/Latino residents was not statistically different from the white field interview rate.

³⁹ The stop rate for Black drivers equals the white stop rate of 1.67 stops per 100 drivers + 14.16 stops per 100 drivers = 15.83 stops per hundred drivers or $15.83/1.67 = 9.5$. The percent difference is calculated by measuring the difference between the stop rates for Black and white drivers divided by the stop rate for white drivers, multiplied by 100.

Tables B-10 and B-11 offer the summary of variables in the no-action encounter regression analysis and the results for the various regression specifications. As discussed previously and shown in Table A-1, MPD documented few no-action encounters throughout the year. These low totals make it difficult to detect subtle variability in rates across district and race or ethnicity demographic profiles but can provide information when differences are pronounced. While controlling for known predictors (Model 7), the results indicate that in 2020 the MPD no-action encounter rate was higher for Black residents and Hispanic/Latino residents than white residents by 0.51 and .08 stops per 1,000 residents, respectively. These differences were statistically significant at the 90 percent confidence level, but did not reach statistical significance at the more common 95 percent confidence level.⁴⁰ Given the estimated average no-action encounter rate for white residents, the no-action encounter rate for Black residents is 8.29 times higher than the no-action encounter rate for white residents, or a 729 percent difference. The no-action encounter rate for Hispanic/Latino residents is 2.14 times higher than the no action encounter rate for white residents, a 114 percent difference.

Frisks were explored two ways to determine whether and to what extent race or ethnicity of a resident or stop subject plays a role in the likelihood that a frisk will occur. The Settlement Agreement specifies analysis of frisks as a rate by district, similar to the estimates generated for traffic stops, field interviews, and no-action encounters. We also explored the relationship between race or ethnicity and frisks at the individual level to determine odds or predicted probability that a frisk will occur during an encounter with police. Thus the first analysis is focused on estimating frisks among the general population and the second analysis is focused on estimating possible disparities in frisks after the decision to initiate a police encounter has already been made.

Tables B-12 and B-13 provide the summary of variables in the frisk rate regression analysis and the results for the district-level regression specifications. While controlling for all known predictors (Model 7), the results indicate that in 2020 the MPD frisk rate was higher for Black residents than white residents by 3.50 frisks per 1,000 residents. This difference is statistically significant at the 95 percent confidence level. Given the estimated average frisk rate for white residents, the frisk rate for Black residents is 9.97 times higher than the frisk rate for white residents, or an 897 percent difference. The frisk rate for Hispanic/Latino residents was not statistically different from the frisk rate for white residents. We found the frisk rate for other races, referring to residents identified as Native American or Alaskan Native, Asian, or Native Hawaiian or other Pacific Islander, to be lower than for white residents. Residents that are not identified

⁴⁰ All inferential statistics presented in this report provide information about whether the point estimates reach the three common statistical thresholds – 90, 95, and 99 percent, or more commonly specified as $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.

as Black or Hispanic/Latino are 0.13 times less likely to be frisked than white residents, or an 87 percent difference. This difference is statistically significant at the 95 percent confidence level.

An exploration of frisk rates at the individual encounter level shows a similar pattern. Table B-14 shows frisk rates by race and type of stop. Twenty-five percent of field interviews result in a frisk, with frisks occurring more often for Black subjects than white subjects (28 percent and 12 percent, respectively). Table B-15 provides the individual-level regression analysis of frisks. When controlling for time of day, time of year, and district, the odds of a Black subject being frisked during an encounter are 2.3 times that of a white subject and the odds of a Hispanic/Latino subject being frisked are 1.6 times that of a white subject. Both of these results are statistically significant at the 99 percent confidence level.

To further examine how a stop subject's race and ethnicity influence the probability that the MPD officers will conduct a frisk, we also estimate a set of regressions in which a stop subject's race or ethnicity is allowed to have different effects in each district. An indicator variable for each combination of subject race or ethnicity and district allows us to understand district-specific differences in frisks by race and ethnicity. Table B-16 summarizes the predicted probabilities from the regression model estimating frisks for each race or ethnicity in each district.

Recall that District 6 is a majority-white residential population. According to Table B-16, the predicted probability for a Black subject to be frisked during a police encounter in District 6 is 0.5 percent. The predicted probability of a Hispanic/Latino stop subject getting frisked in District 6 is 0.43 percent and the predicted probability of a white stop subject getting frisked in that district is 0.11 percent. This indicates that during police encounters in District 6 for the year 2020, the predicted probability that a Black subject will get frisked is 128 percent higher than for Hispanic/Latino or white stop subjects. The largest difference is found in District 7 where the predicted probability that Black subjects are frisked during an encounter with police is 157 percent higher than when white subjects are encountered by police.

The main findings of the Milwaukee stop rate regression analysis are summarized below. For 2020, after ruling out other demographic and district-level predictors of police encounters, we find:

- The traffic stop rate for Black drivers is 9.5 times higher than for white drivers and the traffic stop rate for Hispanic/Latino drivers is 2.9 times higher than for white drivers. These results are statistically significant. Traffic stop rates for drivers of other races did not significantly differ from traffic stop rates of white drivers.
- The field interview rate for Black residents is 5.7 times higher than for white residents. This result is statistically significant. Field interview rates for residents

that are Hispanic/Latino or of other races did not significantly differ from field interview rates of white residents.

- The no-action encounter rate for Black residents is 8.3 times higher than for white residents and the no-action encounter rate for Hispanic/Latino residents is 2.1 times higher than for white residents. These results are statistically significant at the 90 percent confidence level.
- The frisk rate for Black residents is approximately 10 times higher than for white residents. Frisk rates for Hispanic/Latino residents did not significantly differ from frisk rates of white residents. Residents of other races were frisked at a slightly lower rate than white residents, an 87 percent difference.
- The predicted probability of a frisk occurring after a police encounter has been initiated is 2.3 times higher for Black stop subjects than it is for white stop subjects. Hispanic/Latino subjects of police encounters are 1.6 times more likely to be frisked than white subjects. These results are statistically significant.

IOARS ANALYSIS (SA V.A.6)

The regression analysis of individualized, objective, and articulable reasonable suspicion (IOARS) is based on sample data used for the two semiannual reviews of IOARS published in October 2020 and April 2021, which include an analysis of traffic stops, field interviews, no-action encounters, and frisks that took place during the 2020 calendar year. The semiannual reviews are conducted for fulfillment of SA V.A.3.a-e to measure MPD's compliance with the Fourth Amendment in conducting traffic stops, field interviews, no-action encounters, and frisks. Officers must provide "objective, individualized, and articulable facts that, within the totality of the circumstances, lead a police member to reasonably believe that criminal activity has been, is being, or is about to be committed by a specific person or people."⁴¹ Additionally, for frisks to be warranted during a stop, "the police member must be able to articulate specific facts, circumstances and conclusions that support objective and individualized reasonable suspicion that the person is armed and dangerous."⁴² The semiannual reviews for 2020 encounters offer details regarding the sampling strategy and IOARS decision rules that were used in the reviews.⁴³

Table C-1 includes summary statistics for IOARS documentation to justify a stop by race or ethnicity and quarter of the year. Overall, MPD met the IOARS documentation standard for most encounters, ranging from 70 percent meeting the standard in quarter 2 of 2020 and 81 percent meeting the standard in quarter 4. The majority of individuals in the sample are identified as Black, making it difficult to make comparisons to other race or ethnic categories as the proportions meeting the IOARS standard have larger fluctuations when the sample is smaller. Nonetheless, The IOARS standard was met with increasing frequency throughout the year for Black stop subjects, ranging from 70 percent in quarter 1 to 84 percent of stops meeting the standard in quarter 4 of 2020. There was a decrease in the proportion of stops meeting the IOARS standard during quarters 2 and 3 for Hispanic/Latino and white stop subjects, dropping to 50 percent in quarter 2 for Hispanic/Latino subjects and 63 percent in quarter 3 for white stop subjects.

Table C-2 provides summary statistics for IOARS documentation to justify frisks by race or ethnicity and quarter of the year. This table represents 522 frisks in the sample, broken out by quarter and race or ethnicity of the frisk subject. While MPD has shown clear progress in documenting IOARS to justify initiating a police encounter, they have

⁴¹ For further discussions of how IOARS determinations were made, see our previous Semiannual Analyses of Traffic Stops, Field Interviews, No-action Encounters, and Frisks at <https://city.milwaukee.gov/fpc/Reports/Crime-and-Justice-Institute-Reports.htm>

⁴² Milwaukee Police Department Standard Operating Procedure 085 "Citizen Contacts, Field Interviews, Search and Seizure." Effective January 25, 2019.

⁴³ <https://city.milwaukee.gov/fpc/Reports/Crime-and-Justice-Institute-Reports.htm>

not demonstrated progress in documenting IOARS to justify performing a frisk during an encounter. While IOARS documentation for frisks improved throughout the year, MPD is far below the 85 percent threshold denoted in the Settlement Agreement as the acceptable minimum proportion of stops that fail to properly document IOARS (SA V.1.d.i-vii). For all race or ethnic categories, only seven percent of frisks met the IOARS standard in quarter 1 with improvement throughout the year to 15 percent in quarter 4. Given that the majority of frisks occur with Black stop subjects (441 of the 522 frisks in the sample occurred with Black individuals), it is difficult to make comparisons to other race or ethnic categories. For example, none of the 12 frisks that occurred with white subjects in quarter 2 met the IOARS standard. While a larger percentage of frisks with Black subjects met the IOARS standard for that quarter (10 percent), it still means that 123 of those 137 frisks lacked proper documentation to justify the frisk.

Tables C-3 and C-4 describe the stop totals and IOARS thresholds for the stop sample and the frisk sample by district. In meeting the IOARS documentation standard for stops, Districts 5 and 7 showed improvements in documenting IOARS for stops throughout the year ranging from 70 and 76 percent in quarter 1 to 87 and 83 percent in quarter 4. For frisks, Districts 2, 4, and 7 had the lowest proportion of frisk documentation meeting the IOARS standard, ranging between 8 and 11 percent compliant for the full year totals.

IOARS REGRESSION ANALYSIS

The regression specifications provided in SA V.A.3 were used to assess whether subject race or ethnicity is significantly related to the likelihood that documentation for the stop or frisk meets the IOARS standard. Logistic regression with robust standard errors clustered by district was used as a modeling strategy, where the dependent variable is coded one (1) if the encounter documentation met the IOARS standard and zero (0) if the IOARS standard was not met. This modeling strategy predicts whether there are significant differences by race or ethnicity in the likelihood that officers meet the IOARS standard, controlling for subject demographics (age and gender) and the specified district-level social and demographic variables. Tables C-5 and C-6, display summary statistics and regression estimation with odds ratios for the IOARS stop analysis. Tables C-7 and C-8 include the summary statistics and regression estimation with odds ratios for the IOARS frisk analysis. Table C-9 provides the predicted probabilities and average marginal effects for both IOARS analyses. For race and ethnicity, the reference category is a white subject, with the odds ratio for Black interpreted as the odds of an encounter achieving the IOARS standard when it involves a Black subject relative to IOARS documentation for white subjects, holding all other variables constant. Predicted probabilities present the estimated probability that encounters with each race or ethnic category will meet the IOARS documentation standard during a police stop or frisk, and the average marginal effects show the

magnitude of the difference between IOARS documentation for Black or Hispanic/Latino subjects as compared to white subjects.

Table C-6 lists the odds ratios for whether there are significant differences in IOARS documentation to justify initiating a police encounter for each variable specified in the model. Table C-9 reports the predicted probability of achieving the IOARS standard for the stop, controlling for district and other subject demographic effects. The odds ratios indicate non-significant differences in IOARS documentation by race and ethnicity. In terms of predicted probabilities, the model estimates that the IOARS standard is met in 75.4 percent of stops involving white subjects, as compared to an estimated 76.4 percent for Black subjects and 71.1 percent for Hispanic/Latino subjects.

Table C-8 lists the odds ratios for whether there are significant differences in IOARS documentation to justify a frisk encounter for each variable specified in the models. Table C-9 provides the predicted probabilities of achieving the IOARS standard for frisks, controlling for subject and district-level explanatory variables. The odds ratios for the variables of interest, an indicator for a Black subject and an indicator for a Hispanic/Latino subject, are higher than one, indicating the estimated odds for IOARS documentations for frisks are higher for Black subjects and Hispanic/Latino subjects relative to white subjects. These odds are not statistically significant for Black subjects but are significant for Hispanic/Latino subjects relative to white subjects. The predicted probability of a frisk meeting the IOARS standard for interactions with Hispanic/Latino subjects is 26.7 percent, compared to just 5.9 percent with white frisk subjects, an average marginal effect of 20.8 percent.⁴⁴

The relative imbalance of frisks by race and ethnic category likely interferes with the estimation of whether race or ethnicity influences the documentation of IOARS. As indicated in Table C-2, approximately 84.5 percent of frisks in the sample were conducted with Black subjects, while the rate generated for white subjects is based on documentation for 34 frisks and the rate for Hispanic/Latino subjects is based on 43 frisks. The model estimation procedure factors in this imbalance when attempting to estimate whether the differences in documentation of IOARS between race or ethnic groups is statistically significant.

The main findings of the IOARS regression analysis are summarized below. For 2020, after ruling out other demographic and district-level explanatory variables, we find:

- IOARS documentation to justify stops of subjects of any race or ethnic category has increased in quality over the calendar year. By quarter 4, 81 percent of documentation met the IOARS standard.

⁴⁴ The differences in the estimated predicted probabilities for Black subjects and Hispanic/Latino subjects relative to white subjects is known as the average marginal effects. That is, the IOARS documentation rate is 20.8 percentage points higher for Hispanic/Latino subjects relative to white subjects.

- IOARS documentation to justify frisks of subjects of any race or ethnic category has been deficient throughout 2020, with just 12 percent of records meeting the IOARS standard for the year overall.
- The probability of proper IOARS documentation is not statistically different by race or ethnicity.
- The probability of proper IOARS documentation for frisks involving Black subjects or frisks involving Hispanic/Latino subjects is higher relative to white subjects. The difference is not statistically significant for Black subjects but the likelihood of a frisk achieving IOARS documentation for Hispanic/Latino subjects is 20.8 percentage points higher than for white subjects, a statistically significant finding.

FRISK AND CONTRABAND HIT RATE ANALYSIS (SA V.A.7.A)

The Settlement Agreement (SA V.A.7a) requires a hit rate analysis to determine the possible effects of race and ethnicity in encounters with police. As summarized in Table D-1, 997 frisks are documented in 2020 during traffic stops, field interviews, and no-action encounters. Of those frisks, 171 (17.1 percent) resulted in the discovery of contraband. Drug contraband was discovered during 39 frisks and 90 frisks recovered weapons, discovery rates of 3.9 percent and 9.0 percent, respectively. As previously discussed, the majority of the 997 documented frisks in 2020 occur with Black stop subjects (827), followed by Hispanic/Latino stop subjects (90), white stop subjects (69), and very few frisks of stop subjects of other races or ethnicities (10). As it would be inappropriate to interpret or compare contraband hit rates based on such a comparatively low total for other races and ethnicities, we concentrate here on hit rates for Black, Hispanic/Latino, and white stop subjects. We present information for contraband hit rates among frisks of stop subjects of other races or ethnicities in Table D-1 but caution interpretation of the rates in comparison to other race or ethnic categories.

It is important to note that searches are not discussed in this analysis as the focus of the Settlement Agreement specifies frisks. Searches are different from frisks in that searches involve looking into hidden places in vehicles or on a subject's person for contraband or evidence of a crime with the intent of charging the individual with an offense. Frisks are a pat down of the outer garments of a subject and are to be conducted only when officers have IOARS that the subject is armed and dangerous. If during a frisk of a subject's outer clothing an officer feels an object that is identifiable as contraband, the officer is authorized to seize the object. This can lead to discovery of drugs or other non-weapon contraband as a result of a frisk even as the intent of frisks are to retrieve and secure weapons.

Table D-1 also provides a summary of contraband hit rates by race. The overall contraband hit rates are 1.9 and 3.3 percentage points lower for Black and Hispanic/Latino frisk subjects, respectively, than for white frisk subjects. This preliminarily suggests that officers may be more likely to frisk Black and Hispanic/Latino stop subjects than white stop subjects. Regression analysis is used to explore this hypothesis by accounting for other explanations for why officers may frisk a given stop subject.

CONTRABAND HIT RATE REGRESSION ANALYSIS

We conduct multivariate logistic regression analyses to determine whether the discovery of contraband in a frisk during a police encounter differs by race or ethnicity after controlling for other demographic factors, as well as the time and district in which

the encounter occurred.⁴⁵ The models provide odds ratios indicating the odds of contraband discovery relative to the reference category, which in this analysis represents white frisk subjects. We also present predicted probabilities of contraband discovery along with the average marginal effects in order to describe differences in contraband discovery by race or ethnicity in terms of percentage points. The dependent variable is an indicator variable equal to one if contraband is discovered and zero otherwise. We estimate three regression models:

1. Model 1 controls only for the frisk subject's race or ethnicity, Black or Hispanic/Latino. Other race categories are excluded from the analysis due to the low frisk totals represented by people of races or ethnicities other than Black, Hispanic/Latino, or white.
2. Model 2 adds controls for the frisk subject's age and gender. Age is specified as an indicator for whether the subject is younger than 35 years old and gender is specified as an indicator for whether the frisk subject is male.
3. Model 3 adds controls for the time of day the stop occurred, district, and quarter. Time of day is split into four quarters of the day: 9:00am to 2:59pm, 3:00pm to 8:59pm, 9:00pm to 2:59am, and 3:00am to 8:59am.

Table D-2 provides the full regression results for each model by reporting odds ratios and confidence intervals for each coefficient in the model. Table D-4 reports the predicted probabilities and average marginal effects for the relationship between race or ethnicity and contraband discovery based on Model 3. After controlling for other frisk subject characteristics, time of day, time of year, and district, the probability of discovering contraband during a frisk is lower for Black stop subjects than for white stop subjects by 1.9 percentage points, although this difference is not statistically significant. Additionally, frisks of Hispanic/Latino stop subjects are predicted to yield lower contraband discovery rates than frisks with white stop subjects (-5.5 percent), this result is also not statistically significant.

Since the expressed purpose of conducting a frisk is related to weapon possession, we conducted additional analyses focused on understanding whether the weapons discovery rate varies by race or ethnicity and whether the drug discovery rate varies by race or ethnicity. We used Model 3 specifications for these analyses and find no statistically significant differences in the probability of discovering weapons during a frisk by race or ethnicity. Drug discovery rates were significantly lower for Hispanic/Latino stop subjects than white stop subjects when using the 90 percent confidence threshold. Full regression results are presented in Table D-3 and associated predicted probabilities and average marginal effects are presented in Table D-4.

⁴⁵ Contraband includes weapons, drugs, and other items such as drug paraphernalia, stolen goods, or tools used to commit a crime. We analyze contraband as all contraband types and more specifically weapons or drug discoveries.

The main findings of the frisk and contraband hit rate analysis are summarized below. For 2020, after ruling out other demographic and district-level explanatory variables, we find:

- The probability of discovering contraband during a frisk is lower for Black and Hispanic/Latino stop subjects than for white stop subjects; however, this difference is not statistically significant.
- Weapon discovery rates during frisks do not differ significantly by race or ethnicity.
- Drug discovery rates are significantly lower for Hispanic/Latino stop subjects than for white stop subjects, a difference of 5 percentage points.

DISTRICT-LEVEL ENCOUNTERS BY CRIME HIT RATE ANALYSIS (SA V.A.7.B)

We conduct a hit rate analysis at the police district level to explore whether police encounters are more likely to occur in majority Black or majority Hispanic/Latino police districts. The Settlement Agreement (SA V.A.7b) requires this analysis to develop encounter rates per reported crime rates to determine whether the ratios are related to district racial or ethnic demographics. If districts with majority shares of Black or Hispanic/Latino populations have higher stop or frisk rates but lower relative crime rates than districts with majority white populations, then there is a stronger likelihood that race or ethnicity is a determining factor in officers' initiation of traffic stops, field interviews, no-action encounters or frisks.

As indicated in Figure A-5, Districts 4, 5, and 7 encompass majority-Black neighborhoods, District 2 is a majority-Hispanic/Latino neighborhood, and Districts 1 and 6 are majority-white neighborhoods. District 3 appears to be the most diverse district, with 46 percent Black residents, 34 percent white residents, 11 percent other race categories and 9 percent Hispanic/Latino residents.

Table E-1 provides the ratios of the traffic stop rate (per 100 drivers), field interview rate (per 1,000 residents), no-action encounter rate (per 1,000 residents), and frisk rate (per 1,000 residents) to crime rates in each district. For ease of description, Table E-2 summarizes a comparison of majority Black districts (Districts 4, 5, and 7) to majority white districts (Districts 1 and 6) and a comparison of the majority Hispanic/Latino district (District 2) to majority white districts.

While the ratios of traffic stop, field interview, and no-action encounter rates relative to crime rates in majority-Black districts are lower than the ratios of encounters to crime rates in majority-white districts, the ratio of frisk rates to crime rates in Black districts is 135 percent higher than the ratio of frisk rates to crime rates in white districts. The ratios of traffic stop and field interview rates to crime rates in the majority-Hispanic/Latino district are higher than the ratios of these encounters to crime rates in white districts. Similar to the frisk ratio comparison between Black and white districts, the ratio of frisk rates to crime rates in the majority-Hispanic/Latino district is 148 percent higher than the ratio of frisk rates to crime rates in white districts.⁴⁶

⁴⁶ District 3 is 46% Black residents, 34% white residents, 9% Hispanic/Latino residents, and 11% residents of other races and thus has no clear majority racial or ethnic group. The ratios of encounters to crime rates for District 3 compared to white districts are: -42% (traffic stops), -38% (field interviews), -39% (no-action encounters), and 97% (frisks).

Overall, these results suggest that, when accounting for relative crime rates, frisks are conducted more often in Black and Hispanic/Latino neighborhoods than in white neighborhoods.

DISCUSSION OF FINDINGS

The Settlement Agreement (SA V.A.5-8) stipulates specific data sources, regression protocols, and hit rate analyses required to measure the Milwaukee Police Department's compliance with the Fourteenth Amendment of the U.S. Constitution and Title VI of the Civil Rights Act of 1964 in conducting traffic stops, field interviews, no-action encounters, and frisks. The intent of the analysis in this report is to determine the impact of a person's race or ethnicity on the likelihood of a police encounter while controlling for crime and population characteristics of each of the police districts. Four analyses were conducted to measure compliance: stop rate analysis, IOARS rate analysis, hit rate analysis of frisks and contraband, and hit rate analysis of districts by crime rates.

LIMITATIONS

The analyses offered in this report provide an exploration of police encounters in 2020 and encompasses a second year of analyses focused on understanding racial or ethnic disparities in police encounters with the Milwaukee Police Department. The data for 2019, presented in our report "[Analysis of 2019 Traffic Stops, Field Interviews, No-Action Encounters, and Frisks](#)," while foundationally similar, were reflective of iterative changes to the data extraction protocols which impacted our ability to make strong conclusions about our findings. The 2020 data extractions remained stable throughout the year and thus our conclusions this year are not limited by iterative changes to the quarterly data. However, two significant, historical events occurred during 2020 and are worth acknowledging, as they may have influenced these findings.

The 2020 police encounters included in this analysis occurred within the context of the COVID-19 pandemic that began in March and the racial justice movement that intensified after George Floyd was murdered by Minneapolis police officers on May 25. The stay-at-home orders associated with the COVID-19 pandemic was likely a primary contributing factor in the dramatic decrease in traffic stops that occurred between March and September of 2020 due to changes in social behavior and work commuting (see Tables A-1 and A-4 for traffic stop totals by quarter). Another primary contributor to the decrease in traffic stops could be related to the statewide postponement of vehicle registrations and limitations on law enforcement for making traffic stops for improper or expired vehicle registration. The impact of the pandemic on other types of police encounters is less clear. For example, frisk encounter totals remain steady throughout the year (Table A-4).

Police departments across the country adapted their behaviors, with some departments affirmatively changing operating procedures as they enhanced safety protocols for officers and the public and worked to enforce stay-at-home orders during COVID-19. The MPD officers with whom we spoke consistently throughout the year reported no formal changes to procedures or patrol strategies beyond enhanced use of personal protective equipment to prevent transmission of COVID-19 among

officers and between officers and the public. Changes in police officer behavior, in addition to changes to driving habits of the public may have played a role in the decrease in traffic stop totals for 2020. For example, policing may have changed due to changes in officer staffing availability, as officers contracted COVID-19 or were subject to quarantine orders due to known exposure to the virus.⁴⁷

Similarly, policing behavior in Milwaukee may have changed in response to the racial justice movement as departments and officers across the country react and respond to greater scrutiny from the public. People in Milwaukee joined in protests and marches associated with the racial justice movement calling for greater police accountability. These activities and events may have influenced policing and police encounters during 2020, however a precise estimate of the impacts of these historical events is not feasible.

More research must be done to understand the qualitative impacts of these unique circumstances in order to determine how these historical events influenced the racial disparities found in traffic stop, field interview, no-action encounter, and frisk rates presented in this analysis. Our robustness check comparing encounters by quarter does not reveal a significant change in racial disparities of police encounters prior to and after these historical events. That is, these events do not appear to be driving disparities found in our analysis as the disparities are robust to time periods, despite the decline in traffic stops during quarters 2 and 3 and decreases in field interviews and no-action encounters in quarter 4.

One additional limitation of note is related to our ability to accurately represent traffic stops, field interviews, and no-action encounters given the data that are provided to us. There are encounters provided in the CAD files that do not have corresponding documentation in files from TraCS, RMS, or AIM (see “CAD Numbers” in A-1 and “Number of Stops” in A-4). Table A-3 also provides an accounting of citations or warnings that lack corresponding TraCS or RMS information to provide a full accounting of the nature of those encounters. Thus neither unmatched CAD numbers nor the citation/warning only encounters are represented in the stop rate analyses as they are based on the encounter type categories. Moreover, the chapter “Body-Worn Camera Review” in the Third Annual Report provides evidence that not all police encounters are documented, including police encounters where frisks occur. As the estimates provided in our analysis rely on documented police encounters, our findings are limited to estimating racial and ethnic disparities in documented police encounters and do not account for patterns that may exist in undocumented encounters with police.

⁴⁷ News reports in February 2021 indicated that an estimated 1 in 4 MPD officers have contracted COVID-19, leading to adjustments to staffing in some work locations. <https://www.cbs58.com/news/1-in-4-milwaukee-police-officers-has-contracted-covid-19>

Despite the limitations presented by historical events in 2020 and the quality of encounter data, we believe the analyses presented in this report inform an understanding of racial disparities present in police encounters during implementation of policy and procedural changes to respond to the requirements of the Settlement Agreement.

SUMMARY OF FINDINGS

The stop rate analysis indicates, after controlling for known predictors, that Black drivers and residents are subjected to traffic stops, field interviews, no-action encounters, and frisks at significantly higher rates than white drivers and residents. Black drivers are 9.5 times more likely to get stopped than white drivers. Black residents are 5.7 times more likely to be subjected to a field interview and 8.3 times more likely to be a subject of a no-action encounter than white residents of Milwaukee. All of these results are statistically significant.

In addition to being more likely to be stopped by police, Black individuals are also significantly more likely to experience a police stop that involves a frisk. We analyze the racial and ethnic disparity in two ways. First we estimate the likelihood that a person in Milwaukee will be subjected to a stop that involves a frisk, by race and ethnicity. This provides information about whether there is a racial or ethnic disparity in more invasive police encounters, controlling for other known factors, among members of the public in Milwaukee. We find that Black residents are 10 times more likely than white residents to be subjected to a frisk-based police encounter. Second, we estimate whether there is a racial or ethnic disparity in the likelihood of a frisk among the individuals stopped by police. This provides information about whether there is a racial or ethnic disparity in the likelihood of a frisk after the officer has already decided to make a stop. This more focused analysis of frisks indicates that during a police encounter, Black subjects are 2.3 times more likely to be frisked than white subjects, with the disparity largest in District 5. These results are also statistically significant.

Controlling for demographic and district-level population characteristics, Hispanic/Latino drivers were 2.9 times more likely than white drivers to be subjected to a traffic stop and Hispanic/Latino residents were 2.1 times more likely than white residents to be subjected to a no-action encounter. During a police encounter, Hispanic/Latino subjects were 1.6 times more likely to be frisked than white subjects. These results are statistically significant. The stop rates of Hispanic/Latino residents for field interviews and frisks compared to residential population were not significantly different than for white residents.

Analysis of IOARS documentation to justify stops of subjects of any race or ethnic category has increased in quality over the calendar year. By quarter 4 of 2020, 81 percent of encounters met the IOARS standard of justification for initiating a police encounter. However, IOARS documentation to justify frisks has continued to be

deficient, with just 12 percent of records meeting the IOARS standard for the year overall. The Settlement Agreement uses an 85 percent threshold as a benchmark for meeting the IOARS standard. IOARS documentation for stops is close to this threshold but IOARS documentation for frisks is well below this requirement.

The probability of proper IOARS documentation of encounters does not statistically differ by race or ethnicity. However, in assessing IOARS documentation for frisks, frisk documentation of Hispanic/Latino subjects is more likely to meet the IOARS standard than for white subjects by 20.8 percentage points, a statistically significant finding.

Hit rates for contraband discovery were 17 percent overall, and while discovery rates for Black and Hispanic/Latino subjects were lower than for white subjects, the differences are not statistically significant. Exploration of contraband hit rates by race or ethnicity and type of contraband (drug or weapon) indicates that frisks of Hispanic/Latino subjects are significantly less likely to produce drug contraband than frisks of white subjects.

An analysis of the ratio of frisk rates to crime rates by district shows that when accounting for relative crime rates, officers conduct frisks more often in Black and Hispanic/Latino neighborhoods than in white neighborhoods.

Overall, we find racial and ethnic disparities in traffic stops, field interviews, no-action encounters, and frisks conducted by MPD. IOARS documentation standards have improved throughout 2020, with documentation of IOARS for frisks continuing to be deficient regardless of race or ethnicity of the frisk subject.

These results represent a second year of analysis of police encounters in Milwaukee. The results for 2019 indicated race and ethnic disparities in traffic stops, field interviews, and frisks that are on par with the results found for 2020 encounters.⁴⁸ While no disparities in no-action encounters were indicated for 2019, analysis of 2020 encounters identified significant racial and ethnic disparities for this encounter type. These results indicate that the changes to policy, training, and procedures being implemented by the Milwaukee Police Department in response to the Settlement Agreement have not yet resulted any improvements in racial and ethnic disparities in police encounters with members of the public.

⁴⁸ “Analysis of 2019 Traffic Stops, Field Interviews, No-action Encounters, and Frisks.”
<https://city.milwaukee.gov/fpc/Reports/Crime-and-Justice-Institute-Reports.htm>

CONTRIBUTORS

Katie Zafft manages CJI's policing and corrections portfolios and leads the data analysis efforts for the Milwaukee Settlement Agreement work. She has over 10 years of experience working in criminal justice policy evaluation and implementation. Dr. Zafft's professional research experience includes both quantitative and qualitative data analysis at the local, state, and national level to evaluate a wide range of criminal justice topics, including the intersection of law enforcement and drug policy, community supervision strategies, drug court implementation, sentencing guidelines, and felony theft statutes. Her work for The Pew Charitable Trusts' public safety performance project involved evaluating state criminal justice policy reforms to inform the national conversation about sentencing and corrections. She holds a Ph.D. in Criminology and Criminal Justice from the University of Maryland, a Master's Degree in Criminology from the University of Minnesota-Duluth, and a BA in Psychology from St. Catherine's University in St. Paul, Minnesota.

Joanna Abaroa-Ellison provides data analysis support with her policy and data experience in various parts of the criminal justice system, including jails, courts, policing, and corrections. Prior to her work with CJI, Ms. Abaroa-Ellison served as the Data Integration Specialist and Research Analyst at the Middlesex Sheriff's Office (MA). There, she was able to extract, analyze, and visualize data as well as build capacity for implementing data-driven practices and policies. She holds a Master's of Social Work in Macro Practice from Boston College and a BA in Criminology from the University of Pennsylvania.

Andrea Tyree provides qualitative and data analysis support for CJI's Consultant role in the Milwaukee Settlement Agreement. Her current research focuses on the ongoing evolution of policing in America. Ms. Tyree is a Master's of Public Policy candidate at Brandeis University's Heller School for Social Policy and Management and holds a BA in Political Science from Howard University.

APPENDIX A: POPULATION AND ENCOUNTER TABLES & FIGURES

A-1: PERSONS INVOLVED IN ENCOUNTERS BY QUARTER AND TYPE

Quarter	Data Extraction Delivery Date	CAD Numbers	TraCS – Traffic Stops	TraCS – Citation or Warning Only	RMS – Field Interviews	RMS – No-Action Encounters
Quarter 1 Jan. – March	May 15, 2020	16,262	16,691	4,374	1,170	84
Quarter 2 April – June	August 15, 2020	7,458	7,252	2,164	1,291	92
Quarter 3 July – Sept.	November 13, 2020	8,442	8,080	1,897	962	43
Quarter 4 Oct. – Dec.	February 15, 2021	12,494	12,332	1,640	706	61
Total	N/A	44,656	44,355	10,075	4,129	280

Notes:

¹MPD performs manual redaction of the public's personally-identifiable information for each data extraction. Personally-identifiable information includes name, home address, driver's license or state ID number, personal phone number, and social security number.

²CAD number totals represent the total number of unique CAD numbers provided with encounter dates that fall within the specified quarter. The total number of encounters from TraCS or RMS do not equal total number of CAD numbers because not all CAD numbers had corresponding TraCS or RMS data provided in the extraction and the totals for TraCS and RMS represent people within encounters rather than encounter events.

³At times, certain data files were delivered after the original delivery date for that quarter. Sometimes this was due to correcting redactions, and other times additional fields or files were added to the extraction. For quarter 1, two additional files were delivered on August 15, 2020. For quarters 1 and 2, redaction corrections were delivered on September 25, 2020. For quarter 4, an update to the Tracs_ELCI_Joined file was delivered on February 18, 2021.

Sources:

Milwaukee Police Department Stop Data, 2020

A-2: DATA LOSS BY QUARTER AND ENCOUNTER TYPE

Quarter	CAD only	AIM only
Quarter 1	221	10
Quarter 2	163	3
Quarter 3	214	7
Quarter 4	125	7
Total	723	27

Notes:

¹Encounters identified as “CAD only” include observations in the data that are present in the CAD file but do not have corresponding information in files from TraCS, RMS, or AIM.

²Encounters identified as “AIM only” include observations in the data that are present in the AIM file but do not have corresponding information in files from CAD, TraCS, or RMS.

Sources:

Milwaukee Police Department Stop Data, 2020

A-3: ENCOUNTERS BY TYPE AND DISTRICT

District	Traffic Stops	Field Interviews	No-Action Encounters	Citation or Warning Only	Totals	Percent by District
1	2,471	286	31	637	3,425	6.6%
2	4,845	530	37	1,236	6,648	12.8%
3	5,268	368	27	1,139	6,802	13.1%
4	5,723	269	30	1,078	7,100	13.6%
5	5,660	646	43	1,305	7,654	14.7%
6	7,237	247	8	1,011	8,503	16.3%
7	8,128	328	23	1,619	10,098	19.4%
NULL	620	43	4	4	671	1.3%
Missing	591	0	4	622	1,217	2.3%
Total	40,543	2,717	207	8,651	52,118	100.0%

Notes:

¹The “Citation or Warning Only” category refers to encounters found in the data extractions that have a citation or warning document but do not have corresponding contact summaries or field interview data from TraCS or RMS which are necessary to accurately categorize them as traffic stops or field interviews. These encounters are not represented in the stop rate analyses but are incorporated into the IOARS analyses as they are in the Semiannual reviews.

²According to the extraction data dictionaries, “NULL” refers to locations of encounters that fall outside of district boundaries or special circumstance stops. We include them here for reference but do not include them in the district-level analyses.

³Missing refers to encounters with missing address or latitude/longitude data. Encounters with missing or null location information were not included in the district-level analyses.

Sources:

Milwaukee Police Department Stop Data, 2020

A-4: SHARE OF ENCOUNTERS WITH MISSING DEMOGRAPHIC INFORMATION

Quarter	Number of Stops				Share of Stops Missing Demographic and/or Location Data			
	Traffic Stops	Field Interviews	No-Action Encounters	Frisks	Traffic Stops	Field Interviews	No-Action Encounters	Frisks
Q1	15,043	783	63	238	4%	5%	14%	5%
Q2	6,286	820	67	347	3%	5%	15%	3%
Q3	7,486	625	30	207	3%	4%	13%	5%
Q4	11,728	489	47	205	3%	3%	15%	3%
Total	40,543	2,717	207	997	4%	4%	14%	4%

Notes:

¹Each observation in the data represents a single encounter with police.

²For traffic stops, field interviews, and frisks, an observation is considered to be missing demographic information if subject race/ethnicity, age, or gender is not present in TraCS or RMS data.

³For no-action encounters, an observation is considered to be missing demographic information if subject race/ethnicity or gender is not present in TraCS or RMS data. Age is not required to be documented by officers during no-action encounters.

⁴Encounters are considered to be missing demographic information if officers choose “unknown” for race or gender when documenting field interviews or no-action encounters in RMS.

⁵Frisks are a subset of traffic stops or field interviews.

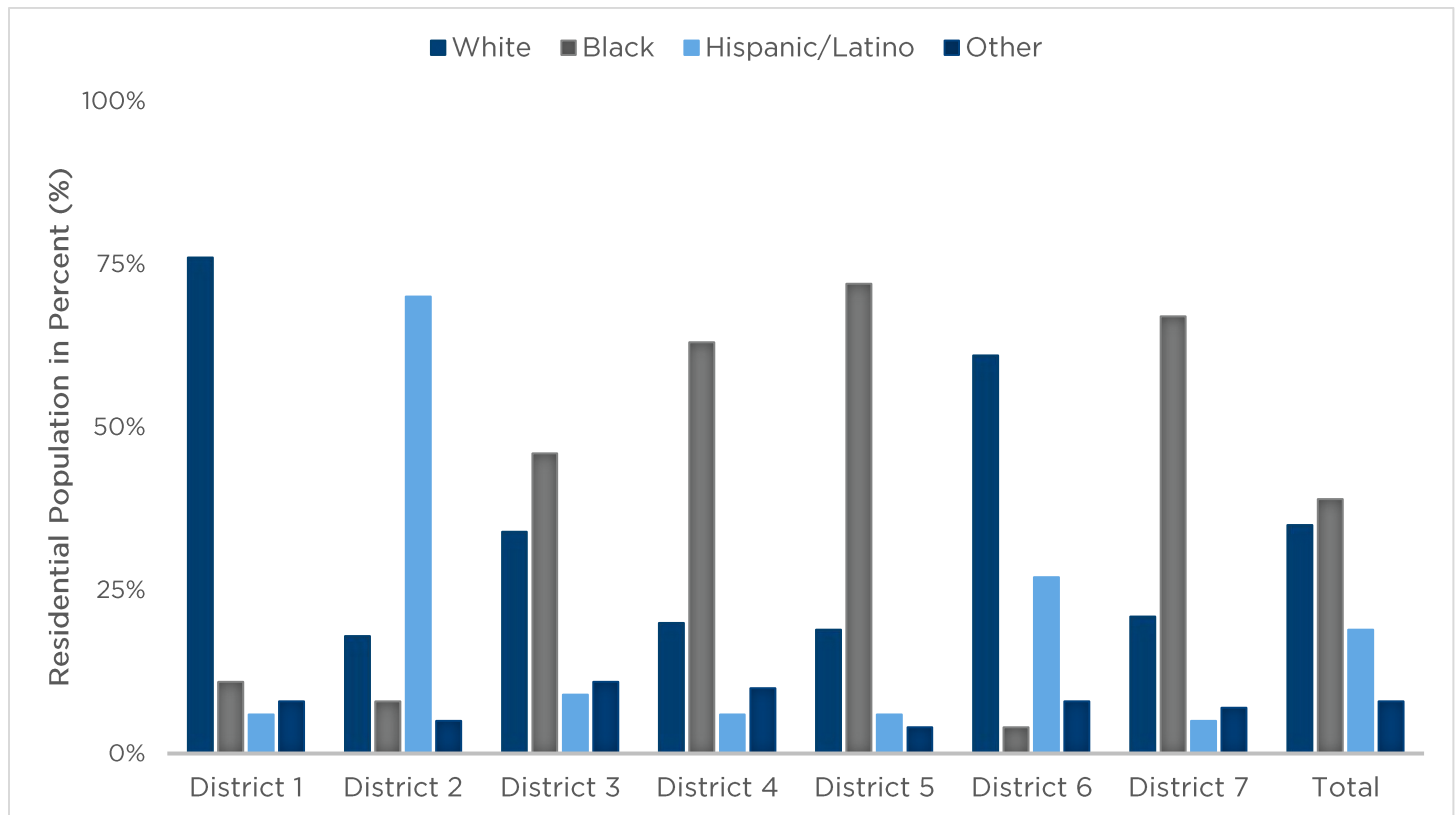
⁶Location data is considered missing if data for the encounter do not indicate the police district in which it occurred.

⁷Of the 8,651 citations or warnings that lack corresponding TraCS or RMS information, 9.7% are missing demographic or location information. We do not include them here as the focus for the annual analysis is the categorized encounters.

Sources:

Milwaukee Police Department Stop Data, quarters 1-4, 2020

A-5: POPULATION RACE AND ETHNIC COMPOSITION BY DISTRICT



Sources:

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

APPENDIX B: STOP RATE ANALYSIS TABLES

B-1: TRAFFIC STOPS PER 100 DRIVERS BY RACE, ETHNICITY, AND DISTRICT

District	1	2	3	4	5	6	7	All
Traffic Stops per 100 Drivers	9	20	13	11	21	10	18	14
Traffic Stops per 100 Black Drivers	47	102	26	16	31	70	27	27
Traffic Stops per 100 Hispanic/Latino Drivers	27	17	15	13	12	22	14	18
Traffic Stops per 100 White Drivers	5	10	5	3	5	6	3	5
Traffic Stops per 100 Drivers of Other Races	7	14	5	2	7	13	5	7
Percentage of Black Residents	11%	8%	46%	63%	72%	4%	67%	39%
Percentage of Hispanic/Latino Residents	6%	70%	9%	6%	6%	27%	5%	19%
Percentage of White Residents	76%	18%	34%	20%	19%	61%	21%	35%
Percentage of Residents of Other Races	8%	5%	11%	10%	4%	8%	7%	8%

Notes:

¹The traffic stop rate for Black drivers in each district is calculated as the total number of traffic stops of Black drivers in that district, multiplied by 100, and divided by the number of Black drivers in that district. The traffic stop rates for white, Hispanic/Latino, and drivers of other races are calculated the same way.

²Other race refers to individuals from the following race categories: Native American or Alaskan Native, Asian, Native Hawaiian or other Pacific Islander, two or more races, and “other” race.

Sources:

Milwaukee Police Department Stop Data, 2020

Wisconsin Driver License Data, 2015

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

B-2: FIELD INTERVIEWS PER 1,000 RESIDENTS BY RACE, ETHNICITY, AND DISTRICT

District	1	2	3	4	5	6	7	All
Field Interviews per 1000 Residents	6	7	5	3	11	2	3	5
Field Interviews per 1000 Black Residents	33	30	9	4	14	18	4	8
Field Interviews per 1000 Hispanic/Latino Residents	7	3	2	1	3	2	1	3
Field Interviews per 1000 White Residents	2	11	1	1	2	1	1	2
Field Interviews per 1000 Residents of Other Races	1	2	1	1	0	2	0	1
Percentage of Black Residents	11%	8%	46%	63%	72%	4%	67%	39%
Percentage of Hispanic/Latino Residents	6%	70%	9%	6%	6%	27%	5%	19%
Percentage of White Residents	76%	18%	34%	20%	19%	61%	21%	35%
Percentage of Residents of Other Races	8%	5%	11%	10%	4%	8%	7%	8%

Notes:

¹The field interview rate for Black residents in each district is calculated as the total number of field interviews of Black residents in that district, multiplied by 1,000, and divided by the number of Black residents in that district. The field interview rates for white, Hispanic/Latino, and residents of other races are calculated the same way.

²Other race refers to individuals from the following race categories: Native American or Alaskan Native, Asian, Native Hawaiian or other Pacific Islander, two or more races, and “other” race.

Sources:

Milwaukee Police Department Stop Data, 2020

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

B-3: NO-ACTION ENCOUNTERS PER 1,000 RESIDENTS BY RACE, ETHNICITY, AND DISTRICT

District	1	2	3	4	5	6	7	All
No-Action Encounters per 1000 Residents	0.6	0.4	0.3	0.3	0.7	0.1	0.2	0.3
No-Action Encounters per 1000 Black Residents	3.6	1.9	0.5	0.4	0.8	0.7	0.2	0.6
No-Action Encounters per 1000 Hispanic/Latino Residents	0.3	0.3	0.3	0.3	0.5	0.1	0.2	0.2
No-Action Encounters per 1000 White Residents	0.2	0.4	0.0	0.1	0.2	0.0	0.0	0.1
No-Action Encounters per 1000 Residents of Other Races	0.5	0.0	0.1	0.0	0.0	0.0	0.6	0.2
Percentage of Black Residents	11%	8%	46%	63%	72%	4%	67%	39%
Percentage of Hispanic/Latino Residents	6%	70%	9%	6%	6%	27%	5%	19%
Percentage of White Residents	76%	18%	34%	20%	19%	61%	21%	35%
Percentage of Residents of Other Races	8%	5%	11%	10%	4%	8%	7%	8%

Notes:

¹The no-action encounter rate for Black residents in each district is calculated as the total number of no-action encounters of Black residents in that district, multiplied by 1,000, and divided by the number of Black residents in that district. The no-action encounter rates for white, Hispanic/Latino, and residents of other races are calculated the same way.

²Other race refers to individuals from the following race categories: Native American or Alaskan Native, Asian, Native Hawaiian or other Pacific Islander, two or more races, and “other” race.

Sources:

Milwaukee Police Department Stop Data, 2020

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

B-4: FRISK RATES PER 1,000 RESIDENTS BY RACE, ETHNICITY, AND DISTRICT

District	1	2	3	4	5	6	7	All
Frisks per 1,000 Residents	0.9	2.0	2.0	0.8	5.9	0.2	1.3	1.6
Frisks per 1,000 Black Residents	6.2	10.7	3.7	1.2	7.8	1.8	1.9	3.5
Frisks per 1,000 Hispanic/Latino Residents	1.4	1.0	0.9	0.0	1.9	0.3	0.4	0.8
Frisks per 1,000 White Residents	0.2	2.0	0.4	0.2	0.9	0.0	0.0	0.3
Frisks per 1,000 Residents of Other Races	0.0	0.8	0.3	0.0	0.4	0.2	0.1	0.2
Percentage of Black Residents	11%	8%	46%	63%	72%	4%	67%	39%
Percentage of Hispanic/Latino Residents	6%	70%	9%	6%	6%	27%	5%	19%
Percentage of White Residents	76%	18%	34%	20%	19%	61%	21%	35%
Percentage of Residents of Other Races	8%	5%	11%	10%	4%	8%	7%	8%

Notes:

¹The frisk rate for Black residents in each district is calculated as the total number of frisks of Black residents in that district, multiplied by 1,000, and divided by the number of Black residents in that district. The frisk rates for white, Hispanic/Latino, and residents of other races are calculated the same way.

²Other race refers to individuals from the following race categories: Native American or Alaskan Native, Asian, Native Hawaiian or other Pacific Islander, two or more races, and “other” race.

Sources:

Milwaukee Police Department Stop Data, 2020

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

B-5: RATIO OF STOP RATES FOR BLACK AND HISPANIC/LATINO DRIVERS OR RESIDENTS TO STOP RATES FOR WHITE DRIVERS OR RESIDENTS

	Traffic Stops	Field Interviews	No-Action Encounters	Frisks
Ratio of Stop Rate for Black Drivers/Residents to Stop Rate for White Drivers/Residents	5.2	4.1	5.5	10.7
Ratio of Stop Rate for Hispanic/Latino Drivers/Residents to Stop Rate for White Drivers/Residents	3.5	1.3	2.3	2.4
Ratio of Stop Rate for Drivers/Residents of Other Races to Stop Rate for White Drivers/Residents	1.4	0.5	1.5	0.7

Notes:

¹The ratio of the traffic stop rate for Black drivers to the traffic stop rate for white drivers is calculated as the number of traffic stops per 100 Black drivers divided by the number of traffic stops per 100 white drivers. The same calculation is performed for the other encounter types and other race or ethnic categories.

²The ratio of the field interview rate for Black residents to the field interview rate for white residents is calculated as the number of field interviews per 1,000 Black residents divided by the number field interviews per 1,000 white residents. The same calculation is performed for no-action encounters and frisks for Hispanic/Latinos and residents of other races.

Sources:

Milwaukee Police Department Stop Data, 2020

Wisconsin Driver License Data, 2015

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

B-6: SUMMARY OF VARIABLES IN TRAFFIC STOP RATE ANALYSIS

	Mean	Standard Deviation	Minimum	Maximum	Observations
Traffic Stop Rate	6.10	11.05	0.00	114.43	448
Black	0.25	0.43	0.00	1.00	448
Hispanic/Latino	0.25	0.43	0.00	1.00	448
Other Race	0.25	0.43	0.00	1.00	448
Male	0.50	0.50	0.00	1.00	448
Young	0.50	0.50	0.00	1.00	448
Black Share of District	0.38	0.28	0.04	0.72	448
Hispanic/Latino Share of District	0.18	0.22	0.05	0.70	448
Other Race Share of District	0.08	0.02	0.04	0.11	448
White Share of District	0.36	0.22	0.18	0.76	448
Young Share of District	0.31	0.12	0.23	0.60	448
Male Share of District	0.48	0.03	0.46	0.54	448
Unemployment Rate in District	6.96	1.97	3.98	9.31	448
Lagged Total Crime Rate in District	0.08	0.03	0.03	0.13	448
Lagged Violent Crime Rate in District	0.03	0.01	0.01	0.04	448
Lagged Property Crime Rate in District	0.04	0.01	0.02	0.05	448

Notes:

¹The unit of observation in the traffic stop rate analysis is MPD district x race or ethnicity x age x gender x quarter.

²The dataset contains one observation for each race or ethnicity (Black, Hispanic/Latino, other race, and white) of each gender (Male, Female) and each age group (younger or older than 35) in each MPD district in each quarter of 2020. By construction, the race or ethnicity indicator variables have a mean of one quarter and the gender and age variables have a mean of one-half.

Sources:

Milwaukee Police Department Stop Data, 2020

Wisconsin Driver License Data, 2015

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

Milwaukee Part I and Part II Crime Data, 2019

B-7: TRAFFIC STOP RATE ESTIMATION RESULTS

Dependent Variable: Traffic Stops per 100 Drivers	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Black	14.16*** (2.713)	14.16*** (2.716)	14.16*** (2.719)	14.16*** (2.729)	14.16*** (2.732)	14.16*** (2.735)	14.16*** (2.738)
Hispanic/Latino	3.225*** (0.491)	3.225*** (0.491)	3.225*** (0.492)	3.225*** (0.494)	3.225*** (0.494)	3.225*** (0.495)	3.225*** (0.495)
Other Race	0.343 (0.300)	0.343 (0.301)	0.343 (0.301)	0.343 (0.302)	0.343 (0.302)	0.343 (0.303)	0.343 (0.303)
Male		3.984*** (0.688)	3.984*** (0.689)	3.984** (0.691)	3.984*** (0.692)	3.984*** (0.693)	3.984*** (0.693)
Young			7.209*** (1.058)	7.209*** (1.062)	7.209*** (1.063)	7.209*** (1.064)	7.209*** (1.066)
Black Share of District				-3.852*** (0.397)	-4.212*** (0.329)	-5.827*** (0.445)	-2.566*** (0)
Hispanic/Latino Share of District				5.068*** (0.419)	4.620*** (0.355)	5.392*** (0.260)	10.96*** (0)
Other Share of District				-37.37*** (4.152)	-38.20*** (4.580)	-47.41*** (3.256)	-55.23*** (0)
Young Share of District					-0.878* (0.396)	4.141 (1.350)	14.80*** (0)
Male Share of District						-32.08*** (7.847)	-88.66*** (6.67e-11)
District Unemployment Rate							-0.615*** (0)
Constant	1.672*** (0.300)	-0.319 (0.239)	-3.924*** (0.621)	-0.570 (1.607)	-0.0116 (1.583)	15.15** (4.574)	41.83*** (1.510)
Observations	448	448	448	448	448	448	448
R-squared	0.272	0.305	0.458	0.458	0.458	0.458	0.458

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Notes:

¹Observations in the data are at the level of race or ethnicity, age, gender, district, and quarter of the year.

²The dependent variable is the total number of traffic stops per 100 licensed drivers by race or ethnicity, age, gender, district, and quarter of the year.

³Each variable's coefficient measures its relationship with the stop rate per 100 licensed drivers.

⁴Other race refers to individuals from the following race categories: Native American or Alaskan Native, Asian, Native Hawaiian or other Pacific Islander, two or more races, and "other" race.

⁵Regression Models 8-10 are identical to Model 7 estimates and are omitted due to multicollinearity with the unemployment rate (total and property crime) and percent young (property crime).

⁶"Male Share of District" is based on the residential population and varies by district.

⁷Standard errors are clustered by MPD district.

⁸In Model 1, the constant provides an estimate of the white traffic stop rate.

Sources:

Milwaukee Police Department Stop Data, 2020

Wisconsin Driver License Data, 2015

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

B-8: SUMMARY OF VARIABLES IN FIELD INTERVIEW RATE ANALYSIS

	Mean	Standard Deviation	Minimum	Maximum	Observations
Field Interview Rate	1.36	2.73	0.00	15.28	112
Black	0.25	0.43	0.00	1.00	112
Hispanic/Latino	0.25	0.43	0.00	1.00	112
Other Race	0.25	0.43	0.00	1.00	112
Male	0.50	0.50	0.00	1.00	112
Young	0.50	0.50	0.00	1.00	112
Black Share of District	0.38	0.28	0.04	0.72	112
Hispanic/Latino Share of District	0.18	0.22	0.05	0.70	112
Other Race Share of District	0.08	0.02	0.04	0.11	112
White Share of District	0.36	0.22	0.18	0.76	112
Young Share of District	0.31	0.13	0.23	0.60	112
Male Share of District	0.48	0.03	0.46	0.54	112
Unemployment Rate in District	6.96	1.98	3.98	9.31	112
Lagged Total Crime Rate in District	0.08	0.03	0.03	0.13	112
Lagged Violent Crime Rate in District	0.03	0.01	0.01	0.04	112
Lagged Property Crime Rate in District	0.04	0.01	0.02	0.05	112

Notes:

¹The unit of observation in the field interview rate analysis is MPD district x race or ethnicity x age x gender.

²The dataset contains one observation for each race or ethnicity (Black, Hispanic/Latino, other race, and white) of each gender (Male, Female) and each age group (younger or older than 35) in each MPD district in 2020. By construction, the race or ethnicity indicator variables have a mean of one quarter and the gender and age variables have a mean of one-half.

Sources:

Milwaukee Police Department Stop Data, 2020

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

Milwaukee Part I and Part II Crime Data, 2019

B-9: FIELD INTERVIEW RATE ESTIMATION RESULTS

Dependent Variable: Field Interviews per 1,000 Residents	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Black	3.200** (0.922)	3.200** (0.927)	3.200** (0.944)	3.200** (0.944)	3.200** (0.949)	3.200** (0.954)	3.200** (0.959)
Hispanic/Latino	-0.0207 (0.347)	-0.0207 (0.349)	-0.0207 (0.351)	-0.0207 (0.356)	-0.0207 (0.358)	-0.0207 (0.359)	-0.0207 (0.361)
Other Race	-0.458 (0.276)	-0.458 (0.277)	-0.458 (0.278)	-0.458 (0.282)	-0.458 (0.284)	-0.458 (0.285)	-0.458 (0.286)
Male		1.658** (0.472)	1.658** (0.474)	1.658** (0.481)	1.658** (0.486)	1.658** (0.486)	1.658** (0.488)
Young			0.763** (0.209)	0.763** (0.212)	0.763** (0.213)	0.763** (0.214)	0.763** (0.215)
Black Share of District				-2.651* (1.152)	-0.613*** (0.144)	-0.367 (0.493)	-3.859*** (0)
Hispanic/Latino Share of District				-0.0332 (1.199)	2.500*** (0.189)	2.382*** (0.288)	-3.579*** (0)
Other Share of District				-15.18*** (3.901)	-10.50*** (2.155)	-9.095** (3.614)	-0.726*** (0)
Young Share of District					4.968*** (0.210)	4.204** (1.499)	-7.208*** (0)
Male Share of District						4.882 (8.709)	65.45*** (0)
District Unemployment Rate							0.658*** (0)
Constant	0.677* (0.331)	-0.152 (0.277)	-0.533 (0.317)	1.633* (0.792)	-1.526** (0.498)	-3.833 (4.078)	-32.40*** (0.541)
Observations	112	112	112	112	112	112	112
R-squared	0.292	0.385	0.405	0.499	0.523	0.523	0.524

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Notes:

¹Observations in the data are at the level of race or ethnicity, age, gender, and district.

²The dependent variable is the total number of field interviews per 1000 residents by race or ethnicity, age, gender, and district.

³Each variable's coefficient measures its relationship with the stop rate per 1,000 residents.

⁴Other race refers to individuals from the following race categories: Native American or Alaskan Native, Asian, Native Hawaiian or other Pacific Islander, two or more races, and "other" race.

⁵Regression Models 8-10 are identical to Model 7 estimates and are omitted due to multicollinearity with the unemployment rate (total and property crime) and percent young (property crime).

⁶"Male Share of District" is based on the residential population and varies by district.

⁷Standard errors are clustered by MPD district.

⁸In Model 1, the constant provides an estimate of the white field interview rate.

Sources:

Milwaukee Police Department Stop Data, 2020

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

Milwaukee Part I and Part II Crime Data, 2019

B-10: SUMMARY OF VARIABLES IN NO-ACTION ENCOUNTER RATE ANALYSIS

	Mean	Standard Deviation	Minimum	Maximum	Observations
No-Action Encounter Rate	0.20	0.47	0.00	3.21	56
Black	0.25	0.44	0.00	1.00	56
Hispanic/Latino	0.25	0.44	0.00	1.00	56
Other Race	0.25	0.44	0.00	1.00	56
Male	0.50	0.50	0.00	1.00	56
Black Share of District	0.38	0.28	0.04	0.72	56
Hispanic/Latino Share of District	0.18	0.22	0.05	0.70	56
Other Race Share of District	0.08	0.02	0.04	0.11	56
White Share of District	0.36	0.22	0.18	0.76	56
Young Share of District	0.31	0.13	0.23	0.60	56
Male Share of District	0.48	0.03	0.46	0.54	56
Unemployment Rate in District	6.96	1.99	3.98	9.31	56
Lagged Total Crime Rate in District	0.08	0.03	0.03	0.13	56
Lagged Violent Crime Rate in District	0.03	0.01	0.01	0.04	56
Lagged Property Crime Rate in District	0.04	0.01	0.02	0.05	56

Notes:

¹The unit of observation in the no-action encounter rate analysis is MPD district x race or ethnicity x gender.

²The dataset contains one observation for each race or ethnicity (Black, Hispanic/Latino, other race, and white) of each gender (Male, Female) in each MPD district in 2020. By construction, the race or ethnicity indicator variables have a mean of one quarter and the gender variable has a mean of one-half.

³Age is not included in this analysis because age is not documented for no-action encounters.

Sources:

Milwaukee Police Department Stop Data, 2020

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

B-11: NO-ACTION ENCOUNTER RATE ESTIMATION RESULTS

Dependent Variable: No-action Encounters per 1,000 Residents	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Black	0.512* (0.218)	0.512* (0.220)	0.512* (0.227)	0.512* (0.229)	0.512* (0.232)	0.512* (0.234)
Hispanic/Latino	0.0783* (0.0323)	0.0783* (0.0326)	0.0783* (0.0336)	0.0783* (0.0340)	0.0783* (0.0343)	0.0783* (0.0347)
Other Race	-0.0513 (0.0359)	-0.0513 (0.0362)	-0.0513 (0.0373)	-0.0513 (0.0377)	-0.0513 (0.0381)	-0.0513 (0.0386)
Male		0.218 (0.117)	0.218 (0.120)	0.218 (0.122)	0.218 (0.123)	0.218 (0.124)
Black Share of District			-0.443 (0.320)	0.0833 (0.0563)	0.319** (0.0997)	-0.358*** (0)
Hispanic/Latino Share of District			-0.304 (0.337)	0.350*** (0.0611)	0.237*** (0.0583)	-0.918*** (0)
Other Share of District			-2.698* (0.999)	-1.488 (0.787)	-0.143 (0.731)	1.479*** (0)
Young Share of District				1.283*** (0.0664)	0.551 (0.303)	-1.661*** (0)
Male Share of District					4.681** (1.761)	16.42*** (0)
District Unemployment Rate						0.128*** (0)
Constant	0.0696* (0.0286)	-0.0393 (0.0497)	0.390* (0.177)	-0.426** (0.144)	-2.638** (0.837)	-8.175 (0.113)
Observations	56	56	56	56	56	56
R-squared	0.226	0.281	0.330	0.383	0.385	0.386

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Notes:

¹Observations in the data are at the level of race or ethnicity, gender, and district.

²The dependent variable is the total number of no-action encounters per 1,000 residents by race or ethnicity, gender, and district.

³Each variable's coefficient measures its relationship with the stop rate per 1,000 residents.

⁴Other race refers to individuals from the following race categories: Native American or Alaskan Native, Asian, Native Hawaiian or other Pacific Islander, two or more races, and "other" race.

⁵Regression Models 7-9 are identical to Model 6 estimates and are omitted due to multicollinearity with the unemployment rate (total and property crime) and percent young (property crime).

⁶"Male Share of District" is based on the residential population and varies by district.

⁷Standard errors are clustered by MPD district.

⁸In Model 1, the constant provides an estimate of the white no-action encounter rate.

Sources:

Milwaukee Police Department Stop Data, 2020

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

B-12: SUMMARY OF VARIABLES IN FRISK RATE ANALYSIS

	Mean	Standard Deviation	Minimum	Maximum	Observations
Frisk Rate	1.20	3.60	0.00	31.49	112
Black	0.25	0.43	0.00	1.00	112
Hispanic/Latino	0.25	0.43	0.00	1.00	112
Other Race	0.25	0.43	0.00	1.00	112
Male	0.50	0.50	0.00	1.00	112
Young	0.50	0.50	0.00	1.00	112
Black Share of District	0.38	0.28	0.04	0.72	112
Hispanic/Latino Share of District	0.18	0.22	0.05	0.70	112
Other Race Share of District	0.08	0.02	0.04	0.11	112
White Share of District	0.36	0.22	0.18	0.756	112
Young Share of District	0.31	0.13	0.23	0.60	112
Male Share of District	0.49	0.03	0.461	0.54	112
Unemployment Rate in District	6.96	1.98	3.98	9.31	112
Lagged Total Crime Rate in District	0.08	0.03	0.03	0.13	112
Lagged Violent Crime Rate in District	0.03	0.01	0.01	0.04	112
Lagged Property Crime Rate in District	0.04	0.01	0.02	0.05	112

Notes:

¹The unit of observation in the frisk rate analysis is MPD district x race or ethnicity x age x gender.

²The dataset contains one observation for each race or ethnicity (Black, Hispanic/Latino, other race, and white) of each gender (Male, Female) and each age group (younger or older than 35) in each MPD district in 2020. By construction, the race or ethnicity indicator variables have a mean of one quarter and the gender and age variables have a mean of one half.

Sources:

Milwaukee Police Department Stop Data, 2020

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

B-13: FRISK RATE ESTIMATION RESULTS

Dependent Variable: Frisks per 1,000 Residents	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Black	3.501** (1.367)	3.501** (1.373)	3.501** (1.380)	3.501** (1.400)	3.501** (1.406)	3.501** (1.413)	3.501** (1.420)
Hispanic/Latino	0.0763 (0.191)	0.0763 (0.192)	0.0763 (0.192)	0.0763 (0.195)	0.0763 (0.196)	0.0763 (0.197)	0.0763 (0.198)
Other Race	-0.342** (0.132)	-0.342** (0.133)	-0.342** (0.133)	-0.342** (0.135)	-0.342** (0.136)	-0.342** (0.137)	-0.342** (0.137)
Male		1.988** (0.607)	1.988** (0.610)	1.988** (0.619)	1.988** (0.622)	1.988** (0.625)	1.988** (0.628)
Young			1.086** (0.315)	1.086** (0.320)	1.086** (0.321)	1.086** (0.323)	1.086** (0.325)
Black Share of District				1.511 (0.786)	2.968*** (0.754)	-1.655 (1.171)	-9.939*** (0)
Hispanic/Latino Share of District				0.186 (0.718)	1.998 (1.044)	4.205*** (0.684)	-9.939*** (0)
Other Share of District				-18.99 (12.14)	-15.64 (11.41)	-42.02*** (8.573)	-22.16*** (0)
Young Share of District					3.553** (1.377)	17.92*** (3.556)	-9.154*** (0)
Male Share of District						-91.83*** (20.66)	51.88*** (5.89e-11)
District Unemployment Rate							1.561*** (0)
Constant	0.390** (0.140)	-0.604* (0.298)	-1.147** (0.451)	-0.335 (1.003)	-2.595 (1.564)	40.79*** (9.469)	-26.99*** (0.806)
Observations	112	112	112	112	112	112	112
R-squared	0.190	0.267	0.290	0.319	0.319	0.339	0.343

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Notes:

¹Observations in the data are at the level of race or ethnicity, gender, age, and district.

²The dependent variable is the total number of frisks per 1,000 residents by race or ethnicity, gender, age, and district.

³Each variable's coefficient measures its relationship with the stop rate per 1,000 residents.

⁴Other race refers to individuals from the following race categories: Native American or Alaskan Native, Asian, Native Hawaiian or other Pacific Islander, two or more races, and "other" race.

⁵Regression Models 8-10 are identical to Model 7 estimates and are omitted due to multicollinearity with the unemployment rate (total and property crime) and percent young (property crime).

⁶"Male Share of District" is based on the residential population and varies by district.

⁷Standard errors are clustered by MPD district.

⁸In Model 1, the constant provides an estimate of the white frisk rate.

Sources:

Milwaukee Police Department Stop Data, 2020

Wisconsin Driver License Data, 2015

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

B-14: FRISKS PER ENCOUNTER TYPE BY RACE/ETHNICITY

Race/Ethnicity	Encounters	Frisks	Frisks per Encounter	Frisks per Traffic Stop	Frisks per Field Interview	Frisks per No-Action Encounter
Black	33103	827	2%	1%	28%	0%
Hispanic/Latino	6635	90	1%	0%	24%	0%
Other Race	1312	10	1%	0%	19%	0%
White	10258	69	1%	0%	12%	0%
Total	51308	996	2%	1%	25%	0%

Notes:

¹The frisk rates presented in this table excludes 253 encounters categorized as a traffic stop, field interview, or no-action encounter where race and ethnicity information were missing.

²There was 1 frisk documented in the excluded encounters.

³This table excludes 8,651 citation or warning records that could not be paired with encounter information from TraCS or RMS data. These records could represent additional encounters but lack necessary contextual information about the encounter.

Sources:

Milwaukee Police Department Stop Data, 2020

B-15: INDIVIDUAL-LEVEL FRISK REGRESSION ANALYSIS ESTIMATION RESULTS

Dependent Variable: Indicator Variable Equal to 1 if Frisk Occurred	Model 1 Odds Ratio	Model 2 Odds Ratio	Model 3 Odds Ratio
Black	3.730*** (1.543 – 9.015)	3.273*** (1.424 – 7.520)	2.256*** (1.606 – 3.168)
Hispanic/Latino	2.031*** (1.713 – 2.407)	1.800*** (1.526 – 2.122)	1.583*** (1.122 – 2.234)
Male		5.246*** (4.197 – 6.557)	4.338*** (3.629 – 5.185)
Young		1.290*** (1.083 – 1.537)	1.156 (0.930 – 1.437)
Time of Day Fixed Effects			X
Quarter Fixed Effects			X
District Fixed Effects			X
Constant	0.007*** (0.003 – 0.018)	0.00168*** (0.001 – 0.004)	0.001*** (0.001 – 0.001)
Observations	48,533	48,290	48,290

Robust confidence intervals in parentheses *** p<0.01, ** p<0.05, * p<0.1

Notes:

¹Each observations represents a traffic stop, field interview, or no-action encounter with police.

Sources:

Milwaukee Police Department Stop Data, 2020

B-16: PREDICTED PROBABILITIES OF FRISKS BY RACE AND DISTRICT

Race/Ethnicity	District	Predicted Probability	95% Confidence Interval	
Black	District 1	2.17%	0.021	0.022
Hispanic/Latino	District 1	1.30%	0.013	0.014
White	District 1	0.69%	0.007	0.007
Black	District 2	3.12%	0.031	0.032
Hispanic/Latino	District 2	2.40%	0.023	0.025
White	District 2	2.17%	0.021	0.022
Black	District 3	2.95%	0.029	0.030
Hispanic/Latino	District 3	1.78%	0.017	0.019
White	District 3	1.33%	0.012	0.014
Black	District 4	1.13%	0.011	0.011
Hispanic/Latino	District 4	-	-	-
White	District 4	0.58%	0.005	0.006
Black	District 5	4.18%	0.040	0.043
Hispanic/Latino	District 5	3.83%	0.036	0.040
White	District 5	1.87%	0.018	0.019
Black	District 6	0.50%	0.005	0.005
Hispanic/Latino	District 6	0.43%	0.004	0.004
White	District 6	0.11%	0.001	0.001
Black	District 7	1.37%	0.014	0.014
Hispanic/Latino	District 7	1.46%	0.014	0.015
White	District 7	0.17%	0.002	0.002

Notes:

¹Predicted probabilities are estimated from a full district by race interaction model that controls for age, gender, time of day, and quarter.

²The predicted probabilities estimate the rate of frisks per police encounter for a given race or ethnicity in a given district.

³There were no documented frisks with Hispanic/Latino subjects in District 4.

Sources:

Milwaukee Police Department Stop Data, 2020

APPENDIX C: IOARS ANALYSIS TABLES

C-1: IOARS FOR SAMPLED ENCOUNTERS BY RACE/ETHNICITY AND QUARTER

Race/ Ethnicity	Q1 Stops	Q1 IOARS	Q2 Stops	Q2 IOARS	Q3 Stops	Q3 IOARS	Q4 Stops	Q4 IOARS
Black	235	70%	219	75%	211	76%	214	84%
Hispanic/ Latino	40	80%	26	50%	36	64%	38	74%
Other Race	8	75%	1	100%	5	60%	4	75%
White	59	80%	35	66%	41	63%	50	80%
Missing Race Information	4	25%	7	0%	6	17%	3	0%
Total	346	72%	288	70%	299	71%	309	81%

Notes:

¹Other race refers to individuals from the following race categories: Native American or Alaskan Native, Asian, and Native Hawaiian or other Pacific Islander.

²IOARS determinations as made in CJI's semiannual reviews.

Sources:

Milwaukee Police Department Stop Data, 2020

C-2: IOARS FOR SAMPLED FRISKS BY RACE/ETHNICITY AND QUARTER

Race/ Ethnicity	Q1 Frisks	Q1 IOARS	Q2 Frisks	Q2 IOARS	Q3 Frisks	Q3 IOARS	Q4 Frisks	Q4 IOARS
Black	89	4%	137	10%	114	10%	101	17%
Hispanic/ Latino	9	33%	15	20%	9	22%	10	10%
Other Race	1	0%	1	0%	1	0%	1	0%
White	8	0%	12	0%	3	33%	11	9%
Total	107	7%	165	10%	127	11%	123	15%

Notes:

¹Other race refers to individuals from the following race categories: Native American or Alaskan Native, Asian, and Native Hawaiian or other Pacific Islander.

²IOARS determinations as made in CJI's semiannual reviews.

Sources:

Milwaukee Police Department Stop Data, 2020

C-3: IOARS FOR SAMPLED ENCOUNTERS BY DISTRICT AND QUARTER

	Q1 Stops	Q1 IOARS	Q2 Stops	Q2 IOARS	Q3 Stops	Q3 IOARS	Q4 Stops	Q4 IOARS	2020 Stops	2020 IOARS
District 1	28	79%	15	53%	26	65%	12	67%	81	68%
District 2	49	73%	41	54%	43	65%	55	69%	188	66%
District 3	44	70%	30	70%	45	64%	51	86%	170	74%
District 4	36	64%	26	65%	27	67%	27	93%	116	72%
District 5	84	70%	103	81%	74	80%	61	87%	322	79%
District 6	37	76%	14	71%	35	74%	41	78%	127	76%
District 7	58	76%	54	74%	40	75%	52	83%	204	77%
Total	336	72%	283	71%	290	71%	299	81%	1208	74%

Notes:

¹IOARS determinations as made in CJI's semiannual reviews.

Sources:

Milwaukee Police Department Stop Data, 2020

C-4: IOARS FOR SAMPLED FRISKS BY DISTRICT AND QUARTER

District	Q1 Frisks	Q1 IOARS	Q2 Frisks	Q2 IOARS	Q3 Frisks	Q3 IOARS	Q4 Frisks	Q4 IOARS	2020 Frisks	2020 IOARS
1	5	0%	7	14%	6	17%	3	0%	22	14%
2	15	7%	27	15%	17	18%	29	3%	88	10%
3	17	6%	19	0%	21	14%	22	14%	82	12%
4	10	0%	10	10%	11	9%	7	29%	38	11%
5	44	7%	78	13%	47	11%	41	22%	210	13%
6	1	100%	2	0%	3	0%	5	20%	12	25%
7	14	7%	21	5%	22	5%	16	19%	73	8%
Total	106	7%	164	10%	127	11%	123	15%	525	12%

Notes:

¹IOARS determinations as made in CJI's semiannual reviews.

Sources:

Milwaukee Police Department Stop Data, 2020

C-5: SUMMARY OF VARIABLES IN IOARS ANALYSIS OF SAMPLED STOPS

	Mean	Standard Deviation	Minimum	Maximum	Obs.
IOARS Stop Rate	0.76	0.43	0	1	1127
Black	0.73	0.44	0	1	1127
Hispanic/Latino	0.12	0.32	0	1	1127
Male	0.78	0.42	0	1	1127
Young	0.69	0.46	0	1	1127
Black Share of District	0.45	0.28	0.04	0.72	1127
Hispanic/Latino Share of District	0.18	0.23	0.05	0.70	1127
White Share of District	0.29	0.18	0.18	0.76	1127
Male Share of District	0.48	0.02	0.46	0.54	1127
Young Share of District	0.29	0.09	0.23	0.60	1127
Unemployment Rate in District	7.58	1.76	3.98	9.31	1127
Lagged Total Crime Rate in District	0.09	0.03	0.03	0.13	1127
Lagged Violent Crime Rate in District	0.03	0.01	0.01	0.04	1127
Lagged Property Crime Rate in District	0.04	0.01	0.02	0.05	1127

Notes:

¹IOARS determinations as made in CJI's semiannual reviews.

Sources:

Milwaukee Police Department Stop Data, 2020

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

Milwaukee Part 1 and Part 2 Crime data, 2019

C-6: IOARS STOP REGRESSION ESTIMATION RESULTS

Dependent Variable: Indicator Variable Equal to 1 if IOARS	Model 1 Odds Ratio	Model 2 Odds Ratio	Model 3 Odds Ratio	Model 4 Odds Ratio	Model 5 Odds Ratio	Model 6 Odds Ratio	Model 7 Odds Ratio
Black	1.145 (0.757 – 1.1732)	1.169 (0.779 – 1.1753)	1.108 (0.706 – 1.739)	1.011 (0.667 – 1.530)	1.045 (0.707 – 1.544)	1.059 (0.713 – 1.574)	1.055 (0.709 – 1.572)
Hispanic/Latino	0.770 (0.564 – 1.052)	0.773 (0.565 – 1.058)	0.698** (0.509 – 0.959)	0.796 (0.566 – 1.119)	0.801 (0.571 – 1.123)	0.800 (0.571 – 1.121)	0.799 (0.571 – 1.119)
Male		0.821 (0.623 – 1.083)	0.860 (0.636 – 1.162)	0.837 (0.647 – 1.082)	0.846 (0.656 – 1.092)	0.834 (0.646 – 1.078)	0.835 (0.646 – 1.079)
Young			1.224 (0.886 – 1.692)	1.206 (0.876 – 1.660)	1.204 (0.873 – 1.660)	1.203 (0.872 – 1.660)	1.203 (0.872 – 1.660)
Black Share of District				0.779 (0.344 – 1.764)	0.520*** (0.354 – 0.762)	0.201*** (0.121 – 0.334)	0.361** (0.166 – 0.785)
Hispanic/Latino Share of District				0.342*** (0.152 – 0.772)	0.222*** (0.153 – 0.321)	0.337*** (0.261 – 0.435)	0.959 (0.454 – 2.028)
Other Race Share of District				0.004*** (0.0002 – 0.110)	0.0024*** (6.01e-05 – 0.0955)	1.41e-05*** (3.58e-06 – 5.59e-05)	2.52e-06*** (1.05e-06 – 6.09e-06)
Young Share of District					0.298*** (0.160 – 0.554)	4.001*** (1.946 – 8.227)	32.00*** (8.419 – 121.6)
Male Share of District						1.89e-08*** (3.69e-10 – 9.69e-07)	0*** (0 – 5.75e-11)
District Unemployment Rate							0.892*** (0.838 – 0.950)
Constant	2.745*** (1.888 – 3.989)	3.152*** (1.986 – 5.002)	2.955*** (1.680 – 5.198)	6.421*** (2.852 – 14.46)	11.95*** (7.611 – 18.77)	56,994*** (9,398 – 345,621)	1.049e+07*** (749,448 – 1.470e+08)
Observations	1,179	1,178	1,127	1,127	1,127	1,127	1,127

Robust confidence intervals in parentheses *** p<0.01, ** p<0.05, * p<0.1

Notes:

¹IOARS determinations as made in CJI's semiannual reviews.

²Each observation represents a traffic stop, field interview, or no-action encounter with police.

³Regression coefficients represent a change in the log odds of an encounter given a one unit increase in each regressor.

⁴The constant for Model 1 represents the log odds of an encounter meeting the IOARS standard for white subjects.

⁵Standard errors are clustered by MPD district.

Sources:

Milwaukee Police Department Stop Data, 2020

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

Milwaukee Part 1 and Part 2 Crime data, 2019

C-7: SUMMARY OF VARIABLES IN IOARS ANALYSIS OF SAMPLED FRISKS

	Mean	Standard Deviation	Minimum	Maximum	Observations
IOARS Frisk Rate	0.11	0.32	0	1	497
Black	0.85	0.36	0	1	497
Hispanic/Latino	0.08	0.28	0	1	497
Male	0.92	0.28	0	1	497
Young	0.75	0.43	0	1	497
Black Share of District	0.51	0.25	0.04	0.72	497
Hispanic/Latino Share of District	0.18	0.24	0.05	0.70	497
White Share of District	0.25	0.13	0.18	0.76	497
Male Share of District	0.48	0.02	0.46	0.54	497
Young Share of District	0.29	0.07	0.23	0.60	497
Unemployment Rate in District	8.12	1.37	3.98	9.31	497
Lagged Total Crime Rate in District	0.10	0.02	0.03	0.13	497
Lagged Violent Crime Rate in District	0.03	0.01	0.01	0.04	497
Lagged Property Crime Rate in District	0.04	0.01	0.02	0.05	497

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Notes:

¹IOARS determinations as made in CJI's semiannual reviews.

Sources:

Milwaukee Police Department Stop Data, 2020

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

Milwaukee Part 1 and Part 2 Crime data, 2019

C-8: IOARS FRISK REGRESSION ESTIMATION RESULTS

Dependent Variable: Indicator Variable Equal to 1 if IOARS	Model 1 Odds Ratio	Model 2 Odds Ratio	Model 3 Odds Ratio	Model 4 Odds Ratio	Model 5 Odds Ratio	Model 6 Odds Ratio	Model 7 Odds Ratio
Black	1.873 (0.448 – 7.826)	1.885 (0.454 – 7.822)	1.744 (0.427 – 7.118)	1.395 (0.203 – 8.471)	1.395 (0.230 – 8.458)	1.406 (0.233 – 8.491)	1.456 (0.238 – 8.913)
Hispanic/ Latino	4.235** (1.171 – 15.32)	4.258** (1.166 – 15.55)	4.155** (1.139 – 15.16)	4.649** (1.301 – 16.62)	4.592** (1.313 – 16.06)	4.524** (1.318 – 15.53)	4.614** (1.331 – 15.99)
Male		0.938 (0.517 – 1.704)	0.962 (0.498 – 1.858)	0.935 (0.493 – 1.776)	0.933 (0.492 – 1.771)	0.920 (0.488 – 1.734)	0.898 (0.465 – 1.732)
Young			1.606** (1.010 – 2.553)	1.592** (1.000 – 2.533)	1.587* (0.996 – 2.529)	1.592* (0.999 – 2.535)	1.582* (0.988 – 2.533)
Black Share of District				0.738 (0.282 – 1.933)	0.534 (0.103 – 2.765)	0.169 (0.0103 – 2.770)	0.000410*** (0.000106 – 0.00158)
Hispanic/ Latino Share of District				0.280*** (0.112 – 0.702)	0.202* (0.0367 – 1.116)	0.264* (0.0599 – 1.167)	4.15e-06*** (1.40e-06 – 1.23e-05)
Other Race Share of District				0.000782*** (8.79e-06 – 0.0696)	0.000435*** (5.10e-06 – 0.0372)	1.95e-06 (0 – 18.45)	1,291*** (650.0 – 2,565)
Young Share of District					0.514 (0.0227 – 11.64)	4.978 (0.00566 – 4,380)	7.77e-10*** (8.83e-11 – 6.83e-09)
Male Share of District						1.77e-08 (0 – 5.240e+09)	5.603e+43** * (8.036e+39 – 3.907e+47)
District Unemployment Rate							3.255*** (2.885 – 3.672)
Constant	0.0625*** (0.0191 – 0.205)	0.0658*** (0.0180 – 0.240)	0.0495*** (0.0113 – 0.216)	0.138** (0.0215 – 0.885)	0.218 (0.0167 – 2.836)	1,351 (8.45e-06 – 2.158e+11)	0*** (0 – 0)
Observations	516	516	497	497	497	497	497

Robust confidence intervals in parentheses *** p<0.01, ** p<0.05, * p<0.1

Notes:

¹IOARS determinations as made in CJI's semiannual reviews.

²Each observation represents a traffic stop, field interview, or no-action encounter with police.

³Regression coefficients represent a change in the log odds of an encounter given a one unit increase in each regressor.

⁴The constant for Model 1 represents the log odds of an encounter meeting the IOARS standard for white subjects.

⁵Standard errors are clustered by MPD district.

Sources:

Milwaukee Police Department Stop Data, 2020

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

C-9: PREDICTED PROBABILITIES AND AVERAGE MARGINAL EFFECTS OF IOARS FOR SAMPLED STOPS AND SAMPLED FRISKS

	IOARS for the Stop		IOARS for the Frisk	
	Predicted Probability	Average Marginal Effect	Predicted Probability	Average Marginal Effect
Black	76.4% 0.008	1.0%	10.5% 0.007	4.6%
Hispanic/Latino	71.1% 0.022	-4.3%	26.7% 0.053	20.8%***
White	75.4% 0.030		5.9% 0.059	

*** p<0.01, ** p<0.05, * p<0.1

Notes:

¹Predicted probabilities based on estimates for Model 7 in Tables C-6 and C-8.

²Average Marginal Effect measures the difference in the Black predicted probability of IOARS as compared to predicted probability for white stop or frisk subjects. Similar calculations were made for the difference between Hispanic/Latino and white stop or frisk subjects.

Sources:

Milwaukee Police Department Stop Data, 2020

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

APPENDIX D: HIT RATE ANALYSIS TABLES

D-1: FRISKS AND CONTRABAND DISCOVERY BY RACE

Subject Race/ Ethnicity	Frisks	Contraband			Contraband Discovery Rate per Frisk (Percent)			Difference in Discovery Rate Per Frisk, As Compared to White Subjects (Percent)		
		All	Drug	Weapon	All	Drug	Weapon	All	Drug	Weapon
Black	827	140	29	76	16.93	3.51	9.19	-1.91	-2.29	0.49
Hispanic /Latino	90	14	5	8	15.56	5.56	8.89	-3.28	-0.24	0.19
Other Race	10	4	1	0	40.00	10.00	0.00	21.16	4.20	-8.70
White	69	13	4	6	18.84	5.80	8.70			
Missing Race	1	0	0	0	0.00	0.00	0.00			
Total	997	171	39	90	17.15	3.91	9.03			

Notes:

¹ Contraband Discovery Rate per Frisk” is the proportion of frisks that result in discovery of contraband.

² Difference in Discovery Rate per Frisk, As Compared to White Subjects” is calculated as the contraband discovery rate per frisk for Black or Hispanic/Latino subjects, minus the contraband discovery rate per frisk for white subjects.

³ Other race refers to individuals from the following race categories: Native American or Alaskan Native, Asian, and Native Hawaiian or other Pacific Islander.

⁴ All contraband includes weapons, drugs, and other items such as drug paraphernalia, stolen goods, and items used or gained during the course of a crime. Weapon contraband includes firearms and non-firearm weapons. Drug contraband includes all illegal drugs and prescription drugs not prescribed to the subject.

Sources:

Milwaukee Police Department Stop Data, 2020

D-2: CONTRABAND REGRESSION RESULTS, ALL CONTRABAND

	Model 1 Odds ratio	Model 2 Odds ratio	Model 3 Odds ratio
Black	0.898 (0.407 – 1.984)	0.864 (0.407 – 1.831)	0.886 (0.426 – 1.845)
Hispanic/Latino	0.718 (0.353 – 1.459)	0.687 (0.334 – 1.410)	0.686 (0.368 – 1.279)
Male		1.740 (0.799 – 3.789)	1.714 (0.806 – 3.645)
Young		1.103 (0.802 – 1.516)	1.072 (0.807 – 1.424)
Time of Day Fixed Effects			X
Quarter Fixed Effects			X
District Fixed Effects			X
Observations	902	873	873

Robust confidence intervals in parentheses *** p<0.01, ** p<0.05, * p<0.1

Notes:

¹These regressions are based on data from four quarters of 2020.

²Observations in the data are at the level of the individual stop.

³The "other race" category was omitted from this analysis due to the low frisk totals across all districts and time periods.

⁴The dependent variable is an indicator variable equal to one if contraband was found and zero otherwise

⁵Time-of-day fixed effects are indicator variables for the quarter of the day in which the stop occurred (9:00am-2:59pm, 3:00pm-8:59pm, 9:00pm-2:59am, 3:00am-8:59am).

⁶Standard errors are clustered by MPD district.

⁷Odds Ratios are reported with CI in parentheses beneath.

Sources:

Milwaukee Police Department Stop Data, 2020

D-3: CONTRABAND REGRESSION RESULTS, WEAPONS AND DRUGS

	Weapons Contraband	Drug Contraband
	Model 3 Odds ratio	Model 3 Odds ratio
Black	1.141 (0.585 – 2.224)	0.829 (0.401 – 1.715)
Hispanic/Latino	0.648 (0.361 – 1.163)	0.496* (0.242 – 1.017)
Male	1.719* (0.903 – 3.273)	1.699 (0.719 – 4.016)
Young	1.031 (0.930 – 1.142)	1.505*** (1.033 – 2.192)
Time of Day Fixed Effects	X	X
Quarter Fixed Effects	X	X
District Fixed Effects	X	X
Observations	873	873

Robust confidence intervals in parentheses *** p<0.01, ** p<0.05, * p<0.1

Notes:

¹These regressions are based on data from four quarters of 2020.

²Observations in the data are at the level of the individual stop.

³The "other race" category was omitted from this analysis due to the low frisk totals across all districts and time periods.

⁴The dependent variable in the weapons contraband analysis is an indicator variable equal to one if weapons contraband was found and zero otherwise.

⁵The dependent variable in the drug contraband analysis is an indicator variable equal to one if drug contraband was found and zero otherwise.

⁶Time-of-day fixed effects are indicator variables for the quarter of the day in which the stop occurred (9:00am-2:59pm, 3:00pm-8:59pm, 9:00pm-2:59am, 3:00am-8:59am).

⁷Standard errors are clustered by MPD district.

⁸Odds Ratios are reported with CI in parentheses beneath.

Sources:

Milwaukee Police Department Stop Data, 2020

D-4: PREDICTED PROBABILITIES CONTRABAND DISCOVERY BY TYPE OF CONTRABAND AND RACE/ETHNICITY

	All Contraband		Weapons Contraband		Drug Contraband	
	Predicted Probability	Average Marginal Effect	Predicted Probability	Average Marginal Effect	Predicted Probability	Average Marginal Effect
Black	19.6% 0.009	-1.9%	15.5% 0.007	1.6%	9.1% 0.005	-1.6%
Hispanic/Latino	16.0% 0.043	-5.5%	9.6% 0.034	-4.3%	5.7% 0.020	-5.0%*
White	21.5% 0.053		13.9% 0.033		10.7% 0.029	

*** p<0.01, ** p<0.05, * p<0.1

Notes:

¹Predicted probabilities based on estimates presented in Table D-3.

²Average Marginal Effect measures the difference in the Black predicted probability of contraband discovery as compared to predicted probability of contraband discovery for white frisk subjects. Similar calculations were made for the difference between Hispanic/Latino and white frisk subjects.

Sources:

Milwaukee Police Department Stop Data, 2020

APPENDIX E: HIT RATES TO CRIME ANALYSIS TABLES

E-1: RATIO OF STOPS TO CRIME RATE

District	Crime Rate per 100 Residents	Crime Rate per 1000 Residents	Ratio of Traffic Stop Rate to Crime Rate, per 100 drivers	Ratio of Field Interview Rate to Crime Rate, per 1000 residents	Ratio of No-Action Encounter Rate to Crime Rate, per 1000 Residents	Ratio of Frisk Rate to Crime Rate, per 1000 Residents
1	6.6042	66.0419	1.4030	0.0865	0.0094	0.0148
2	7.5230	75.2304	2.6576	0.0887	0.0062	0.0266
3	9.5089	95.0894	1.4244	0.0489	0.0036	0.0211
4	7.5432	75.4325	1.3965	0.0375	0.0042	0.0102
5	12.5515	125.5147	1.7014	0.0834	0.0056	0.0493
6	2.9677	29.6774	3.5075	0.0712	0.0023	0.0066
7	8.3448	83.4479	2.1512	0.0368	0.0026	0.0161

Notes:

¹The ratio of the traffic stop rate to the crime rate is calculated as (traffic stops per 100 drivers) divided by (crimes per 100 residents) in each district.

²The ratio of the field interview, no-action encounter, and frisk rates to crime rates are calculated as (encounter type per 1,000 residents) divided by (crimes per 1,000 residents) in each district.

³The ratio of the no-action encounter rate to the crime rate per 1,000 residents is smaller than reportable by two decimal places. There were 207 documented no-action encounters in 2020 across all districts, making it a rarely documented type of police encounter.

Sources:

Milwaukee Police Department Stop Data, 2020

U.S. Census American Community Survey 5-Year Estimates, 2015-2019

Milwaukee Part 1 and Part 2 Crime data, 2019

E-2: RATIO OF MAJORITY BLACK AND HISPANIC/LATINO DISTRICTS TO WHITE DISTRICTS

Average ratios comparison	Traffic Ratios	Stop	Field Ratios	Interview	No-Action Encounter Ratios	Frisk Ratios
Majority Black Districts (4,5,7)	1.750		0.005		0.004	0.025
Majority Hispanic/Latino District (2)	2.658		0.089		0.006	0.027
Majority White Districts (1,6)	2.455		0.079		0.006	0.011
Mixed Race/Ethnicity District (3)	1.424		0.049		0.004	0.021
Comparison of Black Districts to White Districts	-29%		-33%		-30%	135%
Comparison of Hispanic/Latino District to White Districts	8%		12%		6%	148%
Comparison of Mixed Race/Ethnicity District to White Districts	-42%		-38%		-39%	97%

Notes:

¹Districts are considered “majority” for each race or ethnic category if the proportion of the population exceeds 50% for a given race or ethnic category. District numbers for each comparison are in parentheses.

²District 3 does not represent a clear racial or ethnic majority.

³Traffic stop ratios are calculated as the average ratio of the traffic stop rate to the crime rate for each district grouping. Similar calculations were made for field interviews, no-action encounters, and frisks.

⁴The comparison of Black districts to white districts represents the percent change in the average encounter ratio from white districts to Black districts. Similar calculations were made for the comparison of Hispanic/Latino districts to white districts and for the comparison of the mixed race/ethnicity district to white districts.

Sources:

Milwaukee Police Department Stop Data, 2020

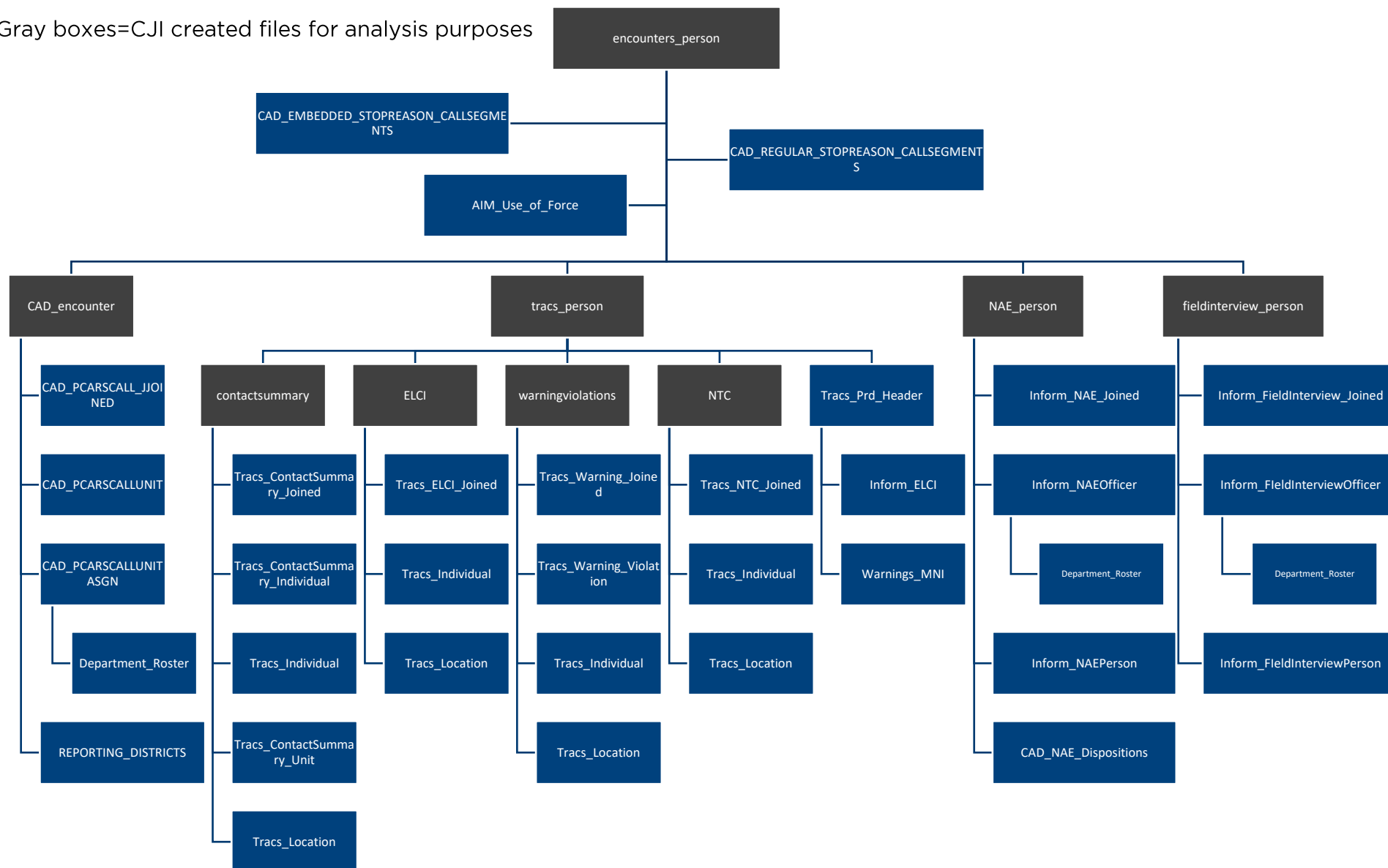
U.S. Census American Community Survey 5-Year Estimates, 2015-2019

Milwaukee Part 1 and Part 2 Crime data, 2019

APPENDIX F: DATA LINKAGES CHART

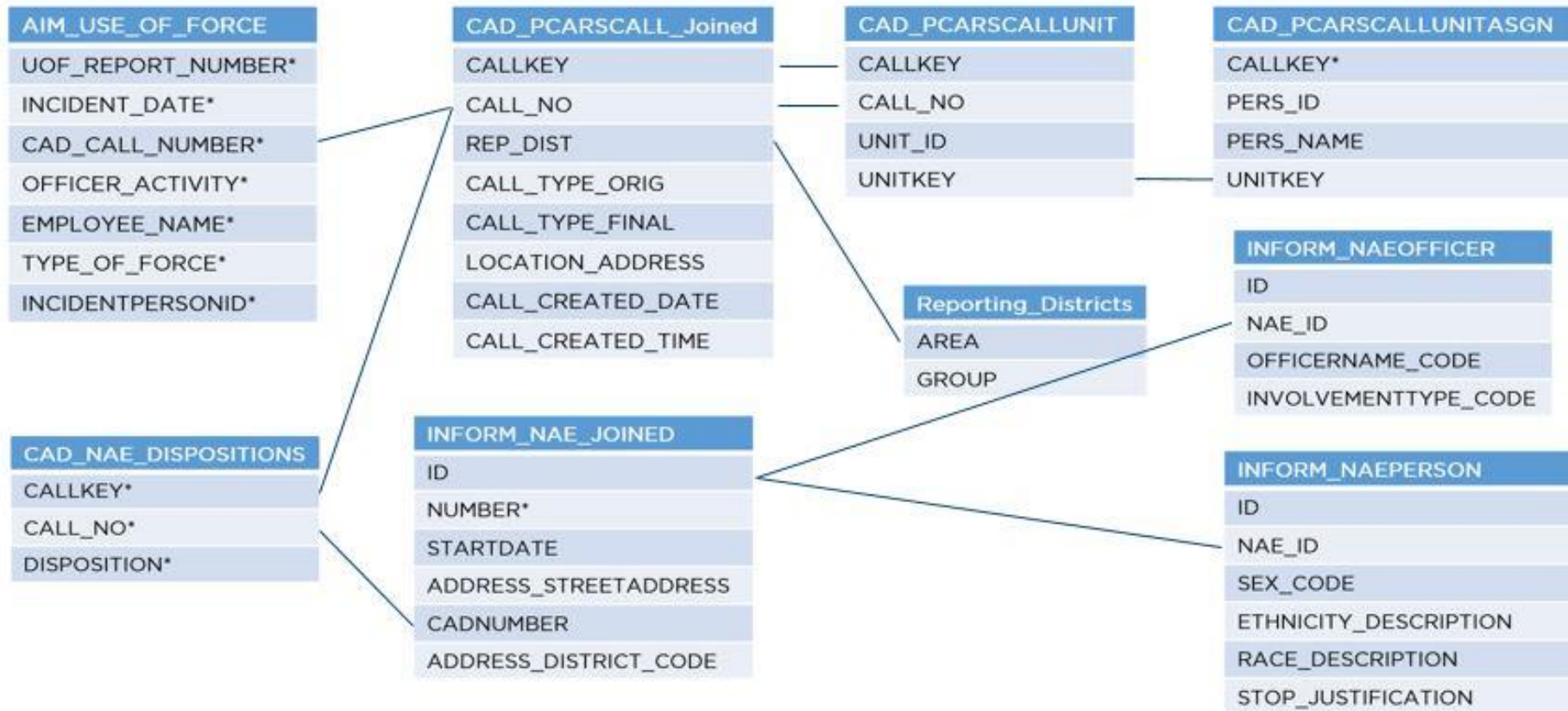
“NAE” in the below charts refers to “no-action encounter”

Gray boxes=CJI created files for analysis purposes

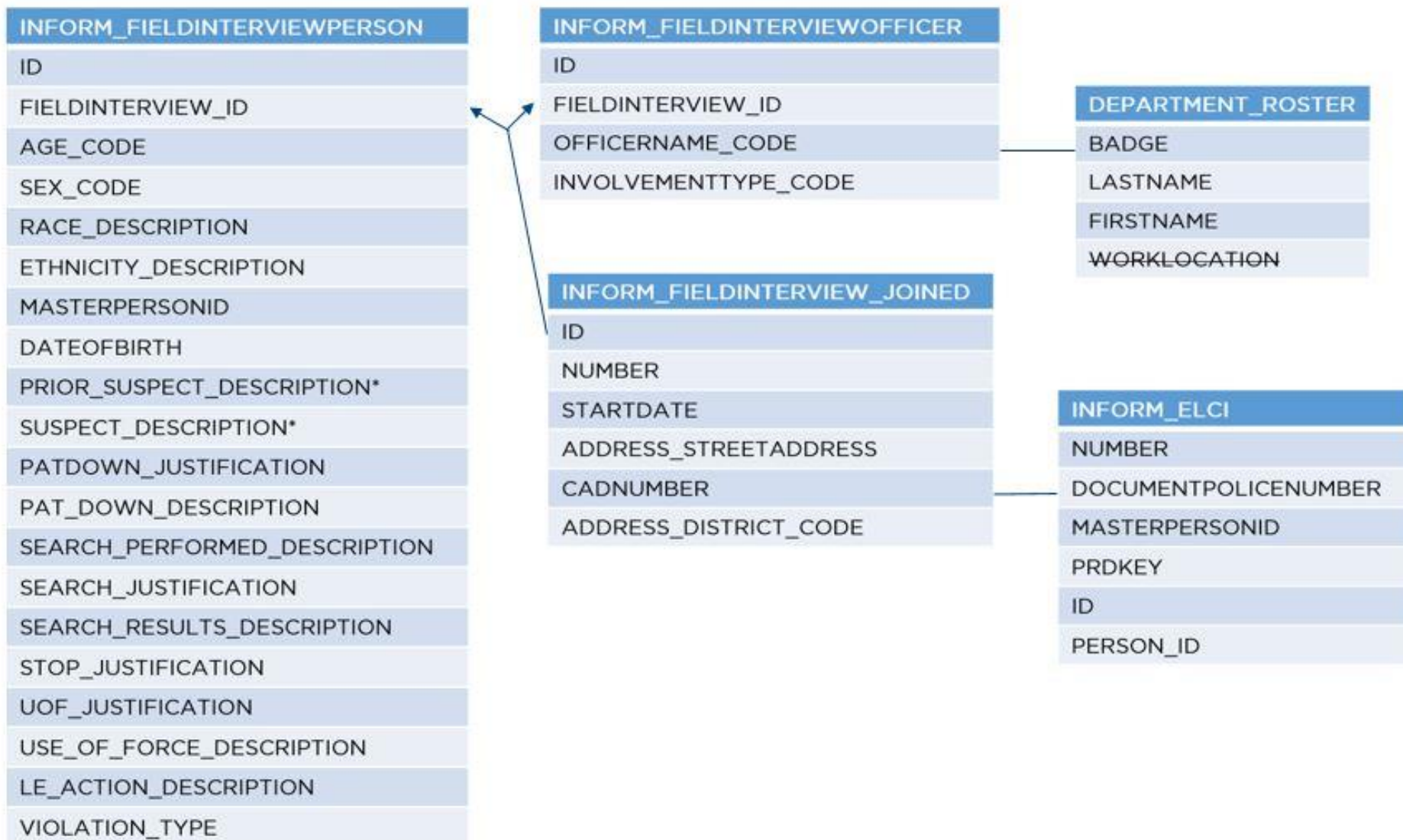


APPENDIX G: ENCOUNTER DATA LINKAGES CHARTS

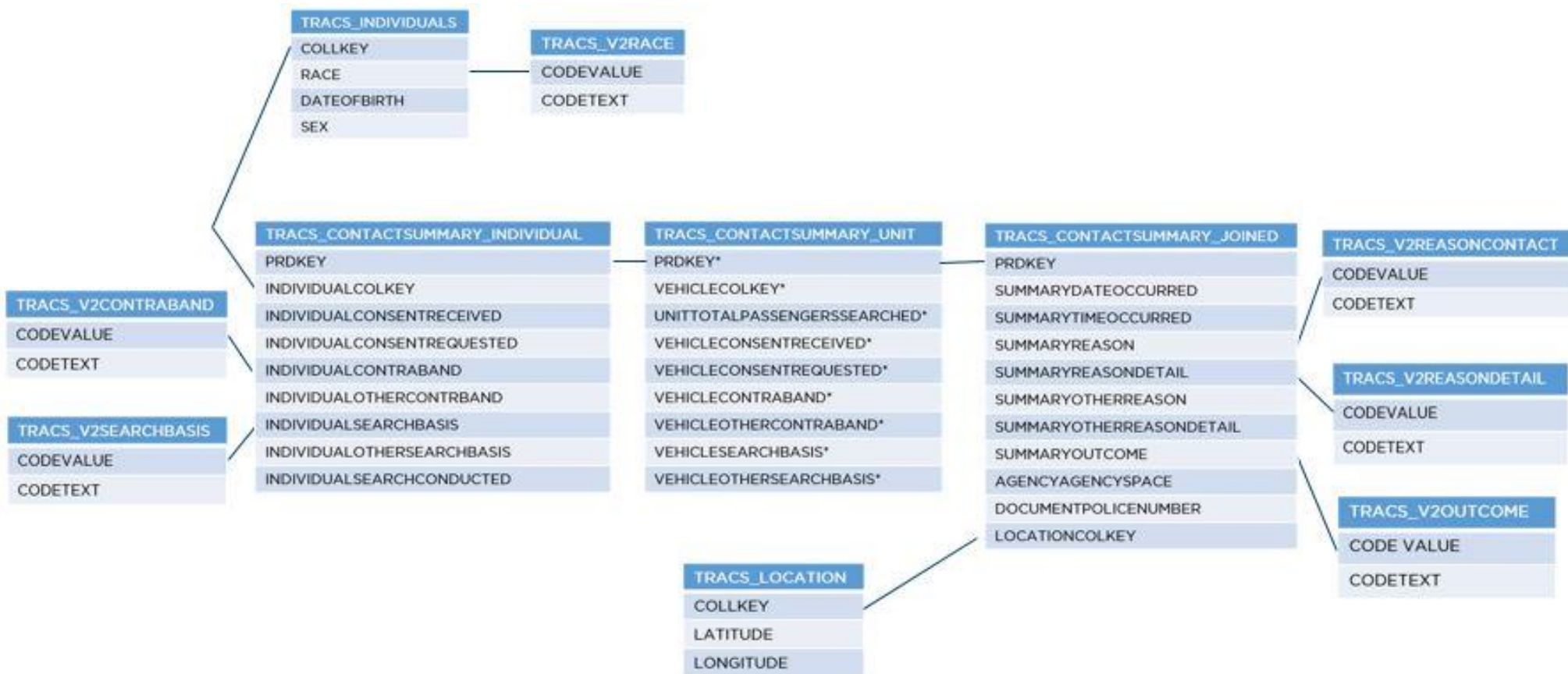
“NAE” in the below charts refers to “no-action encounter”



CALL_NO and CADNUMBER link to CADNUMBER and DOCUMENTPOLICENUMBER below.



CADNUMBER and DOCUMENTPOLICENUMBER link to DOCUMENTPOLICENUMBER below.



COLLKEY in TRACS_INDIVIDUALS links to INDIVIDUALCOLKEY and DEFENDANTCOLKEY below.
COLLKEY in TRACS_LOCATION links to LOCATIONCOLKEY below.
PRDKEY links to PRDKEY below.

