CRIME AND JUSTICE INSTITUTE
A Division of Community Resources for Justice

City of Milwaukee Settlement Agreement

Analysis of 2021 Traffic Stops, Field Interviews, No-action Encounters, and Frisks

Prepared by the Crime and Justice Institute

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The photo on this cover depicts “Growing Gateways to Unity”, 2018 Community Art Leaders mural program with artist Tia Richardson in collaboration with Milwaukee Christian Center. You can learn more about this mural on Tia Richardson’s website, www.cosmic-butterfly.com/p/about-me.html. A picture of the full mural is included below for context.

TABLE OF CONTENTS

Introduction 6
Data Sources 8
Encounter Data from Milwaukee Police Department 8
The Merge Process 9
Data Cleaning and Data Loss 12
Population and Sample Characteristics 13
Missing Demographic Data 14
U.S. Census American Community Survey 15
Milwaukee Crime Data 16
The City of Milwaukee Population Demographics 17
Stop Rate Analysis (SA V.A.5) 18
Stop Rate Regression Methodology 20
Stop Rate Regression Analysis Findings 23
IOARS Analysis (SA V.A.6) 28
IOARS Regression Analysis 29
Frisk and Contraband Hit Rate Analysis (SA V.A.7.a) 31
Contraband Hit Rate Regression Analysis 31
District-Level Encounters by Crime Hit Rate Analysis (SA V.A.7.b) 34
Discussion of Findings 35
Limitations 35
Summary of Findings 36
Contributors 39
Appendix A: Population and Encounter Tables & Figures 40
A-1: Persons involved in Encounters by Quarter and Type 40
A-2: Data Loss by Quarter and Encounter Type 41
A-3: Encounters by Type and District 42
A-4: Share of Encounters with Missing Demographic Information 43
A-5: Population Race and Ethnic Composition by District 44
Appendix B: Stop Rate Analysis Tables 45

B-1A: Traffic Stops per 1000 Residents of Typical Driving Age by Race, Ethnicity, and District (2019) 45

B-1B: Traffic Stops per 1000 Residents of Typical Driving Age by Race, Ethnicity, and District (2020) 46

B-1C: Traffic Stops per 1000 Residents of Typical Driving Age by Race, Ethnicity, and District (2021) 47

B-2: Field Interviews per 1,000 Residents by Race, Ethnicity, and District (2021) ... 48

B-3: No-Action Encounters per 1,000 Residents by Race, Ethnicity, and District (2021) 49

B-4: Frisk Rates per 1,000 Residents by Race, Ethnicity, and District (2021) 50

B-5A: Ratio of traffic Stop Rates for Black and Hispanic/Latino Residents of Typical Driving Age to Stop Rates for White Residents of Typical Driving Age (2019-2021) 51

B-5B: Ratio of Stop Rates for Black and Hispanic/Latino Drivers or Residents toStop Rates for White Drivers or Residents (2021) 52

B-6A: Summary of Variables in Traffic Stop Rate Analysis (2019) 53

B-6B: Summary of Variables in Traffic Stop Rate Analysis (2020) 54

B-6C: Summary of Variables in Traffic Stop Rate Analysis (2021) 55

B-7A: Traffic Stop Rate Estimation Results (2019) 56

B-7B: Traffic Stop Rate Estimation Results (2020) 57

B-7C: Traffic Stop Rate Estimation Results (2021) 58

B-8: Summary of Variables in Field Interview Rate Analysis 59

B-9: Field Interview Rate Estimation Results 60

B-10: Summary of Variables in No-Action Encounter Rate Analysis 61

B-11: No-Action Encounter Rate Estimation Results 62

B-12: Summary of Variables in Frisk Rate Analysis 63

B-13: Frisk Rate Estimation Results 64

B-14: Frisks per Encounter Type by Race/Ethnicity 65

B-15: Individual-Level Frisk Regression Analysis Estimation Results 66

B-16: Predicted Probabilities of Frisks by Race and District 67

B-17: Police Stop Disparities, 2019 - 2021 68

Appendix C: IOARS Analysis Tables 69

C-1: IOARS for Sampled Encounters by Race/Ethnicity and Quarter 69

C-2: IOARS for Sampled Frisks by Race/Ethnicity and Quarter 70

C-3: IOARS for Sampled Encounters by District and Quarter 71
C-4: IOARS for Sampled Frisks by District and Quarter 72
C-5: Summary of Variables in IOARS Analysis of Sampled Stops 73
C-6: IOARS Stop Regression Estimation Results 74
C-7: Summary of Variables in IOARS Analysis of Sampled Frisks 75
C-8: IOARS Frisk Regression Estimation Results 76
C-9: Predicted Probabilities and Average Marginal Effects of IOARS for Sampled Stops and Sampled Frisks 77
Appendix D: Hit Rate Analysis Tables 78
D-1: Frisks and Contraband Discovery by Race 78
D-2: Contraband Regression Results, All Contraband 79
D-3: Contraband Regression Results, Weapons and Drugs 80
D-4: Predicted Probabilities Contraband Discovery by Type of Contraband and Race/Ethnicity 81
Appendix E: Hit Rates to Crime Analysis Tables 82
E-1: Ratio of Stops to Crime Rate, Per 1,000 REsidents 82
E-2: Ratio of Majority Black and Hispanic/Latino Districts to White Districts 83
Appendix F: Data Linkages Chart 84
Appendix G: Encounter Data Linkages Charts 85

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 Crime and Justice Institute's (CJI) Fourth 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 analyses conducted for the current report are the third in this series and are based on quarterly police encounter data provided to CJI for the calendar year 2021. These data are also submitted by MPD to the Fire and Police Commission (FPC) for public consumption and Plaintiffs' counsel per the Settlement Agreement. CJI's Fourth 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, articulable, reasonable suspicion (IOARS) of traffic stops, field interviews, no-action encounters, and frisks were published in October 2021 and April 2022.[4]

Consistent with the requirements of the Settlement Agreement, four main analyses are detailed in this report on 2021 police 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, and

[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 2022). City of Milwaukee Settlement Agreement: Fourth Annual Report.
[4] https://city.milwaukee.gov/fpc/Reports/Crime-and-Justice-Institute-Reports.htm

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. Of note, we have adjusted the traffic stop regression analysis to use a Census population benchmark rather than drivers' license data, as updated drivers' license data are unavailable. The drivers' license data used in prior analyses was from 2015 and we deemed that out of date to be used as a benchmark for 2021 data. We reanalyzed traffic stop data for 2019 and 2020 with this adjusted benchmark to ensure consistency in analyses over the three time periods and that reanalysis is presented below.

This 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 are merged 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 conclusion provided in the final section of this report are also presented in the Fourth Annual Report.

DATA SOURCES

Data sources referenced in this report include MPD encounter data, Milwaukee crime data, and the U.S. Census Bureau's 2020 American Community Survey 5-Year Estimates. Subsections below provide information about 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 2021. 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.

Toward the end of 2021, MPD discovered that they had been including data in the quarterly extractions that were tied to citations and warnings from crash investigations rather than discretionary traffic stops. The data extractions are only supposed to include discretionary stops. MPD altered the extraction process to remove crash investigations from the quarterly data sent to all Parties. In December of 2021, MPD shared updated and corrected files from TraCS that did not include citations and warnings from crash investigations. The affected files were the contact summary individual, joined, and unit files, the electronic citation (ELCI), non-traffic citation (NTC), and warning joined files, the TraCS individual and location files, the TraCS header file, and the warning violation file. MPD provided updated files for the first three quarters of 2021. The Department adjusted extraction protocol in preparation for the delivery of quarter 4 data and thus did not need to provide an updated version of quarter 4 files.

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 are detailed in the Analysis section of the Compliance chapter of the Fourth Annual Report. The following section discusses how the data files provided by MPD are merged 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 Process[5]

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 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-

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[5] The merge process describes how CJI links data files together to create data sets for analysis.
[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."

action encounter. Both data files are merged based on the unique identifier 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 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]

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[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 structure and association of the TraCS files require 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 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.

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

[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.

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 header data file with each of the TraCS form files (contact summary, ELCI, 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 in 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 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

[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.
[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.

("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 of 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. Matching CAD information to TraCS or RMS information is essential for gaining 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.

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. The form may have been generated by mistake and thus not capable of being matched to other forms that would also not exist. The officer may have mistyped the CAD number on the citation, warning, contact summary, or field interview form and thus a match could not occur across forms. Additionally, MPD's investigation of the unmatched citations and warnings in the samples generated for the semiannual reviews revealed that citations and warnings not associated with traffic stops or field interviews were present in the data. As such, the citations and warnings would not have contact summaries or field interview forms in the data with which to match.

Population and Sample Characteristics

The encounter data provided by MPD for 2021 includes an estimated 53,250 traffic stops, 2,470 field interviews, and 176 no-action encounter events documented by

[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.

officers.[25] Of these encounter events, 565 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.

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 (2,942 encounters or 5.1% of encounters for 2021) and the most encounters occurred in District 6 (12,473 encounters or 21.4% of encounters for 2021). District 6 was the leader in number of traffic stops (11,874) while District 5 recorded the highest number of field interviews (701) and District 2 had the highest number of no-action encounters for the year (36).

Missing Demographic Data

We discuss missing data by each data element in the Compliance chapter of the Fourth 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. Under 10 percent of traffic stops lack information on race/ethnicity, gender, age, or location data. Missing demographic and location data for field

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

interviews varies from six to ten percent missing throughout the year. Encounters involving frisks are missing the least amount of information, with two to five percent missing demographic or location information. No-action encounters appear to lack the most demographic or location information averaging 36 percent missing for the year. Most 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. Given these encounters generally lack information gathering from identification documents and are by nature limited inquiries between officers and the public, missing information is likely and expected.

A 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.

U.S. CENSUS AMERICAN COMMUNITY SURVEY

We used the U.S. Census Bureau's 2020 American Community Survey 5-Year Estimates to represent population data for this analysis.[26] 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:

- 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."

[26] U.S. Census Bureau, 2020, American Community Survey 5-Year Estimates, Tables B02001, B03002, S0101, S2301.

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.[27] 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 encounter police. We also constructed an estimated driving population for each district and race or ethnic category by constraining population totals to individuals between the ages of 16 and 80 years old.

We use Census information to construct an unemployment rate for each police district by using estimates present within the Census data regarding unemployment and labor rate participation.

MILWAUKEE CRIME DATA

The MPD provided Part I and Part II crime data for 2020 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, and 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).[28] District-level crime rates were developed by dividing the total, violent, or property crime totals by the resident population totals generated from the U.S. Census Bureau's 2020 American Community Survey 5-year estimates for each district.

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[27] 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.

[28] Part I violent crime includes: homicide, rape, robbery, and aggravated assault. Part I property crime includes: burglary, motor vehicle theft, theft, and arson. Part II crimes against persons includes: negligent manslaughter, forcible fondling, simple assault, intimidation, incest, statutory rape, human trafficking (commercial sex acts), and human trafficking (involuntary servitude). Part II crimes against property includes: extortion/blackmail, counterfeiting/forgery, false pretenses/swindle/confidence game, credit 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 2020 American Community Survey 5-Year Estimates, females made up nearly 52 percent of the Milwaukee population, with the percentage of males slightly lower at 48 percent. Around thirty percent of Milwaukee residents were between the ages of 18 and 34.[29] The estimated median household income for residents of Milwaukee in 2020 dollars was $43,125, with approximately 25 percent of Milwaukee residents' incomes below the poverty level. The average unemployment rate across police districts was 6.43 percent.[30]

When we look at each police district, we see a different story of the City. 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 four percent according to the 2020 data.[31] District 2, which includes Walker's Point, Historic Mitchell Street, and Clarke Square, had an unemployment rate of six 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 seven and eight percent. District 6, home to Jackson Park, Bay View, and Mitchell International Airport, had an unemployment rate of four percent.[32]

Based on the American Community Survey 5-year population estimates (2020), Black residents accounted for 38 percent of the population of Milwaukee, white residents comprised 34 percent, Hispanic/Latino residents constituted 19 percent, and residents of other races made up eight percent.[33] 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 proportion of white residents (74 and 60 percent, respectively). District 2 has the highest proportion of Hispanic/Latino residents (72 percent). Districts 3, 4, 5, and 7 have the highest proportion of Black residents (44, 64, 72, and 67 percent, respectively). Districts 2 and 3 have the narrowest differences in proportions of white and Black residents than any other district.

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[29] U.S. Census Bureau, 2020, American Community Survey 5-Year Estimates, Tables B02001, B03002, S0101, S2301, DP05
[30] U.S. Census Bureau, 2019, American Community Survey 5-Year Estimates, Table DP03
[31] U.S. Census Bureau, 2020, American Community Survey 5-Year Estimates, Tables B02001, B03002, S0101, S2301
[32] 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
[33] U.S. Census Bureau, 2020, American Community Survey 5-Year Estimates, Tables B02001, B03002, S0101, S2301

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 44 percent Black residents, 34 percent white residents, eight percent Hispanic/Latino residents, and 13 percent of residents of other races or ethnicities.

For ease of interpretation, the stop rates are presented per 1000 residents of typical driving age (16 – 80 years old) for traffic stops and per 1,000 residents for field interviews, no-action encounters, and frisks.

The traffic stop rate calculation uses residents between 16 and 80 years old as a base population to which the number of traffic stops are compared. While not all residents of typical driving age within a geographic area drive a personal vehicle and thus are not "at risk" for a traffic stop, it is the most accessible base population that can be used for this analysis at this time. In previous analyses we used drivers' license data provided by the Wisconsin Department of Transportation (DOT) to estimate the driving population. However, these data represent licensed drivers in 2015 and the Wisconsin DOT has declined our requests to provide us with updated data, indicating that the original dataset was available, though created in error and they are not obligated to create a new or updated report for our request.[34] It is our position that the 2015 drivers' license data is no longer a viable benchmark for the traffic stop analysis. In general, researchers aim to use benchmarks that are the best estimate for the characteristics of a population and take into consideration several factors to determine which benchmark represents a best estimate. We believe demographics derived from licensed drivers from 2015 is not a good estimate of the driving population in 2021, the relevant year for our current analysis. The drivers' license data is beyond the typical five-year window that is generally acceptable in estimating population demographics. Additionally, Wisconsin DOT statistics indicate the size of the statewide driving population has increased by over 109,000 drivers since 2015, further signaling that the licensed driver information for 2015 is likely not a good estimate for the current driving population.[35]

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[34] 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).

[35] Page 41, https://wisconsindot.gov/Documents/about-wisdot/newsroom/statistics/factsfig/2020ff.pdf

Census population benchmarks for traffic stop analysis have been used in other jurisdictions to determine the extent to which racial or ethnic disparities in traffic stops exist. As one example, Dr. Frank Baumgartner's recent paper on traffic stop analysis in Raleigh (NC) provides a brief discussion for why using a population benchmark is an acceptable estimate.[36] He references the use of population benchmarks in pattern and practice investigations in Baltimore (MD) and Ferguson (MO) and discusses an adjusted population benchmark used in an analysis for the State of Illinois. Dr. Baumgartner provides a succinct rationale for using population benchmarks (p. 4):

> "The main question about benchmarking is whether different benchmarks would lead to different conclusions, and whether it is reasonable to expect that a person alleging disparate enforcement of the law should have access to various types of data to constitute a benchmark. It is an important concern to question whether a critic of any baseline comparison could always 'move the goalposts' to counter-argue that no baseline is good enough. In this area, the perfect can be the enemy of the good. Census comparisons, particularly for a large jurisdiction or the state as a whole, are good enough."

Baumgartner also discusses a potential issue that can arise using population benchmarks for traffic stop analysis. The raw estimates generated using population benchmarks are often an underestimate of actual disparities in enforcement, given racial and ethnic disparities in the driving population due to disparities in having a driver's license, owning a car, and driving regularly. We account for much of this disparity in the regression analysis specified by the Settlement Agreement by controlling for socioeconomic factors present within each police district.

Tables B-1A through B-4 provide 2019, 2020, and 2021 traffic stop rates, 2021 field interview rates, 2021 no-action encounter rates, and 2021 frisk rates by district and race or ethnicity. Tables B-1A and B-1B provide traffic stop rates for 2019 and 2020 using the Census population benchmark rather than the previously reported traffic stop rates using an estimated driving population based on licensed driver information.[37] Comparing the stop rates across districts and race or ethnic categories, we find that the traffic stop rate in 2021 is highest in District 2, which has a residential population that is 72 percent Hispanic/Latino. Traffic stops range from 60 per 1,000 residents of typical driving age (16 to 80 years old) in District 1 to 158 per 1,000 residents in District 2 with the stop rate for the City estimated to be 116 per 1000 residents (Table B-1C). District 5 has the highest field interview rate at 11 per 1,000

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[36] Baumgartner, Frank R. (2022). "Benchmarking Traffic Stop Data: Examining Patterns in North Carolina and the City of Raleigh." https://fbaum.unc.edu/TrafficStops/Baumgartner-benchmarking.pdf

[37] We offer Tables B-1A and B-1B as context for the reanalysis of 2019 and 2020 but do not expand upon them as the focus of the current reporting period is data from 2021. Readers interested in comparing the traffic stop rates constructed using the population benchmark to the traffic stop rates constructed using the licensed driver benchmark can access our Year 2 and Year 3 data reports at https://city.milwaukee.gov/fpc/Reports/Crime-and-Justice-Institute-Reports.htm

residents, with a residential population that is 72 percent Black, with District 6 at the lowest field interview rate of two per 1,000 residents (Table B-2). Table B-3 shows the no-action encounter rate is 0.3 per 1,000 residents in Districts 2, 3, and 5 and lowest in Districts 4, 6, and 7 (0.1 per 1,000 residents). The frisk rates in Table B-4 show a marked difference in frisks by district with District 5 higher than the average for the City overall (2.6 frisks per 1,000 residents in District 5 compared to 1.0 frisks per 1,000 residents for the City overall).

Table B-5A 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 Milwaukee.[38] In 2021, the traffic stop rate for Black residents of typical driving age (16 to 80 years old) was 2.6 times higher than for white residents and the traffic stop rate for Hispanic/Latino drivers was 1.5 times higher than for white drivers. The field interview rates for Black residents were 6.6 times higher than for white residents. No-action encounter rates, while rare overall, were 5.7 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 twelve 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: [39]

[38] Table B-5B provides ratios of traffic stop rates by race for 2019, 2020, and 2021 for comparability across the three years. Comparing ratios of stop rates relative to other race or ethnic categories accounts for the relative drop in traffic stop rates during 2020 that may have been due to the COVID-19 pandemic.

[39] 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.

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.
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.
10. 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 25 per 1,000 Black residents of typical driving age in District 3. The traffic stop rate for young white males in District 3 during quarter 1 is 6 per 1,000 white residents of typical driving age 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 racial or ethnic 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. To correctly specify the

regressions required by the Settlement Agreement, we use a modeling strategy with robust standard errors that are clustered by police district to obtain a robust variance estimate that adjusts for within-cluster correlation.

For traffic stops, the outcome of interest in this analysis is the stop rate per 1,000 potential drivers of a given race or ethnicity (r), 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.

$$Traffic\ Stop\ Rate_{ragdt} = \frac{Total\ Traffic\ Stops_{ragdt}}{Total\ Drivers_{rdt}} * 1000$$

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 a 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 2021 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.

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-6A through B-13. Tables B-6A-C and B-7A-C present the summary of variables in the traffic stop regression analysis and the results for the regression specifications detailed above for the years 2019, 2020, and 2021. We offer a reanalysis of 2019 and 2020 to provide comparability across years using the estimated driving population of residents aged 16-80 years old. While controlling for all known predictors (Model 7), the results indicate that on average over the four quarters of 2021, the MPD stop rate was higher for Black drivers than white drivers by 17.94 per 1000 residents of typical driving age. The difference in traffic stop rates for Black residents and white residents is statistically significant at the 90 percent confidence level. The stop rate was higher for Hispanic/Latino drivers than white drivers by 0.75 stops per 1,000 residents, however this difference is not statistically significant. The traffic stop rate for residents of races and ethnicities other than Black or Hispanic/Latino were lower than white residents by 1.88 stops per 1,000 residents. This difference is statistically significant at the 95 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 4.702 per 1000 potential drivers. This indicates that the estimated traffic stop rate for Black drivers is 4.8 times higher than the traffic stop rate for white drivers, or a rate that is 382 percent higher.

The estimated traffic stop rate for potential drivers of races and ethnicities other than Black or Hispanic/Latino is 60 percent lower than for potential drivers that identify as white. The traffic stop rate for Hispanic/Latino residents is 1.2 times higher than for white residents, however this magnitude of difference did not approach statistical significance.[40]

The traffic stop regression analysis for 2019 and 2020 provide similar results. In 2019, the traffic stop rate for Black residents of typical driving age was 3.81 times higher than for white residents. In 2020, the traffic stop rate for Black residents was 4.44 times higher than for white residents. The magnitude of the disparities in traffic stops using Census-based benchmarks are different from those found using licensed drivers as a base population. For example, drivers licensed in other states or unlicensed drivers would not be represented in a dataset of licensed drivers. Census population estimates of the driving population have a similar issue in that it includes a greater number of people as potential drivers than are likely to drive. Thus, traffic stop estimates based on Census-based benchmarks are generally considered a conservative estimate of traffic stop rates and associated racial or ethnic disparities in traffic stops.

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 2021 the MPD field interview rate was higher for Black residents than white residents by 3.179 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 9.3 times higher than the field interview rate for white residents, or an 830 percent difference. The field interview rate for Hispanic/Latino residents and residents of other races and ethnicities were not statistically different from the white field interview rate.

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 6), the results indicate that in 2021 the MPD no-action encounter rate was higher for Black residents and residents of races and ethnicities other than Black or Hispanic/Latino than white residents by 0.33 and .07 stops per 1,000 residents, respectively. These differences were statistically significant at the 95 and 99

[40] The stop rate for Black drivers equals the white stop rate of 4.702 stops per 1,000 potential drivers + 17.94 stops per 1,000 potential drivers = 22.642 stops per thousand potential drivers or 22.642/4.702 = 4.8. 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.

percent confidence levels (respectively). Given the estimated average no-action encounter rate for white residents, the no-action encounter rate for Black residents is 7.5 times higher than the no-action encounter rate for white residents, or a 650 percent difference. The no-action encounter rate for residents of other races and ethnicities (Native American or Alaskan Native, Asian, and Native Hawaiian or other Pacific Islander) is 2.35 times higher than the no action encounter rate for white residents, a 135 percent difference.

Frisks were explored in 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 2021 the MPD frisk rate was higher for Black residents than white residents by 2.256 frisks per 1,000 residents. This difference is statistically significant at the 90 percent confidence level. Given the estimated average frisk rate for white residents, the frisk rate for Black residents is 17.96 times higher than the frisk rate for white residents. 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 as Black or Hispanic/Latino are 0.102 times less likely to be frisked than white residents, or a 277 percent difference. This difference is statistically significant at the 90 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 percent of field interviews result in a frisk, with frisks occurring more often for Black and Hispanic/Latino subjects than white subjects (21 percent, 25 percent, and 10 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 3.1 times that of a white subject and the odds of a Hispanic/Latino subject being frisked are 2.4 times that of a white subject. Both 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 0.63 percent. The predicted probability of a Hispanic/Latino stop subject getting frisked in District 6 is 0.38 percent and the predicted probability of a white stop subject getting frisked in that district is 0.24 percent. This indicates that during police encounters in District 6 for the year 2021, the predicted probability that a Black subject will get frisked is higher than for Hispanic/Latino or white stop subjects. The largest difference is found in District 5 where the predicted probability that Black subjects are frisked during an encounter with police is 2.85 percent and the predicted probability for white subjects to be frisked when encountered by police is 0.26 percent.

Table B-17 provides a compilation of the stop rate regression findings for 2019-2021. The quantities provided in the tables represent the magnitude difference in stops or frisks of each race or ethnic group as compared to white individuals. For example, in 2021, Black individuals were 9.3 times more likely than white individuals to be stopped for a field interview. To be comprehensive, Table B-17 includes traffic stop findings using both the licensed driver benchmark and the Census population benchmark for 2019 and 2020.

The findings presented in Table B-17 indicate that over the three years, Black residents in Milwaukee are consistently more likely than white residents to be stopped for a traffic stop, field interview, and subjected to a police encounter that involves a frisk. Further, among individuals stopped by police, Black stop subjects are consistently more likely to be frisked during the encounter.

Our current analysis finds that Hispanic/Latino residents of Milwaukee are not consistently more likely to be involved in a traffic stop over the three years. It is worth noting that previous analysis for 2019 and 2020 using licensed drivers as a base population found significant disparities. Additionally, while Hispanic/Latino residents are not more likely to experience a field interview, similar to Black stop subjects, during encounters with police Hispanic/Latino stop subjects are consistently more likely to be frisked than white stop subjects. Our current analysis also finds that residents of races or ethnicities other than Black or Hispanic/Latino are significantly less likely than white residents to be involved in a traffic stop over the three years, while previous analysis found no significant difference. This indicates that Hispanic/Latino and race or ethnic groups other than Black are sensitive to the different benchmarks for

estimating driving population. We use the Census data as a benchmark is a stronger approach for reasons articulated previously.

The main findings of the Milwaukee stop rate regression analysis are summarized below. For 2021, after ruling out other demographic and district-level predictors of police encounters, we find:

- The traffic stop rate for Black residents of typical driving age is 4.8 times higher than for white drivers, a statistically significant difference. The traffic stop rate for Hispanic/Latino residents of typical driving age is not statistically different from the traffic stop rate for white residents of typical driving age. Traffic stop rates for residents of other races was 60 percent lower than for white residents, a statistically significant difference.
- The field interview rate for Black residents is 9.3 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 7.5 times higher than for white residents and the no-action encounter rate for residents that are not Black or Hispanic/Latino is 2.3 times higher than for white residents. These results are statistically significant at the 95 and 99 percent confidence level, respectively.
- The frisk rate for Black residents is 17.96 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, a 177 percent difference.
- The predicted probability of a frisk occurring after a police encounter has been initiated is 3.1 times higher for Black stop subjects than it is for white stop subjects. Hispanic/Latino subjects of police encounters are 2.4 times more likely to be frisked than white subjects. These results are statistically significant.
- From 2019 to 2021, Black residents of Milwaukee are consistently more likely than white residents to encounter police during a traffic stop, field interview, and are consistently more likely than white residents and stop subjects to be subjected to a frisk during a police encounter. Hispanic/Latino stop subjects are also more likely than white stop subjects to be frisked during an encounter with police over these three years.

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 2021 and April 2022, which include an analysis of traffic stops, field interviews, no-action encounters, and frisks that took place during the 2021 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 2021 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 76 percent meeting the standard in quarter 4 of 2021 and 89 percent meeting the standard in quarter 2. 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 81 to 91 percent of the time for Black stop subjects. For Hispanic/Latino stop subjects, the percentage of stops meeting the IOARS standard was lowest in quarter 4 (58 percent) and highest in the previous quarter (quarter 3, 95 percent).

Table C-2 provides summary statistics for IOARS documentation to justify frisks by race or ethnicity and quarter of the year. This table represents 413 frisks in the sample, broken out by quarter and race or ethnicity of the frisk subject. Documenting IOARS to justify performing a frisk during an encounter continues to fall short of 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, the IOARS standard was met 38 percent to 57 percent of the time

[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

throughout 2021. While MPD has improved with establishing IOARS in 2021 as compared to 2019 and 2020, the Department continues to fall below the acceptable threshold. Given that the majority of frisks occur with Black stop subjects (331 of the 413 frisks in the sample occurred with Black individuals), it is difficult to make comparisons to other race or ethnic categories. For example, one of the four frisks that occurred with white subjects in quarter 4 met the IOARS standard. While a larger percentage of frisks with Black subjects met the IOARS standard for that quarter (60 percent), it still means that 30 of those 74 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, District 3 had the lowest percentage of stops meeting the IOARS standard (79 percent) and District 7 had the highest percentage (89 percent). For frisks, Districts 2 and 6 had the lowest proportion of frisk documentation meeting the IOARS standard (37 and 33 percent, respectively) and District 7 had the highest percentage of frisks meeting IOARS (64 percent).

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 86.7 percent of stops involving white subjects, as compared to an estimated 88.3 percent for Black subjects and 77.5 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. The predicted probability of a frisk meeting the IOARS standard for interactions with Black subjects is 49.8 percent, with Hispanic/Latino subjects is 46.7 percent, compared to 46.2 percent with white frisk subjects.

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 80 percent of frisks in the sample were conducted with Black subjects, while the rate generated for white subjects is based on documentation for 21 frisks and the rate for Hispanic/Latino subjects is based on 52 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 2021, 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 ranges from 76 percent in quarter 4 of 2021 to a high of 89 percent in quarter 2.
- IOARS documentation to justify frisks of subjects of any race or ethnic category is higher than in previous years but still deficient throughout 2021, with 38 percent of records meeting the IOARS standard in quarter 3 to a high of 57 percent meeting the standard in quarter 4.
- 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.

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, 565 frisks were documented in 2021 during traffic stops, field interviews, and no-action encounters. Of those frisks, 152 (26.9 percent) resulted in the discovery of contraband. Drug contraband was discovered during 43 frisks and 83 frisks recovered weapons, with discovery rates of 7.6 percent and 14.7 percent, respectively. As previously discussed, the majority of the 565 documented frisks in 2021 occurred with Black stop subjects (447), followed by Hispanic/Latino stop subjects (74), white stop subjects (33), and very few frisks of stop subjects of other races or ethnicities (8). 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 even as the expressed purpose of a frisk is to retrieve and secure weapons.

Table D-1 also provides a summary of contraband hit rates by race. The weapons contraband hit rates are 3.09 and 1.39 percentage points higher for Black and Hispanic/Latino frisk subjects, respectively, than for white frisk subjects. This preliminarily suggests that officers are finding more weapons per frisk with Black and Hispanic/Latino stop subjects than when frisking 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.[44] 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 1.4 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 (-9.6 percent), and this result is statistically significant at the 99 percent confidence level.

Since the expressed purpose of conducting a frisk is related to weapon possession, we conducted additional analyses focused on understanding whether the weapon 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 that frisks involving Black stop subjects are 8.1 percentage points more likely to yield weapons than for frisks involving white stop subjects. This result is statistically significant at the 95 percent confidence level. Weapon discovery is 2.3 percentage points higher for Hispanic/Latino frisk subjects than white frisk subjects, however this difference is not statistically significant. Drug discovery rates were significantly lower for Hispanic/Latino stop subjects than white stop subjects when using the 99 percent

[44] 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.

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.

The main findings of the frisk and contraband hit rate analysis are summarized below. For 2021, 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 frisk subjects than for white frisk subjects; however, this difference is only statistically significant for the comparison between Hispanic/Latino and white frisk subjects and not for Black frisk subjects.
- Weapon discovery rates during frisks are significantly higher for Black subjects than for white subjects, a difference of 8.1 percentage points.
- Drug discovery rates are significantly lower for Hispanic/Latino subjects than for white subjects, a difference of 9.5 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 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 44 percent Black residents, 34 percent white residents, 13 percent other race categories and 8 percent Hispanic/Latino residents.

Table E-1 provides the ratios of the traffic stop rate (per 1,000 residents aged 16-80), 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 35 percent higher than the ratio of frisk rates to crime rates in white districts. The ratios of field interview, no-action encounter, and frisk rates to crime rates in the majority-Hispanic/Latino district are higher than the ratios of these encounters to crime rates in white districts. However, the ratio of traffic stop rates to crime rates is 25 percent lower in the majority-Hispanic/Latino district than in police districts with majority white residential populations.[45]

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.

[45] District 3 is 44% Black residents, 34% white residents, 8% Hispanic/Latino residents, and 13% 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: -62% (traffic stops), -22% (field interviews), -9% (no-action encounters), and -9% (frisks).

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 2021 and encompasses a third year of analyses focused on understanding racial or ethnic disparities in police encounters with the Milwaukee Police Department.

The 2021 police encounters included in this analysis occurred within the context of the continued effects of the COVID-19 pandemic that began in March 2020 and the racial justice movement that intensified after George Floyd was murdered by Minneapolis police officers on May 25, 2020. The stay-at-home orders associated with the COVID-19 pandemic that were issued in 2020 were largely lifted in 2021 and coincided with a subsequent increase in traffic stops that was likely associated with returns to some pre-pandemic driving patterns. Similarly, continued heightened scrutiny from the public regarding police accountability may be shaping policing behavior in 2021 as officers may be adjusting how they engage with the public. While these adjustments to engagement with the public are not yet quantified by magnitude or direction, it is plausible adjustments were made given national conversations focused on policing and the public.

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.

Despite the limitations presented by the lasting effects of 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. While informative as an ongoing assessment of racial and ethnic disparities present in the police encounters that MPD initiates, this type of analysis does not help to inform the reasons for these disparities. That is, the findings represented in this report do not help the Defendants identify whether the disparities are driven by Departmental directives that are internally generated or resulting from public pressure to act (e.g., focused traffic patrols for reckless driving or speeding), or if disparities are driven by individual officer behavior motivated by racial or ethnic bias. A more nuanced and frequent assessment of police encounters, accounting for smaller geographic areas and variability in crime participation and victimization, would be more informative for real-time adjustments to operations, personnel, or communication with the community in high-disparity areas.

SUMMARY OF FINDINGS

The stop rate analysis indicates, after controlling for known predictors, that Black residents are subjected to traffic stops, field interviews, no-action encounters, and frisks at significantly higher rates than white residents. Black residents of typical driving age are 4.8 times more likely to get stopped than white residents of typical driving age. Black residents are 9.3 times more likely to be subjected to a field interview and 7.5 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 nearly 18 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 3.1 times more likely to be frisked than white subjects. These results are also statistically significant.

Controlling for demographic and district-level population characteristics, Hispanic/Latino residents were not significantly more likely to be stopped by police in a traffic stop, field interview, no-action encounter, or more likely to experience a frisk-based encounter than white residents. However, during a police encounter, Hispanic/Latino subjects were 2.4 times more likely to be frisked than white subjects, a statistically significant result.

IOARS documentation to justify stops of subjects of any race or ethnic category ranges from 76 to 89 percent meeting the IOARS standard. IOARS documentation to justify frisks, while higher than in previous years, continues to be deficient, ranging from 38 to 57 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 for IOARS documentation to justify stops and IOARS documentation to justify frisks.

Hit rates for contraband discovery were 26.9 percent overall, and while the probability of discovery of overall contraband for Black and Hispanic/Latino subjects was lower than for white subjects, the difference is only statistically significant for the comparison of Hispanic/Latino subjects to white subjects. Exploration of contraband hit rates by race or ethnicity specifically for weapons indicates that frisks of Black subjects are significantly more likely to produce weapons 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, with robust disparities in police encounters with Black residents compared to white residents of Milwaukee. IOARS documentation standards have continued to improve in 2021, with documentation of IOARS for frisks notably higher than for previous years but continuing to be deficient regardless of race or ethnicity of the frisk subject.

These results represent a third year of analysis of police encounters in Milwaukee. The results for 2020 indicated race and ethnic disparities in traffic stops, field interviews, and frisks that are on par with the results found for 2019 encounters.[46] 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.

[46] "Analysis of 2019 Traffic Stops, Field Interviews, No-action Encounters, and Frisks," "Analysis of 2020 Traffic Stops, Field Interviews, No-action Encounters, and Frisks."
https://city.milwaukee.gov/fpc/Reports/Crime-and-Justice-Institute-Reports.htm

Current findings from police encounters in 2021 indicate continued disparities in whether and how police interact with Black residents and white residents of Milwaukee. 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 in significant improvements in racial and ethnic disparities in police encounters with members of the public.

CONTRIBUTORS

Katie Zafft coordinates CJI's data analysis efforts for the Milwaukee Settlement Agreement work. She has over 10 years of experience working on justice system policy evaluation and implementation of reform efforts at the local, state, and federal level. Katie primarily manages CJI's policing and reentry-focused efforts to advance positive changes in support of fair and equitable practices that directly impact the safety of all communities. Prior to coming to CJI, Katie's work for The Pew Charitable Trusts' public safety performance project involved evaluating state criminal justice policy reforms to inform the national conversation about sentencing, corrections, and enhancing public safety. Katie is committed to advancing better justice systems by developing strong foundations for data-driven decision-making because it leads to better policing and more equitable practices. 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 Bachelor of Arts 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 quantitative and qualitative analysis support for CJI's work with the Milwaukee Settlement Agreement. Andrea's work on CJI's policing projects follows her professional experience with both criminal justice stakeholders and impacted communities. Prior to her time at CJI, Andrea assisted Brandeis University's Department of Public Safety in strategic planning and evaluating internal and community engagement practices. She holds a Bachelor of Arts degree in Political Science from Howard University and a Master of Public Policy degree from Brandeis University.

Karina Zeferino provided project support for CJI's work with the Milwaukee Settlement Agreement from March to July 2022. Her primary work at CJI is to maintain the Coming Home Directory, a directory of reentry services available to people returning from incarceration to Greater Boston. Prior to her time at CJI, Karina interned at Prisoners' Legal Services of Massachusetts where she advocated for the humane and lawful treatment of incarcerated individuals through medical and mental health advocacy as well as systematic advocacy for improved prison conditions. She holds a Bachelor of Arts degree in Psychology from the University of Massachusetts Amherst and a Master of Public Policy degree from Simmons 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 14, 2021	16,100	15,531	585	931	72
Quarter 2 April - June	August 20, 2021	17,206	16,439	494	1,044	72
Quarter 3 July – Sept.	November 15, 2021	13,033	12,397	428	1,135	66
Quarter 4 Oct. – Dec.	February 15, 2022	10,739	10,329	1,333	638	12
Total		57,078	54,696	2,840	3,748	222

Notes:

[1]MPD 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.

[2]CAD 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.

[3]Updated TraCS files for quarters 1, 2, and 3 were delivered on December 16, 2021 to replace originally delivered files that included citations or warnings for motor vehicle crash investigations. An updated dataset was also delivered on February 21, 2022 to correct data structure issues causing import errors when transferring the data to other data processing programs.

Source:

Milwaukee Police Department Stop Data, 2021

A-2: DATA LOSS BY QUARTER AND ENCOUNTER TYPE

Quarter	CAD only	AIM only
Quarter 1	144	40
Quarter 2	151	40
Quarter 3	200	35
Quarter 4	142	13
Total	637	128

Notes:
[1]Encounters 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.
[2]Encounters 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.

Source:

Milwaukee Police Department Stop Data, 2021

A-3: ENCOUNTERS BY TYPE AND DISTRICT

District	Traffic Stops	Field Interviews	No-Action Encounters	Citation or Warning Only	Totals	Percent by District
1	2,709	126	17	90	2,942	5.1%
2	8,590	429	36	367	9,422	16.2%
3	6,621	382	30	243	7,276	12.5%
4	8,096	305	26	233	8,660	14.9%
5	3,948	701	31	213	4,893	8.4%
6	11,874	263	10	326	12,473	21.4%
7	9,058	262	26	274	9,620	16.5%
NULL	1,064	1	0	10	1,075	1.9%
Missing	1,290	1	0	604	1,895	3.3%
Total	53,250	2,470	176	2,360	58,256	100.0%

Notes:
[1]The "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.
[2]According 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.
[3]Missing 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.

Source:

Milwaukee Police Department Stop Data, 2021

A-4: SHARE OF ENCOUNTERS WITH MISSING DEMOGRAPHIC INFORMATION

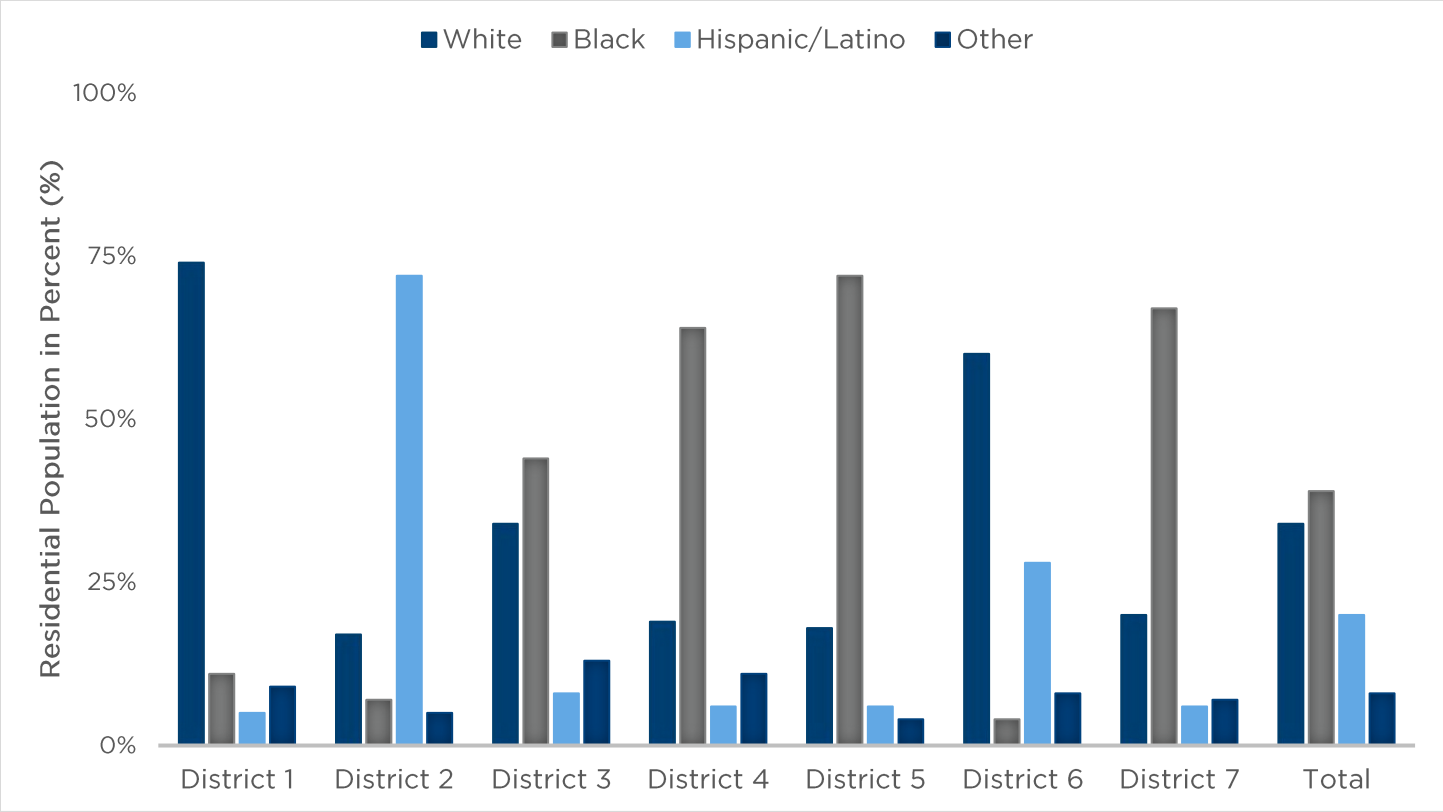
	Number of Stops				Share of Stops Missing Demographic and/or Location Data			
Quarter	Traffic Stops	Field Interviews	No-Action Encounters	Frisks	Traffic Stops	Field Interviews	No-Action Encounters	Frisks
Q1	15,067	637	60	174	4%	10%	35%	3%
Q2	16,168	704	52	141	5%	8%	27%	2%
Q3	11,958	672	53	137	7%	6%	49%	4%
Q4	10,057	457	11	113	6%	9%	27%	5%
Total	53,250	2,470	176	565	5%	8%	36%	3%

Notes:
[1]Each observation in the data represents a single encounter with police.
[2]For 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.
[3]For 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.
[4]Encounters 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.
[5]Frisks are a subset of traffic stops or field interviews.
[6]Location data is considered missing if data for the encounter do not indicate the police district in which it occurred.
[7]Of the 2,360 citations or warnings that lack corresponding TraCS or RMS information, 33% are missing demographic or location information. We do not include them here as the focus for the annual analysis is the categorized encounters.

Source:

Milwaukee Police Department Stop Data, quarters 1-4, 2021

A-5: POPULATION RACE AND ETHNIC COMPOSITION BY DISTRICT



Source:

U.S. Census American Community Survey 5-Year Estimates, 2016-2020

APPENDIX B: STOP RATE ANALYSIS TABLES

B-1A: TRAFFIC STOPS PER 1000 RESIDENTS OF TYPICAL DRIVING AGE BY RACE, ETHNICITY, AND DISTRICT (2019)

District	1	2	3	4	5	6	7	All
Traffic Stops per 1000 Residents	78	107	92	97	187	94	136	111
Traffic Stops per 1000 Black Residents	281	461	149	126	227	558	184	189
Traffic Stops per 1000 Hispanic/Latino Residents	119	58	55	47	75	99	56	71
Traffic Stops per 1000 White Residents	51	154	40	66	101	68	41	65
Traffic Stops per 1000 Residents of Other Races	38	70	22	22	34	76	25	38
Percentage of Black Residents of Typical Driving Age	11%	8%	48%	62%	72%	4%	67%	39%
Percentage of Hispanic/Latino Residents of Typical Driving Age	5%	70%	9%	5%	6%	25%	4%	18%
Percentage of White Residents of Typical Driving Age	76%	17%	34%	22%	18%	65%	22%	36%
Percentage of Residents of Other Races of Typical Driving Age	8%	5%	9%	11%	4%	6%	7%	7%

Notes:

[1]The traffic stop rate for Black residents of typical driving age in each district is calculated as the total number of traffic stops of Black drivers in that district, multiplied by 1000, and divided by the number of Black residents between 16 and 80 years old in that district. The traffic stop rates for white, Hispanic/Latino, and individuals of other races are calculated the same way.
[2]Other 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, 2019

U.S. Census American Community Survey 5-Year Estimates, 2014-2018

B-1B: TRAFFIC STOPS PER 1000 RESIDENTS OF TYPICAL DRIVING AGE BY RACE, ETHNICITY, AND DISTRICT (2020)

District	1	2	3	4	5	6	7	All
Traffic Stops per 1000 Residents	53	89	88	86	126	83	105	90
Traffic Stops per 1000 Black Residents	183	428	137	116	157	516	143	154
Traffic Stops per 1000 Hispanic/Latino Residents	97	48	66	39	48	91	33	62
Traffic Stops per 1000 White Residents	34	111	49	45	53	56	30	50
Traffic Stops per 1000 Residents of Other Races	29	65	18	13	22	55	16	29
Percentage of Black Residents of Typical Driving Age	11%	8%	46%	63%	72%	4%	67%	39%
Percentage of Hispanic/Latino Residents of Typical Driving Age	6%	70%	9%	6%	6%	27%	5%	19%
Percentage of White Residents of Typical Driving Age	76%	18%	34%	20%	19%	61%	21%	35%
Percentage of Residents of Other Races of Typical Driving Age	8%	5%	11%	10%	4%	8%	7%	8%

Notes:

[1]The traffic stop rate for Black residents of typical driving age in each district is calculated as the total number of traffic stops of Black drivers in that district, multiplied by 1000, and divided by the number of Black residents between 16 and 80 years old in that district. The traffic stop rates for white, Hispanic/Latino, and individuals of other races are calculated the same way.
[2]Other 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-1C: TRAFFIC STOPS PER 1000 RESIDENTS OF TYPICAL DRIVING AGE BY RACE, ETHNICITY, AND DISTRICT (2021)

District	1	2	3	4	5	6	7	All
Traffic Stops per 1000 Residents	59	156	112	120	85	135	119	116
Traffic Stops per 1000 Black Residents	211	906	178	155	101	827	160	181
Traffic Stops per 1000 Hispanic/Latino Residents	123	86	92	58	50	155	48	104
Traffic Stops per 1000 White Residents	35	174	66	76	48	88	39	71
Traffic Stops per 1000 Residents of Other Races	27	115	20	24	19	94	17	119
Percentage of Black Residents of Typical Driving Age	11%	7%	44%	64%	72%	4%	67%	38%
Percentage of Hispanic/Latino Residents of Typical Driving Age	5%	72%	8%	6%	6%	28%	6%	19%
Percentage of White Residents of Typical Driving Age	74%	17%	34%	19%	18%	60%	20%	35%
Percentage of Residents of Other Races of Typical Driving Age	9%	5%	13%	11%	4%	8%	7%	8%

Notes:

[1]The traffic stop rate for Black residents of typical driving age in each district is calculated as the total number of traffic stops of Black drivers in that district, multiplied by 1000, and divided by the number of Black residents between 16 and 80 years old in that district. The traffic stop rates for white, Hispanic/Latino, and individuals of other races are calculated the same way.
[2]Other 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, 2021

U.S. Census American Community Survey 5-Year Estimates, 2016-2020

B-2: FIELD INTERVIEWS PER 1,000 RESIDENTS BY RACE, ETHNICITY, AND DISTRICT (2021)

District	1	2	3	4	5	6	7	All
Field Interviews per 1000 Residents	3	5	5	3	11	2	3	4
Field Interviews per 1000 Black Residents	15	34	9	5	14	24	3	8
Field Interviews per 1000 Hispanic/Latino Residents	5	3	1	1	2	2	1	2
Field Interviews per 1000 White Residents	1	6	1	1	2	1	0	1
Field Interviews per 1000 Residents of Other Races	1	2	1	0	3	1	0	1
Percentage of Black Residents	11%	7%	44%	64%	72%	4%	67%	39%
Percentage of Hispanic/Latino Residents	5%	72%	8%	6%	6%	28%	6%	20%
Percentage of White Residents	76%	18%	34%	20%	19%	61%	21%	35%
Percentage of Residents of Other Races	9%	5%	13%	11%	4%	8%	7%	8%

Notes:

[1]The 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.
[2]Other 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, 2021

U.S. Census American Community Survey 5-Year Estimates, 2016-2020

B-3: NO-ACTION ENCOUNTERS PER 1,000 RESIDENTS BY RACE, ETHNICITY, AND DISTRICT (2021)

District	1	2	3	4	5	6	7	All
No-Action Encounters per 1000 Residents	0.2	0.3	0.3	0.1	0.3	0.1	0.1	0.2
No-Action Encounters per 1000 Black Residents	1.3	1.9	0.5	0.2	0.4	0.9	0.2	0.3
No-Action Encounters per 1000 Hispanic/Latino Residents	0.4	0.1	0.3	0.0	0.0	0.1	0.0	0.1
No-Action Encounters per 1000 White Residents	0.0	0.4	0.1	0.0	0.2	0.0	0.0	0.1
No-Action Encounters per 1000 Residents of Other Races	0.2	0.5	0.2	0.0	0.4	0.2	0.1	0.2
Percentage of Black Residents	11%	7%	44%	64%	72%	4%	67%	39%
Percentage of Hispanic/Latino Residents	5%	72%	8%	6%	6%	28%	6%	20%
Percentage of White Residents	76%	18%	34%	20%	19%	61%	21%	35%
Percentage of Residents of Other Races	9%	5%	13%	11%	4%	8%	7%	8%

Notes:

[1]The 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.
[2]Other 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, 2021

U.S. Census American Community Survey 5-Year Estimates, 2016-2020

B-4: FRISK RATES PER 1,000 RESIDENTS BY RACE, ETHNICITY, AND DISTRICT (2021)

District	1	2	3	4	5	6	7	All
Frisks per 1,000 Residents	0.3	1.3	0.9	0.8	2.6	0.4	0.7	1.0
Frisks per 1,000 Black Residents	2.7	17.8	1.8	1.1	3.6	4.4	1.1	2.0
Frisks per 1,000 Hispanic/Latino Residents	0.0	0.9	0.2	0.4	0.5	0.5	0.2	0.6
Frisks per 1,000 White Residents	0.1	0.9	0.1	0.2	0.1	0.1	0.0	0.2
Frisks per 1,000 Residents of Other Races	0.0	0.5	0.5	0.0	0.0	0.1	0.0	0.2
Percentage of Black Residents	11%	7%	44%	64%	72%	4%	67%	39%
Percentage of Hispanic/Latino Residents	5%	72%	8%	6%	6%	28%	6%	20%
Percentage of White Residents	76%	18%	34%	20%	19%	61%	21%	35%
Percentage of Residents of Other Races	9%	5%	13%	11%	4%	8%	7%	8%

Notes:

[1]The 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.
[2]Other 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, 2021

U.S. Census American Community Survey 5-Year Estimates, 2016-2020

B-5A: RATIO OF TRAFFIC STOP RATES FOR BLACK AND HISPANIC/LATINO RESIDENTS OF TYPICAL DRIVING AGE TO STOP RATES FOR WHITE RESIDENTS OF TYPICAL DRIVING AGE (2019-2021)

	2019	2020	2021
Ratio of Stop Rate for Black Residents to Stop Rate for White Residents	2.9	3.1	2.6
Ratio of Stop Rate for Hispanic/Latino Residents to Stop Rate for White Residents	1.1	1.2	1.5
Ratio of Stop Rate for Residents of Other Races to Stop Rate for White Residents	0.6	0.6	0.6

Notes:

[1]The ratio of the traffic stop rate for Black residents of driving age to the traffic stop rate for white residents of driving age is calculated as the number of traffic stops per 1000 Black residents (16-80 years old) divided by the number of traffic stops per 1000 white residents (16-80 years old). The same calculation is performed for the other race or ethnic categories.

Sources:

Milwaukee Police Department Stop Data, 2019, 2020, 2021

U.S. Census American Community Survey 5-Year Estimates, 2014-2018

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

U.S. Census American Community Survey 5-Year Estimates, 2016-2020

B-5B: RATIO OF STOP RATES FOR BLACK AND HISPANIC/LATINO DRIVERS OR RESIDENTS TOSTOP RATES FOR WHITE DRIVERS OR RESIDENTS (2021)

	Traffic Stops	Field Interviews	No-Action Encounters	Frisks
Ratio of Stop Rate for Black Residents to Stop Rate for White Residents	2.6	6.6	5.7	12.2
Ratio of Stop Rate for Hispanic/Latino Drivers/Residents to Stop Rate for White Drivers/Residents	1.5	1.8	1.7	4.0
Ratio of Stop Rate for Drivers/Residents of Other Races to Stop Rate for White Drivers/Residents	0.6	0.9	3.0	1.0

Notes:

[1]The ratio of the traffic stop rate for Black residents of driving age to the traffic stop rate for white residents of driving age is calculated as the number of traffic stops per 1000 Black residents (16-80 years old) divided by the number of traffic stops per 1000 white residents (16-80 years old). The same calculation is performed for the other encounter types and other race or ethnic categories.

[2]The ratio of the field interview rate for Black residents to the field interview rate for white residents is calculated as the number field interviews per 1,000 Black residents (of all ages) divided by the number field interviews per 1,000 white residents (of all ages). 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, 2021

U.S. Census American Community Survey 5-Year Estimates, 2016-2020

B-6A: SUMMARY OF VARIABLES IN TRAFFIC STOP RATE ANALYSIS (2019)

	Mean	Standard Deviation	Minimum	Maximum	Observations
Traffic Stop Rate	7.36	9.45	0.00	67.17	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	0.39	0.28	0.04	0.72	448
Hispanic/Latino Share of District	0.18	0.23	0.04	0.70	448
Other Race Share of District	0.07	0.02	0.04	0.11	448
White Share of District	0.36	0.22	0.17	0.76	448
Young Share of District	0.32	0.12	0.23	0.60	448
Male Share of District	0.48	0.03	0.46	0.54	448
Unemployment Rate in District	0.10	0.04	0.03	0.15	448
Lagged Total Crime Rate in District	0.09	0.03	0.03	0.15	448
Lagged Violent Crime Rate in District	0.03	0.02	0.01	0.07	448
Lagged Property Crime Rate in District	0.04	0.01	0.02	0.06	448

Notes:
[1]The unit of observation in the traffic stop rate analysis is MPD district x race or ethnicity x age x gender x quarter.
[2]The dataset contains one observation for each race or ethnicity (Black, Hispanic/Latino, other race, and white) of each gender found in the dataset (Male, Female) and each age group (younger or older than 35) in each MPD district in each quarter of 2019. 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, 2019

U.S. Census American Community Survey 5-Year Estimates, 2014-2018

Milwaukee Part I and Part II Crime Data, 2018

B-6B: SUMMARY OF VARIABLES IN TRAFFIC STOP RATE ANALYSIS (2020)

	Mean	Standard Deviation	Minimum	Maximum	Observations
Traffic Stop Rate	6.02	9.18	0.00	80.64	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:
[1]The unit of observation in the traffic stop rate analysis is MPD district x race or ethnicity x age x gender x quarter.
[2]The dataset contains one observation for each race or ethnicity (Black, Hispanic/Latino, other race, and white) of each gender found in the dataset (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

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

Milwaukee Part I and Part II Crime Data, 2019

B-6C: SUMMARY OF VARIABLES IN TRAFFIC STOP RATE ANALYSIS (2021)

	Mean	Standard Deviation	Minimum	Maximum	Observations
Traffic Stop Rate	8.91	14.82	0.00	117.52	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	0.19	0.23	0.05	0.72	448
Other Race Share of District	0.08	0.03	0.04	0.13	448
White Share of District	0.35	0.22	0.17	0.74	448
Young Share of District	0.31	0.12	0.24	0.59	448
Male Share of District	0.49	0.03	0.46	0.54	448
Unemployment Rate in District	6.43	1.65	3.73	8.38	448
Lagged Total Crime Rate in District	0.10	0.04	0.04	0.15	448
Lagged Violent Crime Rate in District	0.04	0.02	0.01	0.05	448
Lagged Property Crime Rate in District	0.04	0.01	0.02	0.06	448

Notes:
[1]The unit of observation in the traffic stop rate analysis is MPD district x race or ethnicity x age x gender x quarter.
[2]The dataset contains one observation for each race or ethnicity (Black, Hispanic/Latino, other race, and white) of each gender found in the dataset (Male, Female) and each age group (younger or older than 35) in each MPD district in each quarter of 2021. 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, 2021

U.S. Census American Community Survey 5-Year Estimates, 2016-2020

Milwaukee Part I and Part II Crime Data, 2020

B-7A: TRAFFIC STOP RATE ESTIMATION RESULTS (2019)

Dependent Variable: Traffic Stops per 1000 Residents of Driving Age	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Black	13.07**	13.07**	13.07**	13.07**	13.07**	13.07**	13.07**
	(3.525)	(3.529)	(3.533)	(3.545)	(3.549)	(3.554)	(3.558)
Hispanic/Latino	-0.119	-0.119	-0.119	-0.119	-0.119	-0.119	-0.119
	(1.232)	(1.234)	(1.235)	(1.239)	(1.241)	(1.242)	(1.243)
Other Race	-2.111**	-2.111**	-2.111**	-2.111**	-2.111**	-2.111**	-2.111**
	(0.784)	(0.785)	(0.786)	(0.789)	(0.790)	(0.791)	(0.792)
Male		4.472***	4.472***	4.472***	4.472***	4.472***	4.472***
		(0.842)	(0.842)	(0.845)	(0.846)	(0.847)	(0.848)
Young			3.672***	3.672***	3.672***	3.672***	3.672***
			(0.673)	(0.675)	(0.676)	(0.677)	(0.678)
Black Share of District				-7.523**	-11.34***	-9.940***	-18.19***
				(2.568)	(0.725)	(0.974)	(0)
Hispanic/Latino Share of District				1.892	-2.788**	-5.953***	-14.89***
				(2.566)	(0.806)	(1.481)	(0)
Other Share of District				-56.41**	-61.11***	-56.35***	-35.66***
				(16.92)	(14.03)	(10.58)	(0)
Young Share of District					-10.70***	-20.05***	-30.26***
					(1.135)	(4.103)	(0)
Male Share of District						52.28**	122.0***
						(18.40)	(6.98e-11)
District Unemployment Rate							70.52***
							(0)
Constant	4.651***	2.415***	0.579	7.207**	13.23***	-9.494	-43.51***
	(0.963)	(0.603)	(0.474)	(2.155)	(1.469)	(7.479)	(1.435)
Observations	448	448	448	448	448	448	448
R-squared	0.409	0.466	0.503	0.606	0.616	0.617	0.620

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

Notes:
[1]Observations in the data are at the level of race or ethnicity, age, gender, district, and quarter of the year.
[2]The dependent variable is the total number of traffic stops per 1000 residents of typical driving age (16-80 years old) by race or ethnicity, age, gender, district, and quarter of the year.
[3]Each variable's coefficient measures its relationship with the stop rate per 1000 residents of driving age.
[4]Other 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.
[5]Regression 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). Model 7 suffers from similar misspecification due to significant correlation between the Black Share of District and Unemployment Rate.
[6]"Male Share of District" is based on the residential population and varies by district.
[7]Standard errors are robust and clustered by MPD district.
[8]In Model 1, the constant provides an estimate of the white traffic stop rate.
Sources:
Milwaukee Police Department Stop Data, 2019
U.S. Census American Community Survey 5-Year Estimates, 2014-2018

B-7B: TRAFFIC STOP RATE ESTIMATION RESULTS (2020)

Dependent Variable: Traffic Stops per 1000 Residents of Driving Age	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Black	11.63** (3.467)	11.63** (3.471)	11.63** (3.475)	11.63** (3.487)	11.63** (3.491)	11.63** (3.495)	11.63** (3.499)
Hispanic/Latino	0.376 (0.931)	0.376 (0.932)	0.376 (0.933)	0.376 (0.937)	0.376 (0.938)	0.376 (0.939)	0.376 (0.940)
Other Race	-1.430** (0.391)	-1.430** (0.391)	-1.430** (0.392)	-1.430** (0.393)	-1.430** (0.394)	-1.430** (0.394)	-1.430** (0.395)
Male		3.557*** (0.709)	3.557*** (0.710)	3.557*** (0.713)	3.557*** (0.713)	3.557*** (0.714)	3.557*** (0.715)
Young			3.402*** (0.579)	3.402*** (0.581)	3.402*** (0.581)	3.402*** (0.582)	3.402*** (0.583)
Black Share of District				-6.627 (3.414)	-12.42*** (0.541)	-15.68*** (1.420)	-26.10*** (0)
Hispanic/Latino Share of District				4.911 (3.624)	-2.287** (0.842)	-0.728 (0.830)	-18.51*** (5.72e-11)
Other Share of District				-16.01 (11.42)	-29.32** (8.619)	-47.95*** (10.40)	-22.99*** (7.99e-11)
Young Share of District					-14.11*** (1.121)	-3.971 (4.313)	-38.01*** (1.02e-10)
Male Share of District						-64.83** (25.06)	115.8*** (5.43e-10)
District Unemployment Rate							1.963*** (0)
Constant	3.382*** (0.639)	1.603*** (0.352)	-0.0978 (0.338)	2.747 (2.859)	11.72*** (1.307)	42.35** (11.64)	-42.87*** (1.431)
Observations	448	448	448	448	448	448	448
R-squared	0.325	0.363	0.397	0.488	0.505	0.506	0.507

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

Notes:
[1]Observations in the data are at the level of race or ethnicity, age, gender, district, and quarter of the year.
[2]The dependent variable is the total number of traffic stops per 1000 residents of typical driving age (16-80 years old) by race or ethnicity, age, gender, district, and quarter of the year.
[3]Each variable's coefficient measures its relationship with the stop rate per 1000 residents of driving age.
[4]Other 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.
[5]Regression 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). Model 7 suffers from similar misspecification due to significant correlation between the Black Share of District and Unemployment Rate.
[6]"Male Share of District" is based on the residential population and varies by district.
[7]Standard errors are robust and clustered by MPD district.
[8]In Model 1, the constant provides an estimate of the white traffic stop rate.
Sources:
Milwaukee Police Department Stop Data, 2020
U.S. Census American Community Survey 5-Year Estimates, 2015-2019

B-7C: TRAFFIC STOP RATE ESTIMATION RESULTS (2021)

Dependent Variable: Traffic Stops per 1000 Residents of Driving Age	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Black	17.94** (7.316)	17.94** (7.325)	17.94** (7.333)	17.94* (7.358)	17.94* (7.366)	17.94* (7.375)	17.94* (7.383)
Hispanic/Latino	0.750 (1.362)	0.750 (1.363)	0.750 (1.365)	0.750 (1.369)	0.750 (1.371)	0.750 (1.372)	0.750 (1.374)
Other Race	-1.883** (0.565)	-1.883** (0.566)	-1.883** (0.567)	-1.883** (0.569)	-1.883** (0.569)	-1.883** (0.570)	-1.883** (0.571)
Male		4.337** (1.385)	4.337** (1.387)	4.337** (1.391)	4.337** (1.393)	4.337** (1.395)	4.337** (1.396)
Young			4.789** (1.419)	4.789** (1.424)	4.789** (1.425)	4.789** (1.427)	4.789** (1.428)
Black Share of District				-9.563 (5.751)	-19.21*** (0.368)	-17.74*** (1.049)	-25.32*** (0)
Hispanic/Latino Share of District				17.90** (6.109)	6.446*** (0.405)	5.104*** (0.796)	-1.958*** (0)
Other Share of District				-0.508 (17.29)	-6.011 (4.524)	-2.689 (4.671)	-8.188*** (0)
Young Share of District					-26.05*** (0.403)	-31.75*** (3.685)	-41.05*** (5.02e-11)
Male Share of District						36.04 (21.86)	69.57*** (2.64e-10)
District Unemployment Rate							1.038*** (0)
Constant	4.702*** (1.127)	2.533*** (0.559)	0.139 (0.666)	0.519 (4.686)	14.97*** (3.100)	-1.337 (10.33)	-16.70*** (3.152)
Observations	448	448	448	448	448	448	448
R-squared	0.291	0.313	0.339	0.513	0.533	0.533	0.533

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

Notes:
[1]Observations in the data are at the level of race or ethnicity, age, gender, district, and quarter of the year.
[2]The dependent variable is the total number of traffic stops per 1000 residents of typical driving age (16-80 years old) by race or ethnicity, age, gender, district, and quarter of the year.
[3]Each variable's coefficient measures its relationship with the stop rate per 1000 residents of driving age.
[4]Other 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.
[5]Regression 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). Model 7 suffers from similar misspecification due to significant correlation between the Black Share of District and Unemployment Rate.
[6]"Male Share of District" is based on the residential population and varies by district.
[7]Standard errors are robust and clustered by MPD district.
[8]In Model 1, the constant provides an estimate of the white traffic stop rate.
Sources:
Milwaukee Police Department Stop Data, 2021
U.S. Census American Community Survey 5-Year Estimates, 2016-2020

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

	Mean	Standard Deviation	Minimum	Maximum	Observations
Field Interview Rate	1.16	2.65	0.00	17.83	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	0.19	0.23	0.05	0.72	112
Other Race Share of District	0.08	0.03	0.04	0.13	112
White Share of District	0.35	0.22	0.17	0.74	112
Young Share of District	0.31	0.12	0.24	0.59	112
Male Share of District	0.49	0.03	0.46	0.54	112
Unemployment Rate in District	6.43	1.66	3.73	8.38	112
Lagged Total Crime Rate in District	0.10	0.04	0.04	0.15	112
Lagged Violent Crime Rate in District	0.04	0.02	0.01	0.05	112
Lagged Property Crime Rate in District	0.04	0.01	0.02	0.06	112

Notes:
[1]The unit of observation in the field interview rate analysis is MPD district x race or ethnicity x age x gender.
[2]The 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 2021. 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, 2021
U.S. Census American Community Survey 5-Year Estimates, 2016-2020
Milwaukee Part I and Part II Crime Data, 2020

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	3.179**	3.179**	3.179**	3.179**	3.179**	3.179**	3.179**
	(0.884)	(0.888)	(0.892)	(0.905)	(0.910)	(0.914)	(0.919)
Hispanic/Latino	0.0966	0.0966	0.0966	0.0966	0.0966	0.0966	0.0966
	(0.191)	(0.192)	(0.193)	(0.196)	(0.197)	(0.198)	(0.199)
Other Race	-0.164	-0.164	-0.164	-0.164	-0.164	-0.164	-0.164
	(0.145)	(0.146)	(0.147)	(0.149)	(0.150)	(0.150)	(0.151)
Male		1.567**	1.567**	1.567**	1.567**	1.567**	1.567**
		(0.451)	(0.453)	(0.460)	(0.462)	(0.464)	(0.466)
Young			0.788***	0.788***	0.788***	0.788***	0.788***
			(0.178)	(0.180)	(0.181)	(0.182)	(0.183)
Black Share of District				-1.287***	-1.159***	-2.704**	-8.178***
				(0.241)	(0.231)	(0.786)	(0)
Hispanic/Latino Share of District				1.561***	1.712***	3.116***	-1.985***
				(0.286)	(0.360)	(0.596)	(0)
Other Share of District				-7.746*	-7.673*	-11.15**	-15.12***
				(3.915)	(3.880)	(3.497)	(0)
Young Share of District					0.345	6.310*	-0.408***
					(0.422)	(2.758)	(0)
Male Share of District						-37.69*	-13.48***
						(16.36)	(0)
District Unemployment Rate							0.750***
							(0)
Constant	0.383*	-0.400**	-0.794***	0.0486	-0.143	16.91*	5.821***
	(0.177)	(0.124)	(0.206)	(0.567)	(0.467)	(7.413)	(0.509)
Observations	112	112	112	112	112	112	112
R-squared	0.278	0.367	0.389	0.470	0.470	0.473	0.476

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

Notes:
[1]Observations in the data are at the level of race or ethnicity, age, gender, and district.
[2]The dependent variable is the total number of field interviews per 1000 residents by race or ethnicity, age, gender, and district.
[3]Each variable's coefficient measures its relationship with the stop rate per 1,000 residents.
[4]Other 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.
[5]Regression 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). Model 7 suffers from similar misspecification due to significant correlation between the Black Share of District and Unemployment Rate.
[6]"Male Share of District" is based on the residential population and varies by district.
[7]Standard errors are robust and clustered by MPD district.
[8]In Model 1, the constant provides an estimate of the white traffic stop rate.
Sources:
Milwaukee Police Department Stop Data, 2021
U.S. Census American Community Survey 5-Year Estimates, 2016-2020
Milwaukee Part I and Part II Crime Data, 2020

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

	Mean	Standard Deviation	Minimum	Maximum	Observations
No-Action Encounter Rate	0.15	0.30	0.00	1.71	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	0.29	0.04	0.72	56
Hispanic/Latino Share of District	0.19	0.23	0.05	0.72	56
Other Race Share of District	0.08	0.03	0.04	0.13	56
White Share of District	0.35	0.22	0.17	0.74	56
Young Share of District	0.31	0.12	0.24	0.59	56
Male Share of District	0.49	0.03	0.46	0.54	56
Unemployment Rate in District	6.43	1.66	3.73	8.38	56
Lagged Total Crime Rate in District	0.10	0.04	0.04	0.15	56
Lagged Violent Crime Rate in District	0.04	0.02	0.01	0.05	56
Lagged Property Crime Rate in District	0.04	0.01	0.02	0.06	56

Notes:
[1]The unit of observation in the no-action encounter rate analysis is MPD district x race or ethnicity x gender.
[2]The 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 2021. By construction, the race or ethnicity indicator variables have a mean of one quarter and the gender variable has a mean of one-half.
[3]Age is not included in this analysis because age is not documented for no-action encounters.

Sources:
Milwaukee Police Department Stop Data, 2021
U.S. Census American Community Survey 5-Year Estimates, 2016-2020

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	0.330**	0.330**	0.330**	0.330**	0.330**	0.330**
	(0.106)	(0.107)	(0.111)	(0.112)	(0.113)	(0.114)
Hispanic/Latino	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120
	(0.0456)	(0.0461)	(0.0475)	(0.0480)	(0.0485)	(0.0490)
Other Race	0.0686***	0.0686***	0.0686***	0.0686***	0.0686***	0.0686***
	(0.0143)	(0.0144)	(0.0149)	(0.0150)	(0.0152)	(0.0154)
Male		0.217**	0.217**	0.217**	0.217**	0.217**
		(0.0791)	(0.0815)	(0.0824)	(0.0833)	(0.0842)
Black Share of District			-0.212	0.00728	-0.207***	-0.466***
			(0.131)	(0.0298)	(0.0388)	(0)
Hispanic/Latino Share of District			0.176	0.436***	0.631***	0.389***
			(0.137)	(0.0407)	(0.0294)	(0)
Other Share of District			-0.816	-0.691	-1.173***	-1.361***
			(0.700)	(0.468)	(0.173)	(0)
Young Share of District				0.591***	1.419***	1.101***
				(0.0449)	(0.136)	(0)
Male Share of District					-5.229***	-4.083***
					(0.808)	(0)
District Unemployment Rate						0.0355***
						(0)
Constant	0.0508	-0.0576*	0.0582	-0.270**	2.096***	1.572***
	(0.0309)	(0.0275)	(0.135)	(0.0861)	(0.369)	(0.0710)
Observations	56	56	56	56	56	56
R-squared	0.205	0.340	0.454	0.479	0.482	0.483

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

Notes:

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

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

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

[4]Other 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.

[5]Regression 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). Model 6 suffers from similar misspecification due to significant correlation between the Black Share of District and Unemployment Rate.

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

[7]Standard errors are robust and clustered by MPD district.

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

Sources:

Milwaukee Police Department Stop Data, 2021

U.S. Census American Community Survey 5-Year Estimates, 2016-2020

B-12: SUMMARY OF VARIABLES IN FRISK RATE ANALYSIS

	Mean	Standard Deviation	Minimum	Maximum	Observations
Frisk Rate	0.71	2.39	0.00	22.28	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	0.19	0.23	0.05	0.72	112
Other Race Share of District	0.08	0.03	0.04	0.13	112
White Share of District	0.35	0.22	0.17	0.74	112
Young Share of District	0.31	0.12	0.24	0.59	112
Male Share of District	0.49	0.03	0.46	0.54	112
Unemployment Rate in District	6.43	1.66	3.73	8.38	112
Lagged Total Crime Rate in District	0.10	0.04	0.04	0.15	112
Lagged Violent Crime Rate in District	0.04	0.02	0.01	0.05	112
Lagged Property Crime Rate in District	0.04	0.01	0.02	0.06	112

Notes:
[1]The unit of observation in the frisk rate analysis is MPD district x race or ethnicity x age x gender.
[2]The 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 2021. 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, 2021
U.S. Census American Community Survey 5-Year Estimates, 2016-2020

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	2.256* (1.010)	2.256* (1.015)	2.256* (1.019)	2.256* (1.034)	2.256* (1.039)	2.256* (1.044)	2.256* (1.049)
Hispanic/Latino	0.138 (0.156)	0.138 (0.156)	0.138 (0.157)	0.138 (0.159)	0.138 (0.160)	0.138 (0.161)	0.138 (0.162)
Other Race	-0.102* (0.0467)	-0.102* (0.0469)	-0.102* (0.0472)	-0.102* (0.0478)	-0.102* (0.0481)	-0.102* (0.0483)	-0.102* (0.0486)
Male		1.154** (0.412)	1.154** (0.414)	1.154** (0.419)	1.154** (0.422)	1.154** (0.424)	1.154** (0.426)
Young			0.624* (0.274)	0.624* (0.278)	0.624* (0.279)	0.624* (0.281)	0.624* (0.282)
Black Share of District				0.992* (0.413)	1.414** (0.387)	-1.216 (1.273)	-10.08*** (0)
Hispanic/Latino Share of District				-0.302 (0.478)	0.199 (0.601)	2.589** (0.966)	-5.674*** (0)
Other Share of District				-12.38 (6.694)	-12.14 (6.494)	-18.05** (5.664)	-24.49*** (0)
Young Share of District					1.139 (0.702)	11.29** (4.468)	0.411*** (0)
Male Share of District						-64.17* (26.51)	-24.94*** (0)
District Unemployment Rate							1.214*** (0)
Constant	0.133** (0.0407)	-0.444* (0.221)	-0.756* (0.355)	-0.0602 (0.379)	-0.692 (0.693)	28.35* (11.89)	10.38*** (0.609)
Observations	112	112	112	112	112	112	112
R-squared	0.167	0.226	0.243	0.280	0.281	0.290	0.300

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

Notes:
[1]Observations in the data are at the level of race or ethnicity, gender, age, and district.
[2]The dependent variable is the total number of frisks per 1,000 residents by race or ethnicity, gender, age, and district.
[3]Each variable's coefficient measures its relationship with the stop rate per 1,000 residents.
[4]Other 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.
[5]Regression 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). Model 7 suffers from similar misspecification due to significant correlation between the Black Share of District and Unemployment Rate.
[6]"Male Share of District" is based on the residential population and varies by district.
[7]Standard errors are robust and clustered by MPD district.
[8]In Model 1, the constant provides an estimate of the white traffic stop rate.
Sources:
Milwaukee Police Department Stop Data, 2021
U.S. Census American Community Survey 5-Year Estimates, 2016-2020

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	33,603	447	1.3%	0.19%	21.2%	0.0%
Hispanic/Latino	9,527	74	0.8%	0.1%	24.8%	0.0%
Other Race	1,727	8	0.5%	0.0%	15.7%	0.0%
White	12,074	33	0.3%	0.1%	10.4%	0.0%
Total	56,931	562	1.0%	0.2%	20.3%	0.0%

Notes:
[1]The frisk rates presented in this table excludes 763 encounters categorized as a traffic stop, field interview, or no-action encounter where race and ethnicity information were missing.
[2]There were 3 frisks documented in the excluded encounters.
[3]This table excludes 2,360 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.

Source:
Milwaukee Police Department Stop Data, 2021

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	4.909*** (2.256 - 10.69)	4.592*** (2.187 - 9.644)	3.076*** (1.756 - 5.390)
Hispanic/Latino	2.889*** (2.088 - 3.998)	2.707*** (1.912 - 3.832)	2.440*** (1.778 - 3.349)
Male		6.234*** (5.046 - 7.700)	5.120*** (4.197 - 6.245)
Young		1.284 (0.937 - 1.760)	1.190 (0.905 - 1.563)
Time of Day Fixed Effects Quarter Fixed Effects District Fixed Effects			X X X
Constant	0.0028*** (0.002 - 0.005)	0.0006*** (0.0003 - 0.0011)	0.0003*** (0.0002 - 0.0005)
Observations	52,905	52,565	52,565

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

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

Source:
Milwaukee Police Department Stop Data, 2021

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

Race/Ethnicity	District	Predicted Probability	95% Confidence Interval	
Black	District 1	0.86%	0.008	0.009
Hispanic/Latino	District 1	-	-	-
White	District 1	0.16%	0.002	0.002
Black	District 2	1.03%	0.010	0.011
Hispanic/Latino	District 2	1.35%	0.013	0.014
White	District 2	0.67%	0.007	0.007
Black	District 3	1.24%	0.012	0.013
Hispanic/Latino	District 3	0.25%	0.002	0.003
White	District 3	0.28%	0.003	0.003
Black	District 4	1.11%	0.011	0.011
Hispanic/Latino	District 4	0.96%	0.009	0.010
White	District 4	0.38%	0.004	0.004
Black	District 5	2.85%	0.028	0.030
Hispanic/Latino	District 5	1.34%	0.013	0.014
White	District 5	0.26%	0.002	0.003
Black	District 6	0.63%	0.006	0.007
Hispanic/Latino	District 6	0.38%	0.004	0.004
White	District 6	0.24%	0.002	0.003
Black	District 7	0.92%	0.009	0.010
Hispanic/Latino	District 7	0.57%	0.005	0.006
White	District 7	-	-	-

Notes:
[1]Predicted probabilities are estimated from a full district by race interaction model that controls for age, gender, time of day, and quarter.
[2]The predicted probabilities estimate the rate of frisks per police encounter for a given race or ethnicity in a given district.
[3]There were no documented frisks with Hispanic/Latino subjects in District 1 or with white subjects in District 7.

Source:
Milwaukee Police Department Stop Data, 2021

B-17: POLICE STOP DISPARITIES, 2019 - 2021

Race/Ethnicity Compared to White Residents/Stop Subjects	2019	2020	2021
Traffic Stop Disparities			
Black (Licensed Driver Benchmark)	8.4***	9.5***	N/A
Black (Census Benchmark)	3.81**	4.44**	4.8*
Hispanic/Latino (Licensed Driver Benchmark)	2.4***	2.9***	N/A
Hispanic/Latino (Census Population Benchmark)	not sig	not sig	not sig
Other Race (Licensed Driver Benchmark)	not sig	not sig	N/A
Other Race (Census Population Benchmark)	0.55**	0.58**	0.60**
Field Interview Disparities			
Black	5.16**	5.71**	9.3**
Hispanic/Latino	not sig	not sig	not sig
Other Race	not sig	not sig	not sig
No-Action Encounter Disparities			
Black	not sig	8.36*	7.5**
Hispanic/Latino	not sig	2.13*	not sig
Other Race	not sig	not sig	2.35***
Frisk Disparities (Among Residents)			
Black	7.85**	9.97**	17.96*
Hispanic/Latino	not sig	not sig	not sig
Other Race	-4.98**	-12.31**	-23.31*
Frisk Disparities (Among Stop Subjects)			
Black	2.0***	2.3***	3.1***
Hispanic/Latino	1.3*	1.6***	2.4***
Other Race	N/A	N/A	N/A

Statistical Significance Thresholds *** p<0.01, ** p<0.05, * p<0.1

Notes:
[1]Quantities represent the magnitude of the disparity with respect to stop rates for white residents or frisks among stop subjects.
[2]Frisk disparities among stop subjects were not calculated for individuals of races or ethnicities other than Black or Hispanic/Latino due to extremely low numbers of frisks among individuals of the following race and ethnic categories: Native American or Alaskan Native, Asian, Native Hawaiian or other Pacific Islander.

Source:
CJI Annual Data Analysis Reports: https://www.cjinstitute.org/city-of-milwaukee-settlement-agreement/

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	185	85%	177	91%	183	89%	185	81%
Hispanic/ Latino	42	81%	30	83%	39	95%	45	58%
Other Race	3	33%	4	75%	13	77%	8	100%
White	34	77%	42	91%	38	90%	35	74%
Missing Race Information	5	40%	1	0%	11	18%	4	25%
Total	269	82%	254	89%	284	87%	277	76%

Notes:
[1]Other race refers to individuals from the following race categories: Native American or Alaskan Native, Asian, and Native Hawaiian or other Pacific Islander.
[2]IOARS determinations as made in CJI's semiannual reviews.

Source:
Milwaukee Police Department Stop Data, 2021

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	97	54%	72	58%	88	41%	74	60%
Hispanic/ Latino	20	30%	14	50%	11	18%	7	57%
Other Race	0	N/A	1	100%	3	33%	2	0%
White	8	50%	6	17%	3	33%	4	25%
Missing Race Information	1	100%	0	N/A	1	0%	1	100%
Total	126	50%	93	55%	106	38%	88	57%

Notes:
[1]Other race refers to individuals from the following race categories: Native American or Alaskan Native, Asian, and Native Hawaiian or other Pacific Islander.
[2]IOARS determinations as made in CJI's semiannual reviews.

Source:
Milwaukee Police Department Stop Data, 2021

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	2021 Stops	2021 IOARS
District 1	8	88%	12	92%	19	74%	11	73%	50	80%
District 2	59	78%	45	84%	39	90%	51	71%	194	80%
District 3	36	81%	27	93%	34	85%	38	61%	135	79%
District 4	40	93%	37	95%	38	90%	49	78%	164	88%
District 5	48	77%	58	88%	62	86%	34	88%	202	85%
District 6	28	89%	38	95%	42	93%	54	74%	162	86%
District 7	35	94%	28	96%	40	80%	37	87%	140	89%
Missing District	10	20%	6	17%	8	100%	3	100%	27	52%
NULL	5	100%	3	100%	2	100%	0	N/A	10	100%
Total	269	82%	254	89%	284	87%	277	76%	1,084	83%

Notes:
[1]IOARS determinations as made in CJI's semiannual reviews.

Source:
Milwaukee Police Department Stop Data, 2021

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	2021 Frisks	2021 IOARS
1	4	50%	1	100%	3	0%	6	50%	14	43%
2	33	24%	21	52%	14	29%	11	55%	79	37%
3	13	62%	13	54%	10	20%	15	47%	51	47%
4	20	60%	12	67%	14	50%	17	59%	63	59%
5	35	51%	30	53%	42	43%	18	78%	125	53%
6	7	57%	6	17%	9	22%	8	38%	30	33%
7	14	79%	10	70%	14	50%	12	58%	50	64%
Missing District	0	N/A	0	N/A	0	N/A	1	0%	1	0%
Total	126	50%	93	55%	106	38%	88	57%	413	49%

Notes:
[1]IOARS determinations as made in CJI's semiannual reviews.

Source:
Milwaukee Police Department Stop Data, 2021

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

	Mean	Standard Deviation	Minimum	Maximum	Obs.
IOARS Stop Rate	0.86	0.34	0.00	1.00	955
Black	0.71	0.46	0.00	1.00	955
Hispanic/Latino	0.15	0.36	0.00	1.00	955
Male	0.76	0.43	0.00	1.00	955
Young	0.67	0.47	0.00	1.00	955
Black Share of District	0.41	0.29	0.04	0.72	955
Hispanic/Latino Share of District	0.22	0.25	0.05	0.72	955
White Share of District	0.29	0.18	0.17	0.74	955
Male Share of District	0.48	0.02	0.46	0.54	955
Young Share of District	0.28	0.08	0.24	0.59	955
Unemployment Rate in District	6.69	1.60	3.73	8.38	955
Lagged Total Crime Rate in District	0.10	0.04	0.04	0.15	955
Lagged Violent Crime Rate in District	0.04	0.02	0.01	0.05	955
Lagged Property Crime Rate in District	0.04	0.01	0.02	0.06	955

Notes:
[1]IOARS determinations as made in CJI's semiannual reviews.

Sources:
Milwaukee Police Department Stop Data, 2021
U.S. Census American Community Survey 5-Year Estimates, 2016-2020
Milwaukee Part 1 and Part 2 Crime data, 2020

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	1.211 (0.458 - 3.199)	1.234 (0.458 - 3.324)	1.071 (0.400 - 2.873)	1.119 (0.429 - 2.919)	1.159 (0.450 - 2.985)	1.166 (0.450 - 3.021)	1.165 (0.449 - 3.021)
Hispanic/Latino	0.631 (0.312 - 1.277)	0.641 (0.310 - 1.327)	0.518* (0.240 - 1.118)	0.538 (0.225 - 1.288)	0.526 (0.212 - 1.304)	0.526 (0.212 - 1.304)	0.527 (0.213 - 1.304)
Male		0.839 (0.546 - 1.289)	0.763 (0.468 - 1.243)	0.781 (0.487 - 1.254)	0.782 (0.486 - 1.257)	0.789 (0.489 - 1.273)	0.791 (0.490 - 1.277)
Young			1.194 (0.863 - 1.652)	1.192 (0.854 - 1.662)	1.209 (0.870 - 1.680)	1.162 (0.843 - 1.602)	1.163 (0.843 - 1.603)
Black Share of District				0.603 (0.262 - 1.387)	0.411*** (0.303 - 0.557)	3.630*** (1.595 - 8.260)	7.827*** (3.025 - 20.25)
Hispanic/Latino Share of District				0.546 (0.221 - 1.350)	0.382*** (0.209 - 0.698)	0.0440*** (0.0352 - 0.0549)	0.0905*** (0.0601 - 0.136)
Young Share of District					0.134** (0.0217 - 0.825)	4.11e-05*** (1.65e-05 - 0.000103)	0.000112*** (4.86e-05 - 0.000258)
Male Share of District						3.381e+23*** (1.190e+20 - 9.607e+26)	8.111e+21*** (5.362e+19 - 1.227e+24)
District Unemployment Rate							0.899*** (0.849 - 0.952)
Constant	5.619*** (2.548 - 12.39)	6.334*** (3.312 - 12.11)	7.600*** (3.592 - 16.08)	9.965*** (2.325 - 42.71)	20.90*** (7.326 - 59.63)	4.88e-10*** (0 - 1.23e-08)	2.72e-09*** (3.77e-10 - 1.96e-08)
Observations	999	999	955	955	955	955	955

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

Notes:
[1]IOARS determinations as made in CJI's semiannual reviews.
[2]Each observation represents a traffic stop, field interview, or no-action encounter with police.
[3]Regression coefficients represent a change in the log odds of an encounter given a one unit increase in each regressor.
[4]The constant for Model 1 represents the log odds of an encounter meeting the IOARS standard for white subjects.
[5]Standard errors are clustered by MPD district.
Sources:
Milwaukee Police Department Stop Data, 2021
U.S. Census American Community Survey 5-Year Estimates, 2016-2020
Milwaukee Part 1 and Part 2 Crime data, 2020

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

	Mean	Standard Deviation	Minimum	Maximum	Observations
IOARS Frisk Rate	0.49	0.50	0.00	1.00	392
Black	0.82	0.38	0.00	1.00	392
Hispanic/Latino	0.13	0.34	0.00	1.00	392
Male	0.92	0.27	0.00	1.00	392
Young	0.71	0.45	0.00	1.00	392
Black Share of District	0.47	0.28	0.04	0.72	392
Hispanic/Latino Share of District	0.20	0.26	0.05	0.72	392
White Share of District	0.25	0.15	0.17	0.74	392
Male Share of District	0.48	0.02	0.46	0.54	392
Young Share of District	0.28	0.07	0.24	0.59	392
Unemployment Rate in District	7.15	1.36	3.73	8.38	392
Lagged Total Crime Rate in District	0.11	0.03	0.04	0.15	392
Lagged Violent Crime Rate in District	0.04	0.01	0.01	0.05	392
Lagged Property Crime Rate in District	0.05	0.01	0.02	0.06	392

Notes:
[1]IOARS determinations as made in CJI's semiannual reviews.

Sources:
Milwaukee Police Department Stop Data, 2021
U.S. Census American Community Survey 5-Year Estimates, 2016-2020
Milwaukee Part 1 and Part 2 Crime data, 2020

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	2.058 (0.780 - 5.432)	2.086 (0.774 - 5.620)	1.843 (0.681 - 4.987)	1.215 (0.372 - 3.963)	1.205 (0.350 - 4.147)	1.195 (0.344 - 4.158)	1.160 (0.332 - 4.053)
Hispanic/ Latino	1.069 (0.360 - 3.180)	1.058 (0.346 - 3.235)	0.906 (0.292 - 2.812)	1.054 (0.325 - 3.415)	1.052 (0.321 - 3.443)	1.040 (0.314 - 3.443)	1.021 (0.307 - 3.402)
Male		1.430 (0.593 - 3.446)	1.397 (0.563 - 3.464)	1.339 (0.528 - 3.398)	1.340 (0.527 - 3.411)	1.338 (0.525 - 3.411)	1.349 (0.525 - 3.461)
Young			1.221 (0.905 - 1.648)	1.225 (0.879 - 1.706)	1.226 (0.880 - 1.707)	1.200 (0.860 - 1.675)	1.224 (0.865 - 1.732)
Black Share of District				6.136*** (3.400 - 11.07)	6.458*** (3.176 - 13.13)	16.38*** (5.953 - 45.06)	351.2*** (90.20 - 1,368)
Hispanic/ Latino Share of District				1.946*** (1.206 - 3.140)	2.040*** (1.278 - 3.258)	0.786 (0.425 - 1.453)	13.45*** (3.876 - 46.68)
Young Share of District					1.196 (0.198 - 7.215)	0.0439** (0.00361 - 0.534)	2.278 (0.200 - 26.01)
Male Share of District						1.291e+10*** (11,627 - 1.434e+16)	9,490** (2.301 - 3.914e+07)
District Unemployment Rate							0.663*** (0.583 - 0.754)
Constant	0.538 (0.213 - 1.362)	0.383 (0.116 - 1.262)	0.378* (0.122 - 1.172)	0.145*** (0.0426 - 0.493)	0.134*** (0.0410 - 0.438)	3.68e-06*** (3.55e-09 - 0.00382)	0.00229*** (3.86e-05 - 0.136)
Observations	403	403	392	392	392	392	392

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

Notes:
[1]IOARS determinations as made in CJI's semiannual reviews.
[2]Each observation represents a traffic stop, field interview, or no-action encounter with police.
[3]Regression coefficients represent a change in the log odds of an encounter given a one unit increase in each regressor.
[4]The constant for Model 1 represents the log odds of an encounter meeting the IOARS standard for white subjects.
[5]Standard errors are clustered by MPD district.
Sources:
Milwaukee Police Department Stop Data, 2021
U.S. Census American Community Survey 5-Year Estimates, 2016-2020

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	88.3% 0.009	1.7%	49.8% 0.010	3.6%
Hispanic/Latino	77.5% 0.032	-9.1%	46.7% 0.053	0.5%
White	86.7% 0.047		46.2% 0.144	

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

Notes:
[1]Predicted probabilities based on estimates for Model 7 in Tables C-6 and C-8.
[2]Average 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, 2021
U.S. Census American Community Survey 5-Year Estimates, 2016-2020

APPENDIX D: HIT RATE ANALYSIS TABLES

D-1: FRISKS AND CONTRABAND DISCOVERY BY RACE

		Contraband			Contraband Discovery Rate per Frisk (Percent)			Difference in Discovery Rate Per Frisk, As Compared to White Subjects (Percent)		
Subject Race/ Ethnicity	Frisks	All	Drug	Weapon	All	Drug	Weapon	All	Drug	Weapon
Black	447	122	33	68	27.29	7.38	15.21	0.02	-7.77	3.09
Hispanic / Latino	74	18	5	10	24.32	6.76	13.51	-2.95	-8.39	1.39
Other Race	8	2	0	1	25.00	0.00	12.50	-2.27	-15.15	0.38
White	33	9	5	4	27.27	15.15	12.12			
Missing Race	3	1	0	0	33.33	0.00	0.00			
Total	565	152	43	83	26.90	7.61	14.69			

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.

Source:
Milwaukee Police Department Stop Data, 2021

D-2: CONTRABAND REGRESSION RESULTS, ALL CONTRABAND

	Model 1 Odds ratio	Model 2 Odds ratio	Model 3 Odds ratio
Black	0.959 (0.606 - 1.519)	0.924 (0.612 - 1.393)	0.931 (0.610 - 1.421)
Hispanic/Latino	0.821 (0.589 - 1.145)	0.683* (0.464 - 1.006)	0.587*** (0.482 - 0.715)
Male		2.450** (1.091 - 5.499)	2.284** (1.108 - 4.707)
Young		1.136 (0.814 - 1.585)	1.106 (0.746 - 1.639)
Time of Day Fixed Effects Quarter Fixed Effects District Fixed Effects			X X X
Observations	553	539	539

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

Notes:
[1]These regressions are based on data from four quarters of 2021.
[2]Observations in the data are at the level of the individual stop.
[3]The "other race" category was omitted from this analysis due to the low frisk totals across all districts and time periods.
[4]The dependent variable is an indicator variable equal to one if contraband was found and zero otherwise
[5]Time-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).
[6]Standard errors are clustered by MPD district.
[7]Odds Ratios are reported with CI in parentheses beneath.

Source:
Milwaukee Police Department Stop Data, 2021

D-3: CONTRABAND REGRESSION RESULTS, WEAPONS AND DRUGS

	Weapons Contraband	Drug Contraband
	Model 3 Odds ratio	Model 3 Odds ratio
Black	1.835* (0.911 - 3.695)	0.875 (0.458 - 1.673)
Hispanic/Latino	1.214 (0.727 - 2.027)	0.320*** (0.180 - 0.570)
Male	2.100** (1.080 - 4.080)	2.170*** (1.234 - 3.816)
Young	0.643** (0.418 - 0.987)	1.804*** (1.376 - 2.365)
Time of Day Fixed Effects Quarter Fixed Effects District Fixed Effects	X X X	X X X
Observations	539	539

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

Notes:
[1]These regressions are based on data from four quarters of 2021.
[2]Observations in the data are at the level of the individual stop.
[3]The "other race" category was omitted from this analysis due to the low frisk totals across all districts and time periods.
[4]The dependent variable in the weapons contraband analysis is an indicator variable equal to one if weapons contraband was found and zero otherwise.
[5]The dependent variable in the drug contraband analysis is an indicator variable equal to one if drug contraband was found and zero otherwise.
[6]Time-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).
[7]Standard errors are clustered by MPD district.
[8]Odds Ratios are reported with CI in parentheses beneath.

Source:
Milwaukee Police Department Stop Data, 2021

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	28.6% 0.008	-1.4%	20.8% 0.007	8.1%**	13.7% 0.004	-1.5%
Hispanic/Latino	20.4% 0.028	-9.6%***	15.0% 0.023	2.3%	5.8% 0.006	-9.5%***
White	30.0% 0.035		12.7% 0.035		15.3% 0.035	

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

Notes:
[1]Predicted probabilities based on estimates presented in Table D-3.
[2]Average 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.

Source:
Milwaukee Police Department Stop Data, 2021

APPENDIX E: HIT RATES TO CRIME ANALYSIS TABLES

E-1: RATIO OF STOPS TO CRIME RATE, PER 1,000 RESIDENTS

District	Crime Rate	Ratio of Traffic Stop Rate to Crime Rate	Ratio of Field Interview Rate to Crime Rate	Ratio of No-Action Encounter Rate to Crime Rate	Ratio of Frisk Rate to Crime Rate
1	76.9796	0.7777	0.0334	0.0024	0.0045
2	90.8062	1.7353	0.0588	0.0034	0.0147
3	130.4556	0.8705	0.0379	0.0022	0.0072
4	96.1587	1.2601	0.0330	0.0012	0.0083
5	154.8823	0.5586	0.0717	0.0023	0.0170
6	35.0707	3.8553	0.0639	0.0024	0.0112
7	113.2830	1.0657	0.0222	0.0011	0.0064

Notes:
[1]The ratio of the traffic stop rate to the crime rate is calculated as (traffic stops per 1000 residents 16-80 years old) divided by (crimes per 1000 residents) in each district.
[2]The 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.

Sources:
Milwaukee Police Department Stop Data, 2021
U.S. Census American Community Survey 5-Year Estimates, 2016-2020
Milwaukee Part 1 and Part 2 Crime data, 2020

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

Average ratios comparison	Traffic Stop Ratios	Field Interview Ratios	No-Action Encounter Ratios	Frisk Ratios
Majority Black Districts (4,5,7)	0.961	00.042	0.002	0.011
Majority Hispanic/Latino District (2)	1.735	0.059	0.003	0.015
Majority White Districts (1,6)	2.317	0.049	0.002	0.008
Mixed Race/Ethnicity District (3)	0.871	0.038	0.002	0.007
Comparison of Black Districts to White Districts	-58%	--13%	-37%	35%
Comparison of Hispanic/Latino District to White Districts	-25%	21%	42%	87%
Comparison of Mixed Race/Ethnicity District to White Districts	-62%	-22%	-9%	-9%

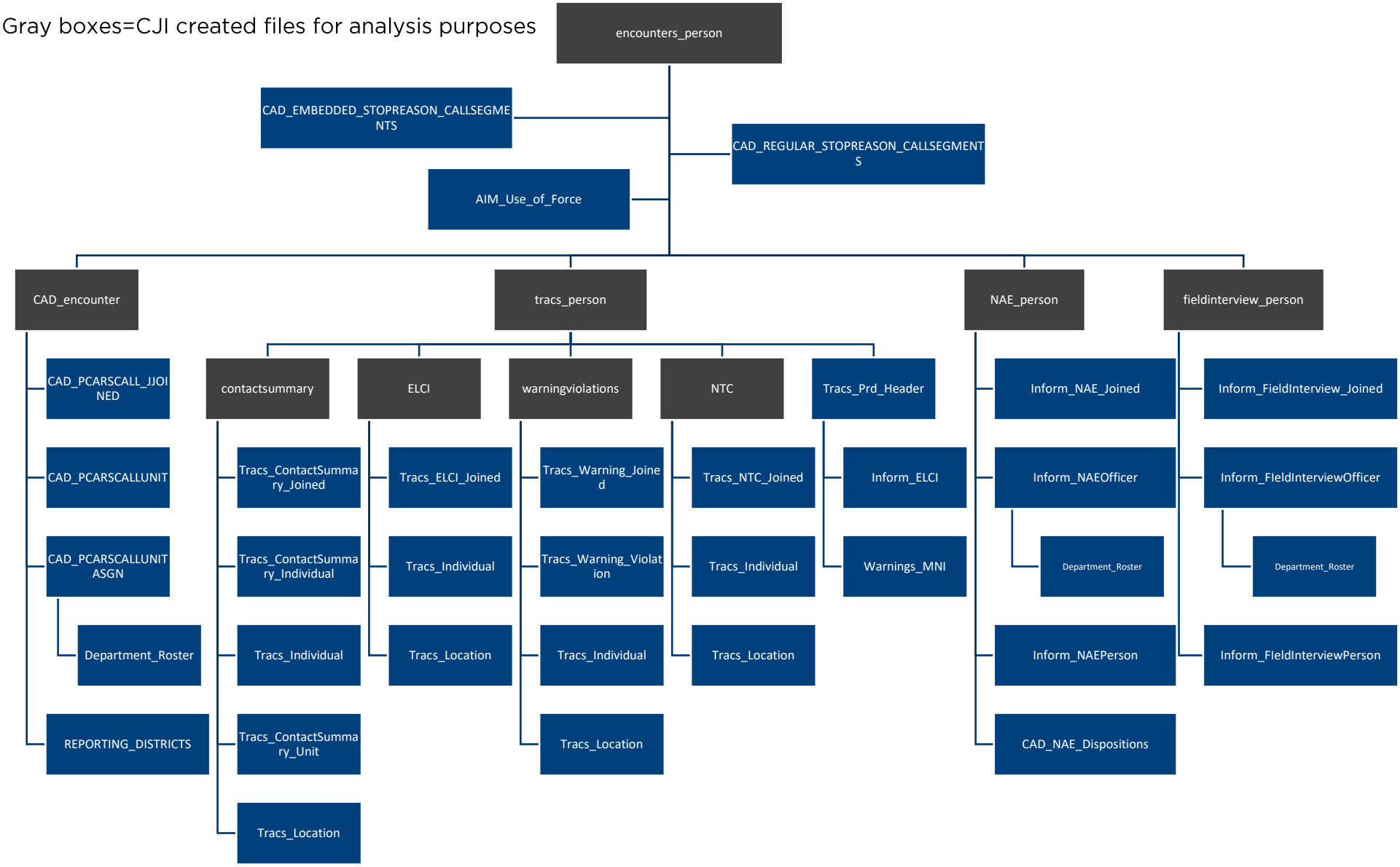
Notes:
[1]Districts are considered "majority" for each race or ethnic category if the proportion of the population exceeds 50% for a given race or ethnic category. District numbers for each comparison are in parentheses.
[2]District 3 does not represent a clear racial or ethnic majority.
[3]Traffic stop 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.
[4]The 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, 2021
U.S. Census American Community Survey 5-Year Estimates, 2016-2020
Milwaukee Part 1 and Part 2 Crime data, 2020

APPENDIX F: DATA LINKAGES CHART

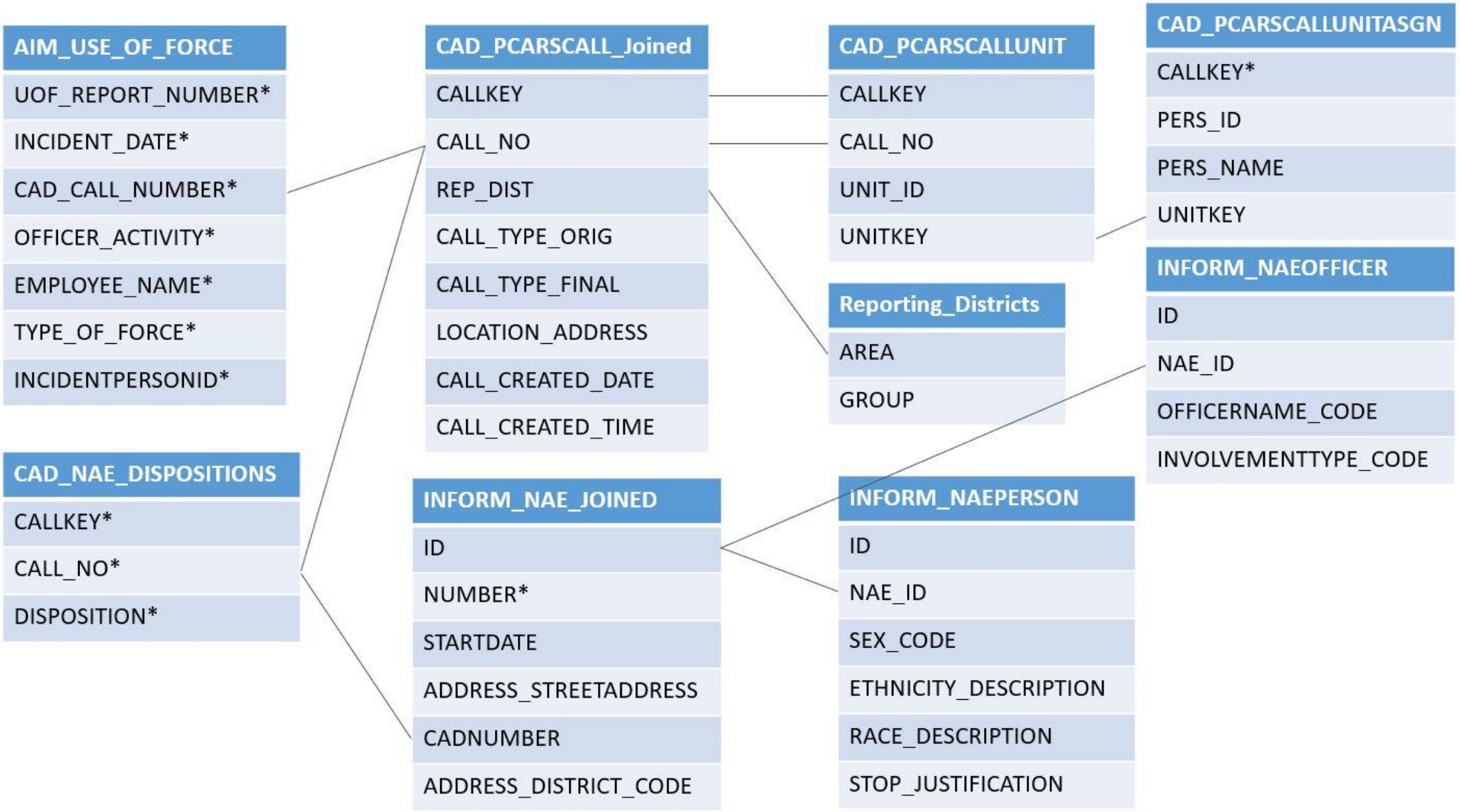
"NAE" in the below charts refers to "no-action encounter"

Gray boxes=CJI created files for analysis purposes

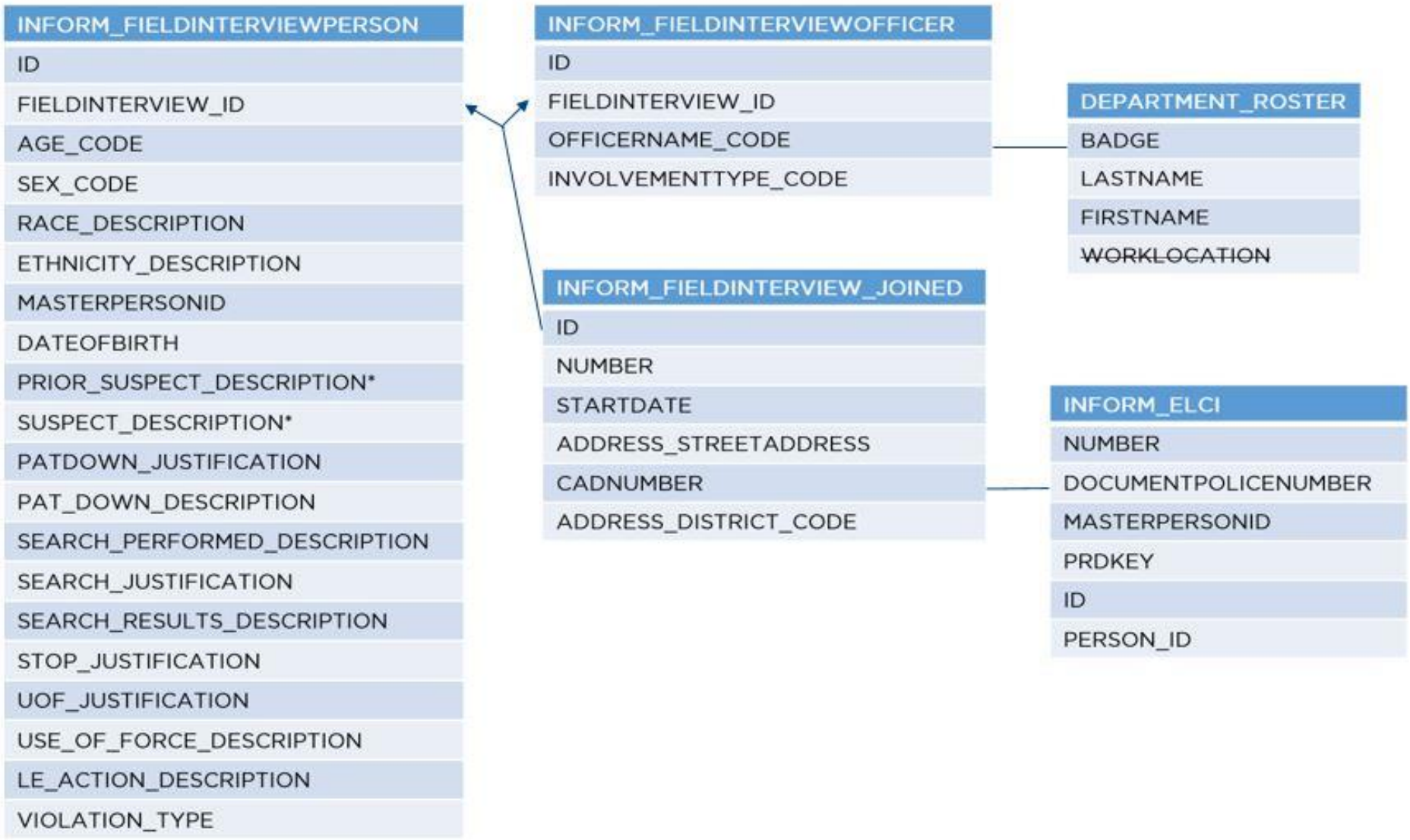


APPENDIX G: ENCOUNTER DATA LINKAGES CHARTS

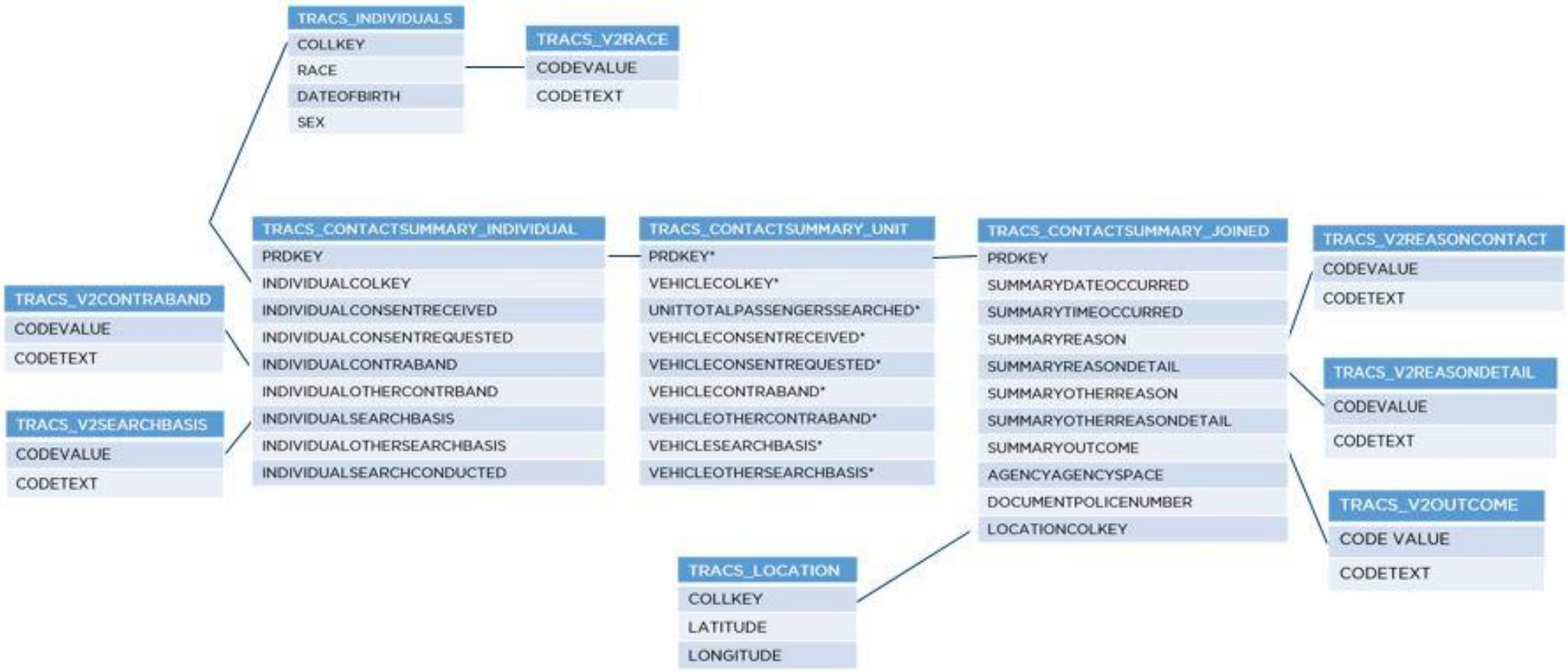
"NAE" in the below charts refers to "no-action encounter"



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.