ILLINOIS TRAFFIC AND PEDESTRIAN STOP STUDY

2025 ANNUAL REPORT

TRAFFIC STOP ANALYSIS

SUBMITTED BY THE MOUNTAIN-WHISPER-LIGHT: STATISTICS AND DATA SCIENCE

The Mountain · Whisper · Light

SC-B CONSULTING
Achieving Innovative Solutions Together

Illinois Department of Transportation

ILLINOIS TRAFFIC AND PEDESTRIAN STOP STUDY

2025 ANNUAL REPORT: TRAFFIC STOPS

PART I EXECUTIVE SUMMARY AND APPENDICES

PREPARED FOR THE ILLINOIS DEPARTMENT OF TRANSPORTATION

BY

THE MOUNTAIN-WHISPER-LIGHT: STATISTICS & DATA SCIENCE

IN COOPERATION WITH SC-B CONSULTING, INC.

SC-B CONSULTING

Acknowledgements

The Mountain-Whisper-Light Inc. and SC-B Consulting Inc. gratefully acknowledge the contributions of Jessica Keldermans (bureau chief), Sarah Klestinski and Kimberly Gragg, Bureau of Data Collection, Illinois Department of Transportation, and their associates at IDOT. Many thanks to the office of the Illinois Secretary of State for providing summary statistics on driver's licenses (without any personally identifying information). We are also grateful to the law enforcement agencies and their staff for their diligence and patience in collecting and processing the data used in this study.

2025 study team, Illinois Traffic and Pedestrian Stop Study:

The Mountain-Whisper-Light: Statistics & Data Science

- Nayak L. Polissar, Ph.D., president and principal investigator
- Nirnaya Miljacic, M.S., Ph.D.
- Cindy Elder, M.S.
- Medur Wilson, M.S.

SC-B Consulting

- Sharie Carter-Bane, president

Table of Contents

Executive Summary 1

I. Background 1

Key Findings 2

II. Introduction 3

What is racial profiling? 3

How is this report structured? 3

What are the sources of the data? 3

How were the data analyzed? 4

III. Guide to Using Traffic Tables 6

Table 1. Example of a table of traffic stops: Counts, Rates, Percentages and Ratios 10

IV. Interpretation of Traffic Tables 12

95% Confidence Interval 12

Ratios 12

Limitations 12

Statistics based on stops only 13

Can stop rates be compared across years? 14

V. Benchmarks 16

On Benchmark Accuracy 17

Population Benchmarks 17

Mileage Benchmarks 18

Comparison of the two benchmark models 19

VI. Selected Findings 27

Agency reporting status 27

Number of stops 27

Statewide stop rate ratios 30

Distribution of stop rate ratios 31

Reason for Stop 36

Outcome of Stop: Citation 38

Searches 39

Dog Sniffs 41

Duration of Stops 43

Multiple Stops of Individual Drivers 45

Officer-Assigned Drivers Race Analysis 47
VII. Considerations for Interpreting the Data 50
VIII. Looking Ahead 51
Appendix A. Traffic Stop Data Collection Form in Use During 2025 52
Appendix B. Technical Notes on Rates, Percentages and Ratios 53
Appendix C. Technical Notes on Population Benchmarks 58
Appendix D. Technical Notes on Mileage Benchmarks 62
Appendix E. Additional Notes on Illinois Law Concerning the Stop Study 66

THIS PAGE INTENTIONALLY BLANK

Executive Summary

I. Background

In October 2019, The Mountain-Whisper-Light Inc. (dba The Mountain-Whisper-Light: Statistics & Data Science, and hereafter, "TMWL") was awarded a contract to conduct a statistical study of the traffic and pedestrian stop data provided by Illinois law enforcement agencies. Agencies provided their stop data to the Illinois Department of Transportation, pursuant to the Illinois Vehicle Code, 625 ILCS 5/11-212 Traffic and Pedestrian Stop Statistical Study. TMWL is carrying out the project in cooperation with SC-B Consulting Inc., an Illinois firm (hereafter, SC-B). Reports have already been issued on 2019–2024 traffic and pedestrian stops in Illinois and are available online (under "Traffic Stop Statistical Studies").

According to the IDOT website, "On July 18, 2003, Senate Bill 30 was signed into law to establish a four-year statewide study of data from traffic stops to identify racial bias. The study began on January 1, 2004, and was originally scheduled to end December 31, 2007. However, the legislature extended the data collection several times, and also expanded the study to include data on pedestrian stops. Public Act 101-0024, which took effect on June 21, 2019, eliminated the study's scheduled end date of July 1, 2019, and extended the data collection."

Under that provision of the Illinois Vehicle Code, IDOT is responsible for providing a data collection form for law enforcement (see Appendix A below) and analyzing the data and submitting reports of the previous year's findings to the governor, General Assembly, the Racial Profiling Prevention and Data Oversight Board and each law enforcement agency (receiving results on their own data) no later than July 1 of each year. In May 2026, TMWL and SC-B, in cooperation with IDOT's Bureau of Data Collection, provided copies of statistical tables for 777 law enforcement agencies in the state of Illinois, based on data provided by the respective agencies on traffic and pedestrian stops. These 777 agencies reported at least one traffic or pedestrian stop. The agencies were invited to review and comment on the tables. Some agencies provided comments, and they are included with their tables in Part II of this report.

We are pleased to submit this 2025 Annual Report for the Illinois Traffic and Pedestrian Stop Study. The executive summary in this document covers the traffic stop study and a companion volume with a similar format contains an executive summary for the pedestrian stop study.

Key Findings

1. The total number of reported traffic stops in 2025 was 2,062,235, nearly the same as in 2024 (Figure 5a).
2. 76.4% of agencies provided complete stop data for 2025, a 2.5% decrease from 2024 (78.9%). Agencies not collecting a full year of stop data (incomplete) or not submitting existing stop data (non-compliant) comprised 21.4%, a continued increase from 19.5% in 2024 and 18.1% in 2023 (Table 3).
3. Statewide stop rate ratios for all racial groups remained similar to their 2024 values (Figure 6).
4. In 79% of all cases where an agency reported at least 50 stops with drivers of any particular minority group and 50 stops with White drivers, stop rates were higher for the minority drivers. This is a slight increase from the 2024 result (78.1%, Table 7a).
5. In 94.6% of all cases where an agency reported at least 50 stops with Black drivers and 50 stops with White drivers, the stop rate was higher for Black drivers. This is a slight increase from the 2024 result (93.3%, Table 7b).
6. In 80.4% of all cases where an agency reported at least 50 stops with Hispanic drivers and 50 stops with White drivers, the stop rate was higher for Hispanic drivers. This is a slight increase from the 2024 result (79.2%, Table 7b).
7. There is a racial component in other aspects of traffic stops besides stop rate ratios: receiving a citation (Table 7c, Figure 8), reason for stop (Figure 7b), vehicle searches (Figure 9a–b), dog sniffs (Figure 10a–b), duration of stops (Figure 11b) and multiple stopping of individual drivers (Figure 12).

II. Introduction

What is racial profiling?

The Illinois Criminal Justice Information Authority describes racial profiling as "police-led action that is initiated based on a person's race or ethnicity."[1] *(References can be found at the end of this section.)* In 2003, legislation called the Illinois Traffic and Pedestrian Stop Statistical Study Act was passed requiring officers to document who they stopped, and why, for traffic violations. These data are reported annually to IDOT for review. In 2019, this act became permanent and established a task force to compile and analyze the resulting data.[2] This analysis provides statistical results for use in those ongoing efforts. The statistical results can be used to detect potentially "statistically significant aberrations" in traffic stops, pedestrian stops, and searches of drivers and pedestrians (see Section I and Appendix E for more details). Findings are made available to the public and shared with law enforcement agencies to increase their awareness of potential racial profiling in their stops, providing a basis for an agency to reduce or eliminate bias, where it may be occurring. The IDOT Racial Profiling Prevention and Data Oversight Board meets regularly to oversee these efforts in an advisory capacity and provide recommendations to the governor's office.

How is this report structured?

The report is presented in two parts. Part I is this executive summary, which includes appendices with detailed technical information on the statistical methodology and analysis. Part II includes extensive tables (one set of tables for each law enforcement agency that collected data for all stops reported in 2025). The tables show stop rates for each racial group, along with other statistics that cover activity during the stops, such as citations or warnings, searches and contraband found.

To obtain the greatest benefit from this report, readers are encouraged to read the full executive summary. In addition to the information on data collection, the statistical analysis team has provided a sample traffic table and a guide to using traffic tables that includes definitions of statistical terms used in this report. This executive summary also provides an explanation of the data presented in each panel of the Part II tables. It also includes an interpretation section with additional details on the numeric results presented in the tables and a plain-language description of how the analysis was implemented. Finally, the section on Selected Findings highlights some statewide results. The Appendices appendices include technical material and describe the statistical methods and calculations in detail. The information in the appendices is provided for readers who wish to have a deeper understanding of the methodology.

What are the sources of the data?

As noted above, per Illinois law, officers from law enforcement agencies are required to complete a report when they stop a driver or a pedestrian. Separate templates are provided for traffic and pedestrian stops.

Following the convention of previous reports on the Illinois Traffic and Pedestrian Stop Study, we are submitting two separate reports, the Illinois Traffic Stop Study (ITSS) and the Illinois Pedestrian Stop Study (IPSS). These data collection templates (known as traffic stop or Pedestrian Stop Data Forms) are shown in Appendix A of the ITSS and IPSS. There is an instruction manual that accompanies the traffic stops data collection form—available online (under "Forms").

How were the data analyzed?

Data collection results show that 775 agencies reported 2,062,325 traffic stops and 243 agencies reported 88,678 pedestrian stops in 2025. A total of 777 agencies provided data on either traffic stops or pedestrian stops, with 534 agencies providing data on traffic stops only. Two agencies provided pedestrian stop data only, and 241 agencies provided both traffic and pedestrian stop data. Among the 775 agencies that provided traffic stops, 752 were considered compliant with the study and 23 provided incomplete data. None of the reported traffic stops were missing the race designation. Among the 243 agencies that provided pedestrian stops, all were considered compliant with the study. Only one pedestrian stop (0.001% of pedestrian stops) was missing the race designation and did not enter into the analysis. Further analysis was carried out to provide statistics that may be helpful in determining whether there was potential bias against minorities in initiating a stop or in the activities that occurred during a stop.

As specified by the Illinois statute for this study, the tables report on the stops and subsequent experience of individuals stopped. The stopped individuals are classified into one of six racial groups. The law enforcement officer filling in the data collection form must use their judgment to classify an individual into one of the following six groups.

- Black or African American
- Hispanic or Latino
- Asian
- American Indian or Alaska Native
- Native Hawaiian or Other Pacific Islander
- White

The data collection forms are extensive. There are more than 60 data items listed for traffic stops and more than 20 data items listed for pedestrian stops. Some items are left blank unless there are further actions beyond a stop, such as a search.

Data collected by local agencies for traffic stops include:

- Information about the driver (including race) and the officer
- The location of the stop (using location designations developed by each agency)
- Reason for the stop
- Outcome of the stop
- Search activity and search findings of contraband.

References (for Section II)

1. Green, E., & Lavery, T. (2022). *2020-2021 Illinois Traffic and Pedestrian Stop Data Use and Collection Task Force Findings.* Illinois Criminal Justice Information Authority.

2. Illinois General Assembly. (2022, May 13). *Traffic and Pedestrian Stop Statistical Study.* Website.

III. Guide to Using Traffic Tables

While many readers of this report previously reviewed traffic and pedestrian stop tables for their respective jurisdictions, the following are brief explanations of the statistics presented in the tables of this report.

Table 1 (below) is included as an example to show stop rates, along with certain percentages and ratios. A ratio compares either a rate or a percentage for a minority to the corresponding rate or percentage for Whites. The ratios are intended to make it easier to compare a minority to Whites on stop rates and other statistics that may suggest the possibility of racial profiling. The word "possibility" is very important, because racial profiling cannot be proved by the numeric results in this report alone. Some of the inherent uncertainties and limitations of the statistics are explained throughout this report and should be considered during the review of the statistical results presented.

The following section includes an example of traffic tables and offers a guide to the numbers in the tables, explained for each panel in the table. The table reproduced here (Table 1) refers to all traffic stops reported in 2025 from law enforcement agencies for the state of Illinois. The counts, rates, percentages, and ratios are for purposes of illustration only and are not tied to any individual agency.

Before using the tables: Following the tables there is an important section on interpretation of the rates, ratios, percentages and 95% confidence intervals (margin of error). Reading that section is important to enable users of this report to make a proper assessment of what the numbers represent.

Rates, percentages, and ratios: The terms "rate," "percentage" and "ratio" are used throughout this report. A brief explanation of the terms is provided here.

A rate in one context is the number of individuals (such as the number of individuals stopped) divided by the population the individuals came from, also known in this report as the population "benchmark." For example, in Illinois in 2025 there were 422,701 traffic stops of individuals whom the officer assigned to the category "Hispanic or Latino." The estimated population benchmark of Hispanic or Latino drivers in Illinois in 2025 was 2,173,673. Dividing the 422,701 by 2,173,673 yields the stop rate of 0.1945. That is, there was an average of 0.1945 stops per driving member of the Hispanic or Latino population. The value of 0.1945 does not mean that 19.45% of Hispanic or Latino drivers were stopped. Some drivers may have been stopped more than once. "Benchmark" is a term that will be used repeatedly. A rate in another context is the number of individuals (such as the number of individuals stopped) divided by the number of miles that the population the individuals came from has driven within a jurisdiction during an average day, also known in this report as the "mileage" benchmark.

A percentage in this context has the usual meaning. For example, in Illinois in 2025 there were 1,025,876 stops of drivers whom the officer categorized as "White." 648,063 of these stops were noted as "Moving Violation". The number of moving violations (648,063) divided by the number of stops (1,025,876) yields the decimal fraction 0.632. That fraction represented as a percentage is 63.2%. In Illinois in 2025, 63.2% of stops of drivers categorized as White were noted as a moving violation.

The ratio used in this report is either the ratio of a minority rate to a White rate or the ratio of a minority percentage to a White percentage. If the ratio is 2.0, for example, it means that the minority rate (or percentage) is twice the White rate (or percentage).

Table 1 shows Illinois statewide results to illustrate traffic stop reporting. A guide to each panel of the table follows. Note that only the statistics given in Panel 1 involve benchmarks.

Panel 1 (shaded region) presents the traffic stops and the results of the two benchmark models. Following the stops row, the next three rows show the population benchmark and the statistics based on that benchmark: the stop rate by racial group and stop rate ratio for each minority group compared to White drivers. The following three rows (darker shaded rows) show the mileage benchmark and the statistics based on that benchmark: the stop rate by racial group and stop rate ratio for each minority group compared to White drivers. Each benchmark value is followed by the percentage (in parentheses) of the total benchmark for all racial groups. Ninety-five percent confidence intervals are shown (in parentheses) for rates and rate ratios. The 95% confidence interval is a "margin of error," and it is explained in a short section with that heading, below.

Panel 2 shows the number, percentage (in parentheses) and 95% confidence interval [in square brackets, like this] for selected reasons for traffic stops (moving violation, equipment, licensing/registration, and commercial vehicle) for each racial group. The label for the panel includes the note "Percentage of All Stops for the Racial Group with the Noted Reason for Stop." This tells us that the number of stops for a given reason, such as "Moving Violation," is divided by the total number of stops for the racial group—to convert it to a percentage (after multiplication by 100%). For example, drivers assessed as being Asian had 58,400 stops noted by the officer as "Moving Violation," and the Asian category had 88,220 total stops in 2025. Hence the percentage of stops noted as "Moving Violation" for drivers classified as Asian was 100% x (58,400/88,220) = 66.2% (rounded).

Panel 3 shows the outcomes of traffic stops including written warning, verbal warning and citation for each racial group. The number, percentage (in parentheses), and 95% confidence interval [in brackets] are shown for each outcome. The ratio and 95% confidence interval (in parentheses) comparing each minority group to White drivers are shown for citations, the most serious outcome recorded for the stop on the traffic data collection form.

Panel 4 shows vehicle searches and outcomes of vehicle searches during traffic stops, including consent searches, all searches, and, for each racial group, whether contraband was found during any search. The number, percentage (in parentheses), and 95% confidence interval [in brackets] are shown for each outcome. The label for each row shows the basis for calculation of the percentages. The contraband-found percentage is calculated based on all vehicle searches. The ratio and 95% confidence interval (in parentheses) comparing each minority group to White drivers are shown for contraband-found for all vehicle searches. (Note: searches following a dog sniff are not included in Panel 4. See Panel 6 for the statistics on stops with a dog sniff.)

Panel 5 shows driver and passenger searches and outcomes of these searches during traffic stops including consent searches, all searches and whether contraband was found during any search for each racial group. The number, percentage (in parentheses), and 95% confidence interval [in brackets] are shown for each outcome. The label for each row shows the basis for calculation of the percentages. The contraband found percentage is calculated based on all driver or passenger searches. The ratio and 95% confidence interval (in parentheses) comparing each minority group to White drivers are shown for contraband found for all driver or passenger searches. (Note: searches following a dog sniff are not included in Panel 5. See Panel 6 for the statistics on stops with a dog sniff.)

Panel 6 shows dog sniffs, searches and outcomes of these searches during traffic stops, including dog alerts during a dog sniff, vehicle searches after a dog sniff and whether contraband was found after any vehicle search for each racial group. The number, percentage (in parentheses) and 95% confidence interval [in brackets] are shown for each outcome. The label for each row shows the basis for calculation of the percentages. The percentage of dog sniffs with a dog alert and the percentage of vehicle searches after a dog sniff are calculated based on all dog sniffs. The percentage for contraband found after a vehicle search is calculated based on all vehicle searches after a dog sniff, and the ratio and 95% confidence interval (in parentheses) are shown for contraband found for all vehicle searches after a dog sniff.

The top-right corner of Table 1 indicates the type of population benchmark used. “Crash-based” population benchmarks utilize Illinois crash report data and “distance-based” population benchmarks combine population statistics from surrounding ZIP codes while accounting for distance of the ZIP code area to the agency. The note at the bottom-left of the table indicates the type of population benchmark (crash-based or distance-based) and, if the benchmark is crash-based, the note states the number of crashes that were utilized in calculations. The note also lists the primary area of the population benchmark, which captures the jurisdiction of the agency. These areas can be one or more cities (or towns or villages), counties, or the state of Illinois. All traffic population benchmarks also include areas outside of the primary area. The percentage of the population benchmark which comes from ZIP codes within the primary area is provided, and an indication of the overall area of the benchmark is provided by a radius around the primary area (in miles). Section V on benchmarks provides more information on how the benchmarks were constructed.

Note that since drivers from outside of an agency jurisdiction may travel through the jurisdiction, and thus may be stopped in the jurisdiction, the benchmark for the jurisdiction includes population residing outside of a jurisdiction. A common error of interpretation is that the benchmark for traffic stops involves only the jurisdiction population.

A ratio of 1.0 for Whites: For all rows showing comparisons of minority groups to Whites, a value of 1.0 is shown in the White racial group column, the reference group. In this column for Whites, the Whites are being compared to themselves, so the ratio of rates must be 1.0. The column is included to make it clear that the Whites are the reference group to which each minority group is compared.

Zero stops or zero benchmark: For some agencies, the number of stops or the benchmark value or the number of outcomes may be zero for a racial group. When it is not possible to calculate a rate, percentage or ratio and an associated 95% confidence interval because of zero stops or zero benchmarks or zero outcomes, an "NA" is reported in the table. When reporting information such as searches following stops or contraband found, there are cases when all racial groups have entries of zero in the row. That is, there were no searches of any racial group, or no contraband found for any racial group. In that case, the row is omitted. Similarly, when making comparisons to Whites, if all minorities have counts of zero or the Whites have a count of zero, the ratios comparing each minority to Whites cannot be computed and the row of ratios is omitted.

Table 1. ***Example of a table of traffic stops: Counts, Rates, Percentages and Ratios***

Summary of Traffic Stops for 2025 - ILLINOIS STATEWIDE RESULTS						**Population Benchmark: Crash-based***
	White	**Black or African American**	**Hispanic or Latino**	**Asian**	**American Indian or Alaska Native**	**Native Hawaiian or Other Pacific Islander**
Panel: 1 Summary of Stops, Rates, and Rate Ratios with 95% Confidence Intervals. Total stops: 2,062,325. Total population benchmark: 9,846,272. Total mileage benchmark: 250,117,226.						
Stops (% of Total)	1,025,876 (50%)	509,693 (25%)	422,701 (20%)	88,220 (4.3%)	10,882 (0.5%)	4,953 (0.2%)
Population Benchmark (% of Total)	5,129,065 (52%)	1,855,231 (19%)	2,173,673 (22%)	643,415 (6.5%)	38,966 (0.4%)	5,922 (0.06%)
Population Stop Rate (95% Confidence Interval)	0.2 (0.1996 - 0.2004)	0.2747 (0.274 - 0.2755)	0.1945 (0.1939 - 0.1951)	0.137 (0.136 - 0.138)	0.279 (0.274 - 0.285)	0.84 (0.81 - 0.86)
Population R. Ratio vs Wh. (95% Confidence Interval)	1.0	***1.37 (1.36 - 1.39)***	0.972 (0.965 - 0.979)	0.686 (0.679 - 0.692)	***1.4 (1.37 - 1.42)***	***4.2 (4.1 - 4.3)***
Mileage Benchmark (% of Total)	184,219,000 (74%)	27,460,140 (11%)	23,747,550 (9.5%)	13,771,340 (5.5%)	786,960.4 (0.3%)	132,208 (0.05%)
Mileage Stop Rate (95% Confidence Interval)	0.00557 (0.00556 - 0.00558)	0.01856 (0.01851 - 0.01861)	0.0178 (0.0177 - 0.0179)	0.00641 (0.00636 - 0.00645)	0.0138 (0.0136 - 0.0141)	0.037 (0.036 - 0.039)
Mileage R. Ratio vs White (95% Confidence Interval)	1.0	***3.33 (3.32 - 3.34)***	***3.2 (3.18 - 3.21)***	***1.15 (1.14 - 1.16)***	***2.48 (2.44 - 2.53)***	***6.7 (6.5 - 6.9)***
Panel: 2 Summary of Reason for Stop - Number (Percentage of All Stops for the Racial Group with the Noted Reason for Stop) [95% Confidence Interval]						
Moving Violation	648,063 (63.2%) [63% - 63.3%]	248,933 (48.8%) [48.7% - 49%]	221,164 (52.3%) [52.1% - 52.5%]	58,400 (66.2%) [65.7% - 66.7%]	6,714 (62%) [60% - 63%]	3,100 (63%) [60% - 65%]
Equipment	168,910 (16.47%) [16.39% - 16.54%]	101,770 (20%) [19.8% - 20.1%]	95,961 (22.7%) [22.6% - 22.8%]	16,129 (18.3%) [18% - 18.6%]	2,330 (21.4%) [20.6% - 22.3%]	917 (19%) [17% - 20%]
Licensing/Registration	200,179 (19.5%) [19.4% - 19.6%]	155,228 (30.5%) [30.3% - 30.6%]	99,918 (23.6%) [23.5% - 23.8%]	13,170 (14.9%) [14.7% - 15.2%]	1,711 (15.7%) [15% - 16.5%]	827 (17%) [16% - 18%]
Commercial Vehicle	8,718 (0.85%) [0.83% - 0.87%]	3,726 (0.73%) [0.71% - 0.75%]	5,639 (1.33%) [1.3% - 1.37%]	519 (0.59%) [0.54% - 0.64%]	126 (1.2%) [0.96% - 1.4%]	108 (2.2%) [1.8% - 2.6%]
Panel: 3 Summary of Outcome of Stop - Number (Percentage of All Stops for the Racial Group with the Noted Outcome of Stop) [95% Confidence Interval]						
Verbal Warning	259,327 (25.3%) [25.2% - 25.4%]	201,276 (39.5%) [39.3% - 39.7%]	153,863 (36.4%) [36.2% - 36.6%]	29,917 (33.9%) [33.5% - 34.3%]	4,155 (38%) [37% - 39%]	1,979 (40%) [38% - 42%]
Written Warning	418,395 (40.8%) [40.7% - 40.9%]	139,841 (27.4%) [27.3% - 27.6%]	112,688 (26.7%) [26.5% - 26.8%]	29,940 (33.9%) [33.6% - 34.3%]	3,505 (32%) [31% - 33%]	1,209 (24%) [23% - 26%]
Citation	348,154 (33.9%) [33.8% - 34.1%]	168,576 (33.1%) [32.9% - 33.2%]	156,150 (36.9%) [36.8% - 37.1%]	28,363 (32.2%) [31.8% - 32.5%]	3,222 (30%) [29% - 31%]	1,765 (36%) [34% - 37%]
Citation Ratio vs White (95% Confidence Interval)	1.0	0.975 (0.969 - 0.98)	***1.09 (1.08 - 1.1)***	0.95 (0.94 - 0.96)	0.87 (0.84 - 0.9)	***1.05 (1 - 1.1)***
Panel: 4 Summary of Vehicle Search Events - Number (Percentage for the Racial Group) [95% Confidence Interval]						

Summary of Traffic Stops for 2025 - ILLINOIS STATEWIDE RESULTS						Population Benchmark: Crash-based*
	White	**Black or African American**	**Hispanic or Latino**	**Asian**	**American Indian or Alaska Native**	**Native Hawaiian or Other Pacific Islander**
Consent Search (% of Stops)	8,648 (0.84%) [0.83% - 0.86%]	8,551 (1.68%) [1.64% - 1.71%]	4,531 (1.07%) [1.04% - 1.1%]	481 (0.55%) [0.5% - 0.6%]	70 (0.64%) [0.5% - 0.81%]	48 (0.97%) [0.71% - 1.3%]
All Searches (% of Stops)	32,324 (3.15%) [3.12% - 3.19%]	31,885 (6.26%) [6.19% - 6.32%]	13,357 (3.16%) [3.11% - 3.21%]	977 (1.1%) [1% - 1.2%]	152 (1.4%) [1.2% - 1.6%]	103 (2.1%) [1.7% - 2.5%]
Contraband Found (% of All Searches)	11,299 (35%) [34% - 36%]	17,028 (53.4%) [52.6% - 54.2%]	5,335 (40%) [39% - 41%]	224 (23%) [20% - 26%]	39 (26%) [18% - 35%]	36 (35%) [24% - 48%]
Contraband Found Ratio vs White (95% Confidence Interval)	1.0	***1.53 (1.49 - 1.56)***	***1.14 (1.11 - 1.18)***	0.66 (0.57 - 0.75)	0.73 (0.52 - 1)	1 (0.7 - 1.4)
Panel: 5 Summary of Driver or Passenger Search Events - Number (Percentage for the Racial Group) [95% Confidence Interval]						
Consent Search (% of Stops)	6,265 (0.61%) [0.6% - 0.63%]	6,014 (1.18%) [1.15% - 1.21%]	2,736 (0.65%) [0.62% - 0.67%]	190 (0.22%) [0.19% - 0.25%]	37 (0.34%) [0.24% - 0.47%]	26 (0.52%) [0.34% - 0.77%]
All Searches (% of Stops)	18,534 (1.81%) [1.78% - 1.83%]	21,594 (4.24%) [4.18% - 4.29%]	9,036 (2.14%) [2.09% - 2.18%]	484 (0.55%) [0.5% - 0.6%]	76 (0.7%) [0.55% - 0.87%]	74 (1.5%) [1.2% - 1.9%]
Contraband Found (% of All Searches)	3,065 (16.5%) [16% - 17.1%]	3,160 (14.6%) [14.1% - 15.2%]	863 (9.6%) [8.9% - 10%]	45 (9.3%) [6.8% - 12%]	8 (11%) [4.5% - 21%]	11 (15%) [7.4% - 27%]
Contraband Found Ratio vs White (95% Confidence Interval)	1.0	0.88 (0.84 - 0.93)	0.58 (0.53 - 0.62)	0.56 (0.41 - 0.75)	0.64 (0.27 - 1.3)	0.9 (0.45 - 1.6)
Panel: 6 Summary of Dog Sniff Events - Number (Percentage for the Racial Group) [95% Confidence Interval]						
Dog Sniff (% of Stops)	3,292 (0.32%) [0.31% - 0.33%]	1,433 (0.28%) [0.27% - 0.3%]	639 (0.15%) [0.14% - 0.16%]	86 (0.097%) [0.078% - 0.12%]	17 (0.16%) [0.091% - 0.25%]	10 (0.2%) [0.097% - 0.37%]
Dog Alert after Dog Sniff (% of Dog Sniffs)	2,512 (76%) [73% - 79%]	1,038 (72%) [68% - 77%]	393 (62%) [56% - 68%]	61 (71%) [54% - 91%]	13 (76%) [41% - 100%]	9 (90%) [41% - 100%]
Vehicle Search after Dog Sniff (% of Dog Sniffs)	2,399 (73%) [70% - 76%]	1,009 (70%) [66% - 75%]	376 (59%) [53% - 65%]	58 (67%) [51% - 87%]	13 (76%) [41% - 100%]	9 (90%) [41% - 100%]
Contraband Found (% of Vehicle Searches, preceding row)	1,489 (62%) [59% - 65%]	646 (64%) [59% - 69%]	187 (50%) [43% - 57%]	13 (22%) [12% - 38%]	2 (15%) [1.9% - 56%]	5 (56%) [18% - 100%]
Contraband Found Ratio vs White (95% Confidence Interval)	1.0	1 (0.94 - 1.1)	0.8 (0.68 - 0.93)	0.36 (0.19 - 0.62)	0.25 (0.03 - 0.9)	0.9 (0.29 - 2.1)

***Population Benchmark Definition**

Population Benchmark Type: Crash-based (176,008 crash reports used).
Primary Benchmark Area (State): Illinois.
93.7% of the benchmark comes from zip codes within the primary area.
95.0% of the benchmark comes from zip codes within 9 miles of the primary area, including the primary area.

IV. Interpretation of Traffic Tables

95% Confidence Interval

Table 1 includes a "95% confidence interval" for each rate, percentage, or ratio. Here, the 95% confidence interval represents that part of uncertainty (not the whole of uncertainty) in estimating the rate, percentage, or ratio, that arises from sampling variability. More generally, the 95% confidence interval provides a range of plausible values. The "95%" figure can roughly be interpreted in the following way: if the year could be repeated many times with nothing essentially changing in the real world (in traffic patterns and behavior of drivers and officers) and with methods of analysis held constant, 95% of the time the repeated result would be expected to be found inside that given interval. Because there is an element of chance involved in being stopped, being searched, etc., the value of a rate or percentage or ratio would be somewhat different with each repetition. The 95% confidence interval reflects that particular aspect of the overall problem, the ever-present play of chance. It uses widely accepted statistical methods to express that uncertainty in the estimated rate, percentage, or ratio. There is another important source of uncertainty that reflects the methodology used and, most importantly, the limitations of the datasets that inform the analysis. A confidence interval does not cover that aspect of the problem. Yet, it is useful to be aware of that part of uncertainty which is due to simple play of chance and which becomes increasingly prominent as agencies become smaller, have fewer stops or smaller benchmark values that are used for calculating rates, percentages or ratios.

Ratios

A ratio of rates or percentages with a value of 1.0 (one) indicates that the rates or percentages are equal between the minority group and Whites. Ratios above or below 1.0 indicate greater or lesser stop activity involving minorities, respectively. Comparisons of minority groups to White drivers or White pedestrians where the 95% confidence interval lies above 1.0 (one) are **bolded** in the stops tables. One can say that the value of 1.0 does not fall within the 95% confidence interval of the estimated ratio. These **bolded** ratios are statistical deviations and may be the basis for further consideration of potential racial disparities related to stops. A **bolded** ratio does not prove that there is racial profiling but may serve as the basis for further inquiry. In addition to whether or not a ratio is **bolded**, the absolute magnitude of the ratio should be considered. For example, a **bolded** ratio of 5.0 is a higher priority to investigate than a smaller bolded ratio of 1.2. A larger ratio implies that the potential impact on individuals is larger, and it is less likely that the elevated ratio is only due to limitations of the chosen benchmark than when the ratio is closer to 1.0.

Limitations

There is a limitation in the use of ratios to determine potential racial disparities. As explained, the 95% confidence intervals for stop rates and stop rate ratios do not involve the systematic error in estimating the driver and pedestrian benchmarks. Note that each law enforcement agency has a "jurisdiction," which is the geographic area that the agency is responsible for policing. In this report "agency" and "jurisdiction" are sometimes used interchangeably.

The benchmarks attempt to estimate the driving population or the total mileage driven within the jurisdiction of each agency using a combination of data sources, including surveys by the U.S. Census Bureau, Illinois crash reports (collected by IDOT), Illinois driver's license counts (provided by the Illinois Secretary of State's office), tracking of mobile phones of drivers who opted in, employment data, traffic counts and other sources. However elaborate these datasets may be, they can only approximate local traffic dynamics and necessarily rely on particular assumptions, which may not always be accurate. Thus, all benchmarks will always come with some uncertainty, and the extent of this uncertainty is unknown since the underlying "truth" is unknown. The problem of accurately modeling the dynamic driving population simultaneously across hundreds of police agencies varying greatly in size and in the level of locally relevant detail is an enormously complex problem. At the same time, the statistics that can be estimated using the current level of modeling are relevant numerical relations. Their careful interpretation may prove useful to many agencies in various ways, provided that expectations of what these statistics can offer are tempered by awareness that certain limitations and assumptions are unavoidable.

Another limitation that may affect the rates, percentages and ratios is the designation of race by the law enforcement officer conducting the stop. That designation of race might not correspond to the driver's or pedestrian's own racial identity.

Also, the stop rate for a racial group will depend on a) the assignment of beats (geographic surveillance areas) to officers in a jurisdiction and b) the degree of association of those beats with the driving patterns of each racial group. If there is higher (or lower) surveillance of an area with a higher than usual driving concentration of a particular racial group, then that can lead to an overall higher (or lower) stop rate for that racial group, compared to a situation where all areas are being equally surveilled.

Finally, studies of this kind do not collect information on what happened ***before*** a stop occurred. They only see that a stop occurred and that certain outcomes were recorded. With this aspect of a stop being unavailable for analysis, a study cannot directly "calculate" if a larger than expected number of stops of drivers of a particular group was justified or involved profiling. Given this limitation, these statistical findings call for a careful and thoughtful interpretation and perhaps a communal dialogue following review of this report.

Statistics based on stops only

Some percentages and ratios of percentages in the tables are based on stop counts and stop activity only, and these statistics do not use benchmarks in the calculations. These percentages and ratios are given in Panels 2-6 of the statistical tables. They do not have the potential benchmarking errors noted above.

It is important to note that these percentages are calculated with reference to a specific activity. For example, in the traffic tables, the percentage of searches for a racial group is a percentage of *stops* leading to a search. The percentage of contraband found in a vehicle is the percentage of *vehicle*

searches leading to contraband found. For percentages, each row label (or the heading for the panel) indicates the basis for the percentage.

Can stop rates be compared across years?

The methodology used for calculating traffic stop rates in this study, using a population benchmark, differs from studies of stops in 2019-2020 and, for a different range of years, for stops in 2018 and earlier. This is the fifth consecutive report using essentially the same methodology, beginning with the 2021 stops report. However, the population benchmark methodology is also constructed so as to improve with additional data — a particular agency may have the population benchmark calculated by the distance-based approach one year and the crash-based approach the next year once enough crash data have been accumulated—and this shift may result in a discontinuity in stop rate ratios. See Section V below for specific details on the benchmarks. While the newest methodology provides more accurate estimates of the racial composition of the driving population than earlier approaches, the methodological changes affect comparisons of results from the 2021-2025 stops analysis to the analyses in 2019-2020 and to the analyses in years prior to 2019. Comparisons of 2025 to 2019-2020 are not perfect but are more acceptable than comparisons of 2025 to 2004-2018. The table formats are very similar when comparing 2025 to 2019-2020, even though there are some underlying methodological differences.

Thus, any difference in rate ratios between 2021-2025 stops reports and earlier stops reports (2019-2020 and 2004-2018) may be at least partly due to either accruing more crashes or the improvement in statistical methodology used in this report rather than to a real change in stop rates. The newest method is intended to estimate the population benchmark more accurately.

Another factor making it difficult to compare 2025 stop rates to 2018 rates (and earlier) is that the 2025 report presents rates, percentages and rate ratios separately for each of the six individual races — rather than with all minorities combined into one category, as used in the 2018 and earlier reports. Tables in Part II of this report show that the five minority races do have different stop rates, which can substantially distort the interpretation of those rates if combined. The statewide rates in Table 1, Panel 1, above, show a diversity of stop rates among the six races as well as among the five minority races.
The 2019-2020 reports also reported results separately for each individual race, making comparisons of 2019-2020 to 2021-2025 more straightforward.

Certain percentages will be comparable across years, because the percentages are based on stops data only without involving a benchmark, and percentages are calculated in the same manner as in previous years. However, to compare a percentage based on 2025 stops data to a percentage reported in a year prior to 2019, some additional calculations and reference to the original datasets will be needed. To calculate a percentage for 2025 stops of all minorities combined (not recommended), the user will need to add together, across the five minority racial groups, all of the numerators and, separately, all of the denominators and then divide the numerator sum by the denominator sum, then multiply by 100% to get the all-minority percentages.

In addition to combining the minorities together, prior to 2018 the stop rate ratios were not calculated relative to White drivers, but relative to all drivers. Such a measure (then called the "Ratio", also sometimes known as "Disparity Index") is inherently less sensitive to changes, numerically always closer to (biased toward) the value 1 than the current rate ratios are, and this measure depends on the relative sizes of racial groups compared to each other. This is all because this older measure involves the same drivers in both its numerator (being drivers of a particular race) and denominator (being among all drivers). This measure is methodologically and epidemiologically not used in modern statistical practice and should not be compared to the current rate ratios in any way.

V. Benchmarks

The number of stops for each racial group and each agency is weighed against a "benchmark" to calculate the agency's stop rate for that racial group, then to compare across the groups. Put simply, racial groups differ in size and it is not the same if one driver is stopped among 1,000 or among 10,000 peer drivers.

In the abstract mathematical sense, benchmarks can be seen as any set of numerical values, one number for each racial group, that are proportional to each other exactly as counts of police stops would be proportional to each other in a race-wise ideal setting.

In this "race-wise ideal" world:

1. traffic is identical to real-world traffic;
2. police actions are perfectly unbiased with respect to race of drivers;
3. drivers behave perfectly independently of their race.

In other words, traffic would be the same while people would act "race-wise ideally". Thus, "ideal" stops would be made; their differing counts for different race groups would be due to both differing populations of drivers and their respective driving patterns, and the particular patrolling patterns that might, incidentally, have affected racial groups differently. Complete knowledge about all these factors — driving and patrolling patterns — would be incorporated into the benchmarks and the stop counts would be proportional to the benchmark values. Stop rates for all racial groups would be equal, and all stop rate ratios would equal 1, except for some random variation ("play of chance") that would make the rate ratios deviate somewhat from 1.

In observing the actual, real-world stops (presented in the tables), the goal is then to construct and apply exactly such benchmarks as described above, to measure how different the actual stops are from the "race-wise ideal" stops. This is the essence of benchmarking in analyzing police stops: measuring real against some ideal stops.

Apart from being proportional to each other in the right measure, which is of primary importance, the actual benchmark numbers can carry additional meanings. In earlier reports, benchmarks were synonymous with counts of drivers who were actively engaged in traffic and could thus potentially be stopped.

Starting with last year's report on 2024 stops, we expanded this view by introducing new benchmarks that have a different added meaning: the total distance that drivers of a particular racial group have collectively driven within a jurisdiction on an average day. In a "race-wise ideal" world, these cumulative distances and the traffic stops could be expected to be equally distributed by race: if Asian drivers accounted for 20% of all miles driven, they could be expected to account for 20% of ideal stops.

It must be again emphasized that this new benchmark model is not intended to replace the existing one, but to serve as a meaningful alternative since it is informed by different and potentially very rich data sources. In this report, the new model is mentioned here in Section V and in Appendix D, and its main results are given in the individual tables in Part II of this report. Besides that, it is not used for any

other analysis or summary, neither in the Selected Findings nor in the Key Findings sections. This year, however, we continue comparing and contrasting the two benchmark models.

On Benchmark Accuracy

In view of how much knowledge needs to be incorporated in the construction of perfectly accurate benchmarks, a reader might conclude that the whole approach is inherently flawed. For some jurisdictions traffic patterns may seem overly complex or perhaps intractable, involving many visitors from distant areas or abruptly changing throughout the year. Moreover, patrolling patterns are not collected in this study and must be assumed uniform throughout a jurisdiction. Some jurisdictions are exceedingly small, and collecting their traffic data would raise privacy concerns.

Indeed, less-than-perfect benchmarks lead to less-than-perfect stop rate ratios. However, each benchmark model, even a crude one, when constructed in a racially unbiased way and with its assumptions and limitations clearly explained, provides relevant statistics that shed light on some aspects of police work.

Let us suppose that in a particular jurisdiction, for a given year, Black vs White drivers stop rate ratio was calculated as 2.0. If the simplest, residence-based benchmark model that excludes visiting drivers was used, this rate ratio answers the following question: how much more or less Black drivers were stopped as compared to White drivers, relative to these groups' residential population within the jurisdiction, as estimated by the U.S. Census Bureau's most recent survey? If the crash-based benchmark model was used, it answers a more focused question: how much more or less Black drivers were stopped as compared to White drivers, relative to these groups' local presence on the streets as revealed by the recent crash data as collected by the state of Illinois?

Population Benchmarks

The first benchmark model used in this report is the same one introduced in the report on 2021 stops. That benchmark methodology is now referred to as "Population Benchmarks". Units of this model are individuals who drive, at any point during the year, within a given jurisdiction and can potentially be stopped in that jurisdiction by a law enforcement officer of that agency. By this method, benchmarks represent the estimated counts of such drivers, not only residents of the jurisdiction but also drivers from surrounding areas who may pass through the jurisdiction.

For agencies that want to review trends in their data, this population benchmark provides the continuity with results in our previous reports for 2021 to 2025 stops. One caveat is that the benchmark for a particular agency might have been calculated by the distance-based approach for some years and by the crash-based approach later on as sufficient crash data have been accumulated. In that case, the results in the two periods might be more difficult to compare.

The population benchmark provides an estimated population count for each of the six racial groups. These population counts are then compared to the traffic stop counts of each racial group to assess the stop rates (stops per unit of population) of each racial group and compare them across groups. See

Appendix C of our earlier report on 2022 stops, Technical Notes on Benchmarks, for a detailed discussion of population benchmarks and associated calculations, including important limitations.

The methods for calculating the population benchmark for each agency for this report on 2025 stops are essentially the same as those used in reports on 2021-2024 stops. Briefly, traffic stop population benchmarks are based on the U.S. Census Bureau's most recent American Community Survey population statistics tabulated at the ZIP code level, and Illinois driver's license counts provided by the Illinois Secretary of State's office. Together, these datasets provide estimates of residential populations of drivers of each race within each ZIP area. Next, for agencies with a sufficient number of crash reports within their jurisdiction, the Illinois traffic crash report data (based on Illinois Traffic Crash Report SR 1050 manual[1]) were used to build the traffic stop crash-based population benchmarks. For agencies without sufficient crash reports, the traffic stop population benchmarks were constructed by combining population data from surrounding ZIP code areas, weighted by the distance from the agency's jurisdiction (distance-based population benchmarks). Both types of population benchmarks (crash-based and distance-based) combine populations from ZIP codes directly associated with an agency (e.g., the ZIP codes of a city for a city police agency) as well as populations from ZIP codes from the surrounding area. It should be noted that the traffic stop and pedestrian stop population benchmark methodologies differ because of the different data sources available to generate them. Thus, it is not unusual for there to be notable differences between the traffic and pedestrian population benchmarks for the same agency.

Mileage Benchmarks

The second model is based on the estimated number of miles driven within a jurisdiction, meaning the total number of miles driven by all individuals of a particular racial group, within the boundaries of a jurisdiction on an average day. In this view, a stop is equally likely to occur within any given mile driven, and only some of those miles involve an actual stop. The stop rate here is the count of stops divided by the count of miles for a particular racial group. We refer to these benchmarks as "Mileage Benchmarks", as their numerical values estimate counts of miles driven within a jurisdiction. Any individual driving within a jurisdiction may be stopped by a law enforcement officer of the agency and thus contributes, in proportion to the distance traversed, to the agency's mileage benchmark.

These benchmarks are constructed from the various outputs of the Replica data platform — a large-scale computer simulation of nationwide traffic dynamics with high geolocation granularity that is continuously maintained and updated using near real-time data from a wide range of sources. Replica is used by various state and local government agencies, including IDOT. In this regard, the project of investigating potential bias in police stops is integrated with the software infrastructure already used by IDOT.

[1] https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/manuals-guides-and-handbooks/safety/illinois-traffic-crash-report-sr-1050-instruction-manual-2019.pdf. Last accessed 08/01/2026.

For traffic stops, the mileage benchmark provides an estimated cumulative "mileage" – "total distance driven, expressed in miles" – for each of the six racial groups. These mileage counts are then compared to the traffic stop counts of each racial group to assess and compare the stop rates (stops per unit of distance driven) of each racial group. See Appendix D in this document for more information on the methodologies, the advantages and limitations of the mileage benchmark model.

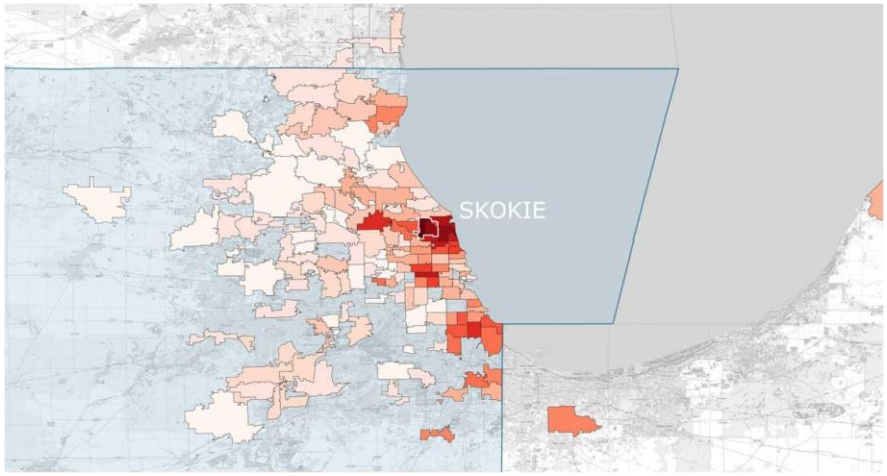
The methods for calculating the mileage benchmark for each agency for this report are as follows. Briefly, traffic stop mileage benchmarks are based on five broad data categories: mobile location data, consumer and residential data, built environment data, economic activity data, and "ground truth" or various observed counts. All these sources are used to create a synthetic population of individuals in their daily commute that must conform to the observed patterns and facts across all datasets. This richness and variety of data sources combined with extensive computational capabilities hold great potential for creating an alternative set of benchmarks. The model simulates individual trips taken during a typical day. Each trip is fully geolocated and partitioned into short street segments. The mileage benchmark is calculated as the sum of the lengths of all the segments that fall within a given jurisdiction and are associated with all recorded daily trips of drivers of a particular race. Thus, a driver who covers more miles within a jurisdiction will influence the benchmark more than a driver who quickly passes through.

Comparison of the two benchmark models

In our previous report on 2024 stops, we began comparing the results of the two benchmark models. Both models start with the same demographic information on where potential drivers reside (ACS, PUMS data), and then proceed through different pathways to produce benchmark estimates. By design, the two models should capture the same underlying probability of being stopped: by driving more miles, a driver linearly increases the chance of being involved in a crash as a non-at-fault party — twice the mileage, twice the likelihood.

This is illustrated in Figures 1a-c. Figures 1a and 1b show, on the same scale, ZIP areas of residence of Black drivers who drive through Skokie, according to the two models. The patterns are very similar. The darker-colored regions (contributing more to the traffic within the Skokie jurisdiction) are roughly Skokie itself and Evanston, then areas around Rogers Park, Garfield Park, south of downtown, then the North Chicago/Waukegan area, around Chicago Heights, and other areas beyond. ZIP areas that did not contribute any Black drivers are not shown.

Figure 1a. ***Heatmap of the residential ZIP areas of drivers involved in crashes as a not-at-fault party, used to build the Black population benchmark of Skokie*****. Each ZIP area is colored according to its percentage contribution to the benchmark; the larger the contribution, the darker the red color. The boundary of the jurisdiction is shown as a thin white line. The Illinois state boundary and area are marked in blue.**



One notable difference is a smaller number of ZIP areas involved in creating the crash-based benchmark. This is likely due to the finite number of crashes that were available for the analysis: many distant ZIP areas contribute a small amount of traffic within Skokie, and no recent crashes involving Black drivers from those areas have been recorded. In contrast, even a single (synthetic) Black driver from a distant ZIP area passing briefly through Skokie is enough to contribute to the mileage benchmark.

Figure 1b. ***Heatmap of the residential ZIP areas of Black drivers that drove within the jurisdiction of Skokie, according to the Replica model.*** **Each ZIP area is colored according to its percentage contribution to the total mileage driven through the jurisdiction by Black drivers; the larger the contribution, the darker the red color. The boundary of the jurisdiction is shown as a thin white line. The Illinois state boundary and area are marked in blue.**

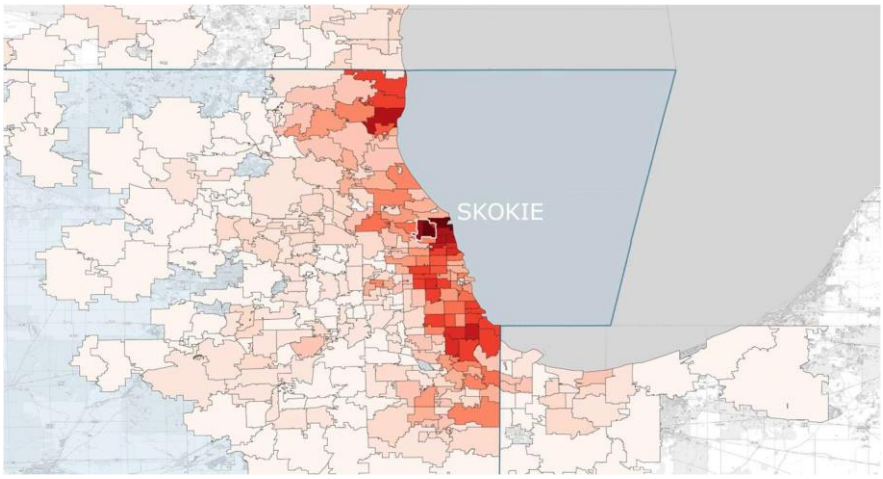
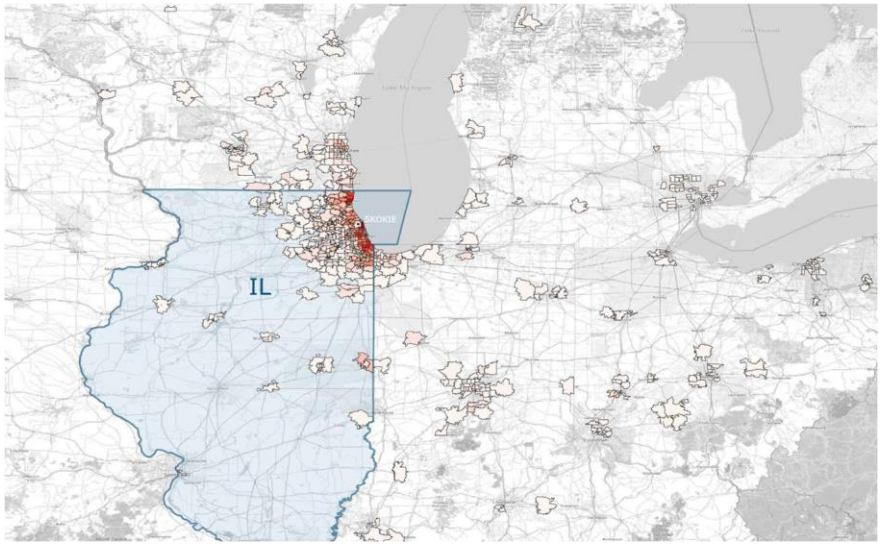


Figure 1c is the same as Figure 1b shown at a smaller scale. The Mileage model includes Black drivers that visit Skokie from very distant areas, although these areas provide a relatively small contribution to the mileage benchmarks. Many of these distant regions are not included in the crash-based model due to the limited number of crashes available.

Figure 1c. ***The same heatmap as in Figure 1b, showing a wider geographic area.***



Besides these general similarities, the crash-based approach has a well-recognized limitation: crash reports do not record the driver's race. As a necessary approximation, we assume that a driver involved in a crash is racially representative of the drivers in their ZIP code. If, for example, half of the drivers in that ZIP code are White and a third are Black, that driver is counted as one-half toward the White group benchmark and one-third toward the Black group benchmark.

This approximation affects the stop rate ratios. Table 2 summarizes the disagreement between the rate ratios given by the two benchmark models. It shows the proportion of agencies whose stop rate ratios agree between the two models within 25%, 50% or 100% for the three largest minority groups (versus White). For example, in 53% of agencies, Black vs White rate ratios calculated by two benchmark models are within 50% of each other (meaning that the larger value is less than 1.5 times the smaller value). We showed in the previous report (on 2024 stops) that these disagreements are further reduced when the two models apply the same approximation of estimating drivers' races from their residence.

Table 2. ***Proportion of agencies whose stop rate ratios, as calculated by the two benchmark models, disagree by the specified percentage (25-50-100% or less).*** **The Chicago Police Department is included not as a single agency but as its 22 individual police districts, each treated as a separate agency.**

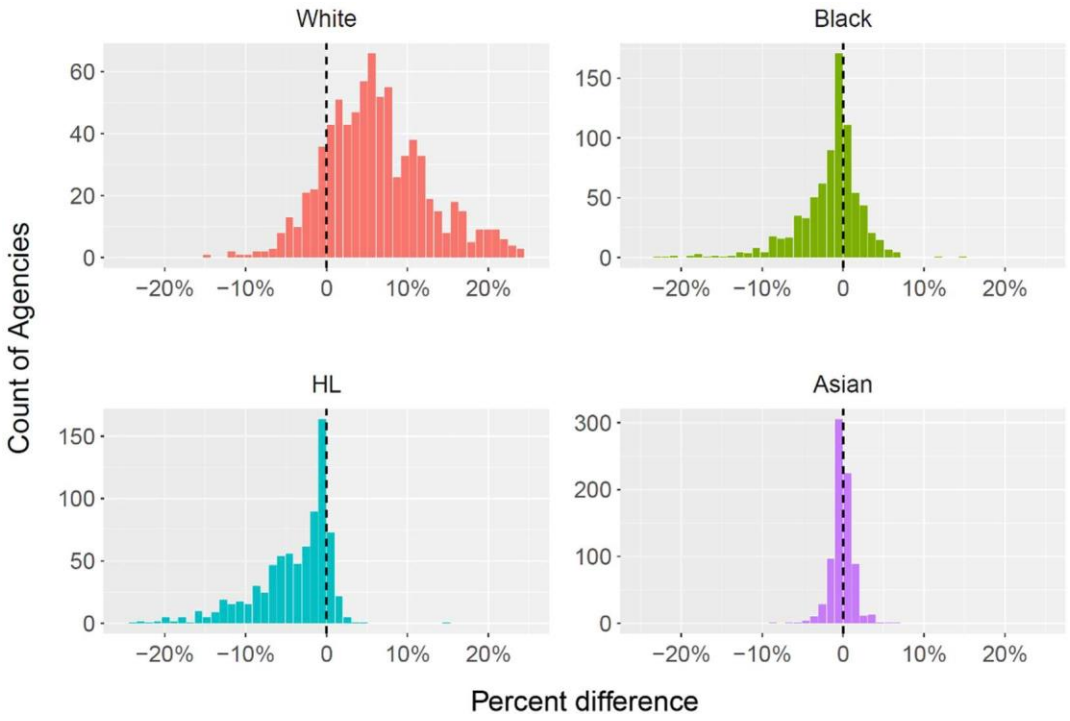
Stop rate ratio	Disagreement in stop rate ratios between two benchmark models being:		
	25% or less	50% or less	100% or less
Black vs White	30%	53%	74%
HL vs White	17%	37%	69%
Asian vs White	49%	70%	86%

Abbreviations for racial groups: Black = "Black or African American", HL = "Hispanic or Latino".

Benchmark models differ predominantly by the distribution of their numerical values by race: any model that states that White drivers account for 42% and Black drivers account for 27% of the local traffic will produce the same stop rate ratios, whether it is the population or the mileage or any other benchmark model.

Figure 2 shows the number of agencies with a particular percent difference between the mileage and the population benchmark models for the four largest racial groups. For example, if for an agency the population benchmark for White drivers is 40% of the sum across all racial groups and the mileage benchmark for White drivers is 45% of the sum across all racial groups, this agency has a 5% difference for the White group benchmark and is placed in the corresponding histogram bin.

Figure 2. ***Histograms showing the number of agencies with a particular benchmark percent difference for a racial group, calculated by the two benchmark models.*** **Chicago PD is included not as a single agency but as its 22 individual police districts, each treated as a separate agency. Note that the upper and lower limits of the y-axis vary across the panels.**



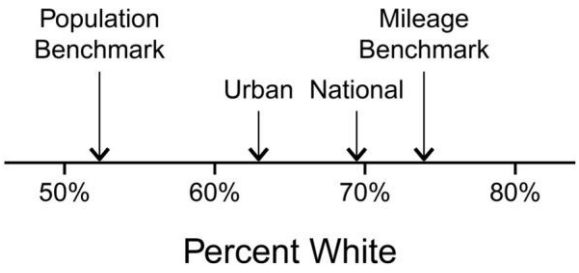
Abbreviations for racial groups: Black = "Black or African American", HL = "Hispanic or Latino".

The percentage of the White benchmark is then systematically larger in the Mileage-based model as compared to the crash-based model, while the percentages of minority benchmarks are smaller in the Replica-based model. Briefly stated: overall, White drivers account for more traffic in the Replica-based model than in the crash-based model.

In the crash-based model, a single driver involved in a crash contributes to benchmarks of all racial groups in proportion to how many driver's license holders there are of each race within that driver's ZIP area of residence. Thus, White drivers taken as a group drive in proportion to how many driver's licenses they hold relative to the number of licenses that all drivers hold. In the Mileage-based model, White drivers account for a still greater share of traffic; a typical White license holder drives more miles than a typical minority license holder.

On the national level, Raifman and Choma[2] estimated the average number of miles driven annually per person in four racial groups: Hispanic, Non-Hispanic White, Black and Asian. This study used data from the 2017 National Household Travel Survey by the U.S. Department of Transportation and the 2020 U.S. Census counts. They distinguished between national and urban area averages, and the findings are summarized in Figure 3. The percentages shown are the contribution of White drivers to the total traffic involving the four racial groups: Hispanic, Non-Hispanic White, Black and Asian (making 100% total).

Figure 3. ***The per person contribution of White drivers to annual miles driven at the national (69.4%) and the urban areas (62.9%) levels, among four racial groups: Hispanic, Non-Hispanic White, Black and Asian groups.*** **Also shown are the corresponding contributions of White drivers in the statewide population (52.3%) and mileage (73.9%) benchmarks.**



Our team is currently unaware of similar research done specifically for the state of Illinois. According to 2020 Census data[3], Illinois' population is 86.9% urban, considerably above the average across the states (72.9%). This suggests that the contribution of White drivers to the total state traffic may be somewhat lower than the national average of 69.4%, perhaps still in the high-60% range. That would place the White driver contribution somewhere between the values given by the population benchmark and the mileage benchmark models, closer to the mileage model.

Based on these findings, overall, crash-based benchmarks may be undershooting, while Replica-based benchmarks may be overshooting White driver contributions to local traffic. The best guidance our team can offer police agencies at this time is to consider each stop rate ratio as somewhere between the two values reported in their respective agency tables and closer to the value based on mileage benchmarks.

[2] Raifman, Matthew A., Ernani F. Choma. *"Disparities in Activity and Traffic Fatalities by Race/Ethnicity."* American Journal of Preventive Medicine, 2022; 63, 160-167.

[3] census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural.html

Figure 4. ***Illustration of the difference between two benchmark models.*** **The traffic flow of White and Black drivers from their home ZIP area 60616 into Chicago Police districts 7 and 19, according to the two models. The blue shading and border indicate Chicago city limits.**

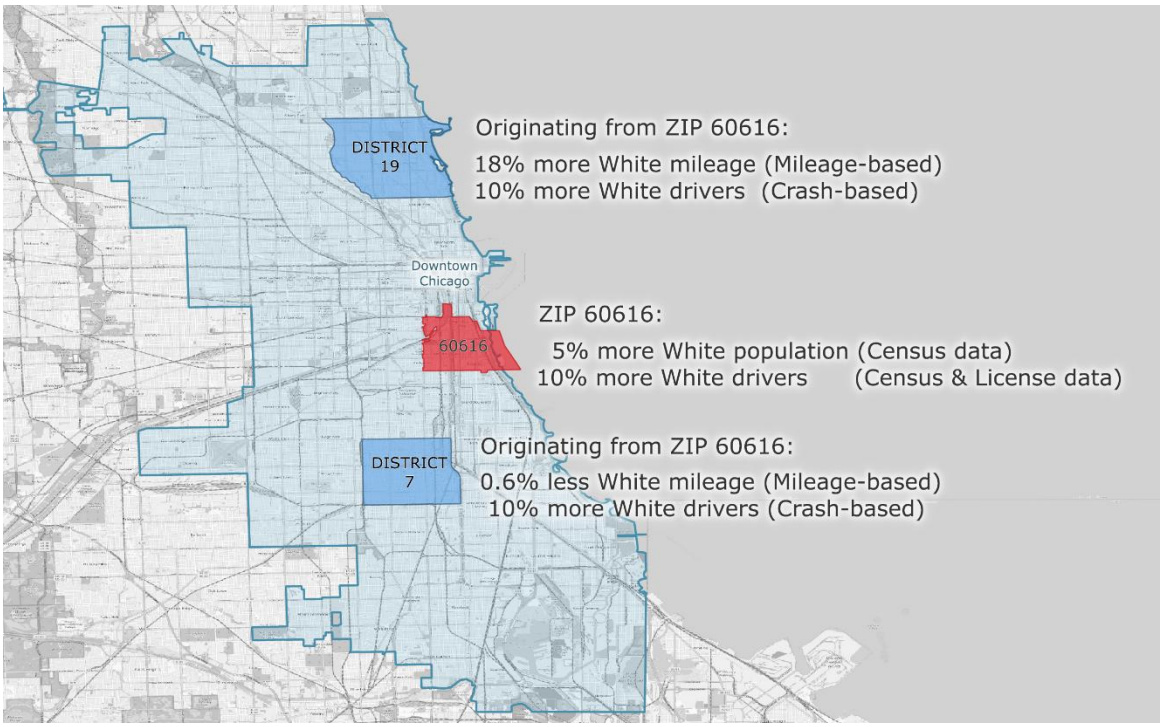


Figure 4 shows a further difference between the two benchmark models, using the example of the traffic flow of White and Black drivers from their home ZIP area 60616 into Chicago Police districts 7 and 19. The U.S. Census Bureau approximates ZIP codes (defined by the U.S. Postal Service) with ZIP code tabulation areas. Throughout this report, the term "ZIP code" will be used to refer both to ZCTAs and U.S. Postal Service ZIP code for simplicity.

The two districts in the Chicago area were selected for their contrasting racial compositions: District 7 has a dominant Black population, District 19 has a dominant White population, while in ZIP area 60616 the two populations are nearly equal in size.

In 60616, according to the most recent Census (ACS, PUMS) data, the White population is 5% larger than the Black population. When driver license holders are taken into account, we estimate that in 60616 there are 10% more White drivers than Black drivers.

In the crash-based model, drivers residing in 60616 drive to all other areas irrespective of their race. Therefore, those White drivers contribute the same 10% more than Black drivers from 60616 to the total traffic within both District 7 and District 19. In the Mileage-based model, White drivers from 60616 are somewhat more often found within White-dominated District 19 while Black drivers from 60616 are

somewhat more often found within Black-dominated District 7. The differences in the percentages are given in Figure 4.

In conclusion, there are several reasons to consider the Mileage-based benchmark model as more accurate than the crash-based model. The Mileage model: captures a wider geographic reach of visiting drivers (due to limited crash data availability), has a traffic distribution across racial groups closer to that suggested by US national averages and captures more nuanced traffic patterns with respect to the racial composition of drivers. Going forward, the team will continue investigating the contrasts between the two benchmark models.

VI. Selected Findings

This section of the report shows some tables and figures that present results on the agencies and their stops from the entire state of Illinois for 2025. Some results are compared with corresponding earlier values. All benchmark-related results in this section are solely based on population benchmarks.

Agency reporting status

Among the 984 agencies that were active at the end of 2025 and could submit stop data to IDOT, 76.4% of the agencies had stops and provided complete stop data to IDOT (Table 3, top numeric row), which is a 2.5% decrease from 2024. Additional descriptive statistics on agency reporting for 2025 stops:

- 2.1% of agencies had no traffic stops, a value between the 2023 and 2024 values.
- 2.3% of agencies reported stop data for less than a year ("incomplete"), a return to the 2023 value.
- 19.1% of agencies had stops but did not submit any stop data ("Non-compliant"), a somewhat increasing trend in the last three years of reporting.

Table 3. *Agency reporting status* — Illinois, all agencies, traffic stops, 2023–2025.

Status of Agency	2023		2024		2025	
	Number of agencies	Percent of agencies	Number of agencies	Percent of agencies	Number of agencies	Percent of agencies
Complete reporting[a]	779	78.1%	772	78.9%	752	76.4%
Zero stops[b]	37	3.7%	15	1.5%	21	2.1%
Incomplete[c]	23	2.3%	14	1.4%	23	2.3%
Non-compliant[d]	158	15.8%	177	18.1%	188	19.1%
All agencies combined	997	100%	978	100%	984	100%

[a]Agency with one or more stops that were completely reported.
[b]Agency performed no stops over the year.
[c]Agency submitted some but not all of their stops for the year.
[d]Agency made stops, but no stops data was submitted.

Number of stops

The total number of reported traffic stops in 2025 was 2,062,325. The majority of agencies (78%) reported over 100 stops during 2025 (Table 4). In 2024, the Chicago Police Department reported a notable 45% decrease in the number of stops from 2023, and in 2025 that number decreased further.

Table 4. *Number of traffic stops for agencies with at least one stop*— Illinois, all agencies, traffic stops, 2023–2025.

Number of stops	2023		2024		2025	
	Number of agencies	Percent of Agencies	Number of agencies	Percent of agencies	Number of agencies	Percent of agencies
1-10	59	7.4%	50	6.3%	57	7.4%
11-100	134	16.7%	104	13.2%	114	14.7%
101-1,000	288	35.9%	294	37.3%	266	34.3%
1,001-10,000	301	37.5%	316	40.1%	309	39.9%
10,001-100,000	18	2.2%	22	2.8%	27	3.5%
More than 100,000	2	0.2%	2	0.3%	2	0.3%
All compliant agencies with at least 1 stop	802	100%	788	100%	775	100%

Notes:

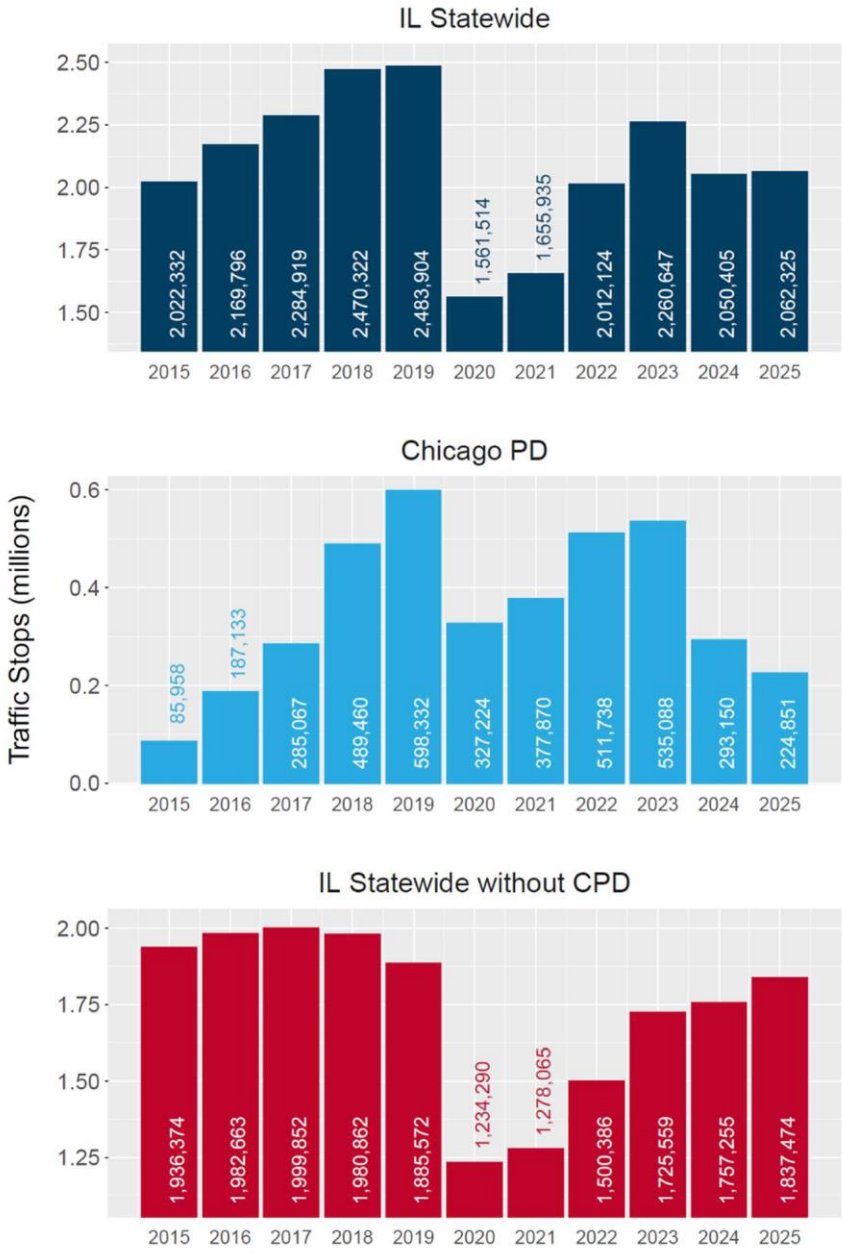
(1) Includes only agencies with at least one stop and includes all agencies with either complete or incomplete reporting of 2025 stops.

(2) Chicago Police Department: 535,088 in 2023; 293,150 in 2024; 224,851 in 2025. (Chicago PD is also represented in the table above).

In 2025, there were no reported stops with missing information about the race of the driver, the same as in 2024. In 2023, there were 78 such stops. The number of reported stops per year grew steadily from 2015 to 2019 (Figure 5a, top panel), a 23% increase overall. Due to COVID-19, in 2020 the number of reported stops sharply decreased by 37% from 2019. During 2020–2023, this number steadily increased again, reaching 45% above the 2020 value by 2023. In 2024, the number decreased by 9.3% from 2023 and approximately returned to its 2015 value. In 2025, the number remained nearly unchanged.

The drop in the number of reported stops in 2024 and 2025 relative to 2023 (by approximately 200,000) is tightly related to the drop in the number of stops reported by the Chicago Police Department in 2024 (by approximately 240,000). The number of traffic stops reported by the Chicago Police Department alone varied considerably (Figure 5a, middle panel) since 2015. Excluding Chicago Police Department stops, the number of stops of all other agencies shows a simpler pattern: a relatively stable period during 2015–2019, then a COVID-related drop in 2020, followed by uninterrupted recovery through 2025.

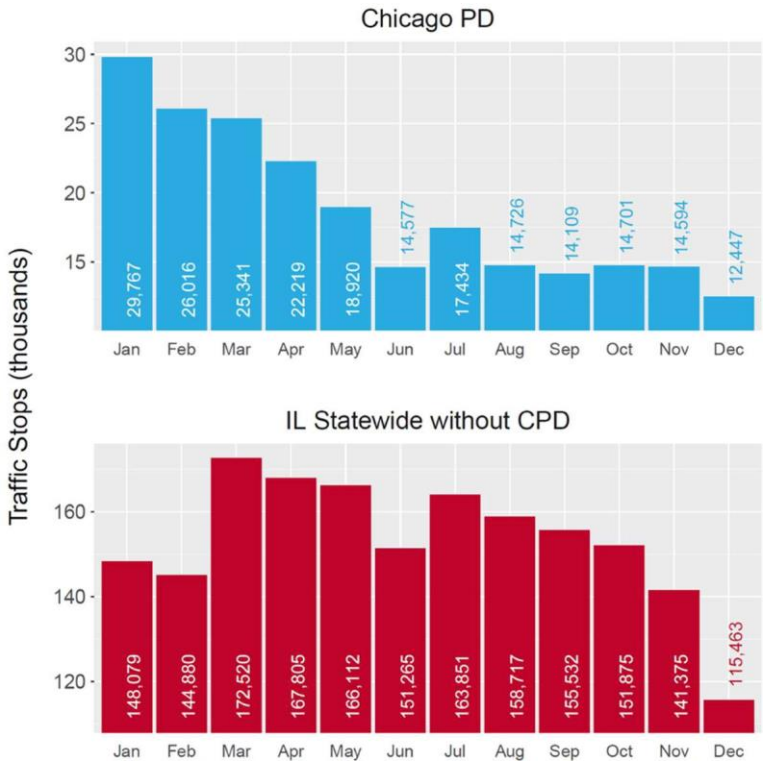
Figure 5a. *Number of traffic stops*, 2015-2025. The panels show the reported stops for: statewide (top), by the Chicago Police Department (middle) and statewide excluding the Chicago Police Department (bottom).



The monthly pattern of traffic stops reported by the Chicago Police Department (Figure 5b, top panel) differs from the statewide pattern excluding Chicago Police Department stops (Figure 5b, bottom). In Chicago, there is a steady decline in the number of stops during the first half of the year, which then

remains roughly constant in the second half. In the rest of Illinois, the number of stops fluctuates from month to month, but only December stands out with notably fewer stops.

Figure 5b. *Number of traffic stops per month*, 2025. The panels show the stops reported by the Chicago Police Department (top) and statewide excluding the Chicago Police Department (bottom).



Statewide stop rate ratios

The statewide stop rate ratios were fairly constant within the last five years, 2021–2025 (Figure 6), the years when crash-based benchmarks were used. Stop rate ratios of Black, American Indian or Alaska Native, and Native Hawaiian or Other Pacific Islander groups remained above 1, of the Asian group remained below 1 and of the Hispanic or Latino group hovered around 1. The Black drivers' stop rate ratio declined somewhat starting in 2024. The Native Hawaiian drivers' stop rate ratio rose sharply in 2022, then returned to near its 2021 value in more recent years — as by far the smallest minority group, it is also the hardest group for whom to estimate statistics accurately even when aggregated at the statewide level.

Figure 6. *Stop rate ratios for each minority group*, 2021–2025. The dashed horizontal line shows value 1, indicating an equal stop rate to that of the White group. Note that the upper and lower limits of the y-axis vary across the panels.

Abbreviations for racial groups: Black = "Black or African American", HL = "Hispanic or Latino", AIAN = "American Indian or Alaska Native", NHOPI = "Native Hawaiian or Other Pacific Islander".

Distribution of stop rate ratios

Table 7a shows the numbers of comparisons of stop rates of a minority racial group and the White group carried out in the traffic stop study. Any comparison yields a rate ratio: the minority stop rate divided by the White stop rate. Each agency may contribute up to five such comparisons using their population benchmark (five minority groups, each comparing their stop rates to the stop rate of the White group). For this analysis there were fewer than five comparisons when White drivers had zero stops or when a population benchmark value was zero for either a minority or the White group, rendering some rate ratios numerically undefined.

The first column under "A" in Table 7a illustrates all comparisons: each minority/White rate ratio from each agency has been compiled across all agencies. Table 7a then categorizes the rate ratios by their magnitude and shows the percentage distribution across categories. The columns under "B" restrict the comparisons to agencies with stop rates based on at least 50 White stops and 50 stops of the minority group being compared to the White group. A minimum of 50 stops provides a more precise

rate ratio than a smaller number of stops. The high percentage of rate ratios in the "<0.25" category in column A across all years is attributable to the many small agencies with few total stops and zero stops for one or more minority groups.

We note a marked reduction — nearly fourfold from Panel A to Panel B — in the total number of rate ratios, from 3,843 (all comparisons) down to 1,009 (more precise comparisons) in 2025, as in previous years. From the more precise comparisons (Panel B, based on 50 or more stops of the White group and 50 or more stops of the minority group compared) we find that 79% of these rate ratios indicate minority drivers were stopped at a higher rate than White drivers (rate ratio > 1).

In the "race-wise ideal" world described in Section V of this report, where all stop rate ratios would equal one up to some statistical variation ("play of chance"), this figure would be expected to be close to 50%. This is consistent with the possibility, though it does not constitute proof, that racial profiling was a factor in traffic stops across Illinois.

***Table 7a. Distribution of stop rate ratios* — Illinois, traffic stops, 2023–2025. Each minority group is compared to the White group at the agency level.**

	A. All agencies and racial groups*			B. Agencies and racial groups with at least 50 stops**		
Stop rate ratios	2023	2024	2025	2023	2024	2025
<0.25	32.8%	30.3%	31.1%	0.9%	0.9%	0.9%
0.25 to <0.5	8.1%	7.4%	7.3%	4.1%	4.6%	4.5%
0.5 to <1.0	14.4%	13.9%	15%	16.7%	16.5%	15.7%
1.0 to <2.0	18.1%	19.9%	19.8%	35.2%	34.6%	36.1%
2.0 to <4.0	15.7%	16%	15.8%	33%	31.9%	31.4%
≥4.0	10.9%	12.5%	11%	10.1%	11.6%	11.5%
All ratios***	100%	100%	100%	100%	100%	100%

*All comparisons of the White group and a minority group for all agencies. Excludes ratios from agencies with zero stops of White drivers or a population benchmark value of zero for either a minority racial group or White group.

**All comparisons of the White group and a minority group for all agencies; all comparisons must have at least 50 stops of the White group and 50 stops of the compared racial group. Excludes undefined rate ratios, or where either the White group or the compared racial group have fewer than 50 stops.

***The numbers of ratios included in columns A and B, respectively, were 3,999 and 958 in 2023; 3,920 and 1,001 in 2024; and 3,843 and 1,009 in 2025. Each ratio involves a comparison of one minority group to the White group for one agency.

The overall distribution of rate ratios seems rather similar in 2023-2025. The 95% confidence intervals provided in the tables of Part II should be used as a guide to the precision - not necessarily accuracy - of rates, percentages and rate ratios when interpreting the numeric results for a specific agency.

Table 7b shows the distribution of stop rate ratios in 2025 among the three largest minority groups. Since each agency provides only a single stop rate ratio for a single minority group, here, a proportion of stop rate ratios corresponds to a proportion of agencies. From the more precise comparisons (panel B, based on agencies with more stops) we estimate that in 94.6% of agencies with at least 50 stops for both White and Black drivers, Black drivers are stopped at a higher rate than White drivers (rate ratio > 1). For Hispanic or Latino drivers, this value is 80.4%. As noted in Table 7a, this is consistent with the possibility, though it does not constitute proof, that racial profiling was a factor in traffic stops. This pattern is not observed for Asian drivers, who are stopped at a higher rate than White drivers in only 35.2% of agencies with at least 50 stops for both White and Asian drivers.

***Table 7b. Distribution of stop rate ratios for Black, Hispanic or Latino, and Asian drivers* — Illinois, traffic stops, 2025. Each minority group is compared to the White group at the agency level.**

	A. All agencies and racial groups			B. Agencies and racial groups with at least 50 stops*		
Stop rate ratios	Black	HL	Asian	Black	HL	Asian
<0.25	9.2%	15%	35.2%	0%	1.7%	1.6%
0.25 to <0.5	3%	6.4%	16.6%	0.2%	4.5%	15.4%
0.5 to <1.0	11.8%	17.7%	27.8%	5.2%	13.4%	47.8%
1.0 to <2.0	25.5%	38.8%	15.1%	26.4%	53.4%	31.3%
2.0 to <4.0	35.6%	18.6%	4.2%	51.2%	23.7%	2.7%
≥4.0	14.8%	3.6%	1%	17%	3.4%	1.1%
All ratios**	100%	100%	100%	100%	100%	100%

*All comparisons of the White group and a minority group for all agencies; all comparisons must have at least 50 stops of White drivers and 50 stops of the compared minority group drivers. Excludes undefined rate ratios, or where either the White group or the compared minority group drivers have fewer than 50 stops.

**The numbers of ratios that were included in the analysis in column A were 769 each for Black, Hispanic or Latino, and Asian group; in column B these were 424 for the Black group, 358 for Hispanic or Latino, and 182 for Asian. Each ratio involves a comparison of one minority group to the White group for one agency.

Abbreviations for racial groups: Black = “Black or African American,” HL = “Hispanic or Latino.”

Table 7c shows the distribution of citation ratios in 2025 among the three largest minority groups and for all minority groups combined. A citation is the most severe outcome among the three outcomes noted on the data collection form: verbal warning, written warning and citation. Here we estimate that in 70.8% of all agencies with at least 50 stops for both White and Black drivers, Black drivers receive citations at a higher rate than White drivers (citation ratio > 1). For Hispanic or Latino drivers, this value is 83.3%. As noted in Table 7a, this is consistent with the possibility, though it does not constitute proof, that racial profiling was a factor in the issuance of citations. This pattern is not observed for Asian drivers, who receive citations at a higher rate than White drivers in 46.2% of all agencies with at least 50 stops for both White and Asian drivers. Overall, in 69.2% of all citation ratios minority drivers received citations at a higher rate than White drivers.

***Table 7c. Distribution of citation ratios for Black, Hispanic or Latino, and Asian drivers* — Illinois, traffic stops, 2025. Each minority group is compared to the White group at the agency level.**

Citation rate ratios*	Black	HL	Asian	All minority groups
<0.25	0%	0.3%	2.7%	0.6%
0.25 to <0.5	0.5%	0.3%	2.2%	1.5%
0.5 to <1.0	28.8%	16.2%	48.9%	28.7%
1.0 to <2.0	67.2%	78.3%	46.2%	65.7%
2.0 to <4.0	3.5%	4.7%	0%	3.4%
≥4.0	0%	0.3%	0%	0.1%
All ratios**	100%	100%	100%	100%

*All comparisons of the White group and a minority group for all agencies; all comparisons must have at least 50 stops of White drivers and 50 stops of the compared minority group drivers. Excludes undefined ratios, or ratios where either the White group or the compared racial group have fewer than 50 stops.

**The number of ratios included in this analysis for 2025 stops was 1,010, with 424 for Black drivers, 359 for Hispanic or Latino, and 182 for Asian. Each ratio that enters into the computation involves a comparison of one minority group to the White group for one agency.

Abbreviations for racial groups: Black = “Black or African American,” HL = “Hispanic or Latino.”

Table 7d shows the distribution of contraband-found ratios in vehicle searches in 2025 among the three largest minority groups and for all minority groups combined. Here we estimate that in 65.4% of all agencies with at least 50 stops for both White and Black drivers, contraband is found in the Black driver vehicle searches at a higher rate than in the searches of White drivers (ratio > 1). For Hispanic or Latino drivers, this value is 37.1%, and for Asian drivers it is 36.3%. The overall percentage for all racial

groups is 49.8%. This result does not suggest the presence of racial profiling related to the contraband aspect of traffic stops in this data.

***Table 7d. Distribution of contraband-found ratios in vehicle searches for Black, Hispanic or Latino, and Asian drivers* — Illinois, traffic stops, 2025. Each minority group is compared to the White group at the agency level.**

Contraband rate ratios*	Black	HL	Asian	All minority groups
<0.25	7.6%	12%	32.7%	13.7%
0.25 to <0.5	4.9%	7.6%	2.7%	5.7%
0.5 to <1.0	22%	43.3%	28.3%	30.7%
1.0 to <2.0	57.5%	31.3%	23.9%	42%
2.0 to <4.0	8%	5.8%	11.5%	7.5%
≥4.0	0%	0%	0.9%	0.3%
All ratios**	100%	100%	100%	100%

*All comparisons of the White group and a minority group for all agencies; all comparisons must have at least 50 stops of White drivers and 50 stops of the compared minority group drivers. Excludes undefined ratios, or ratios where either the White group or the compared racial group have fewer than 50 stops.

**The number of ratios included in this analysis for 2025 stops was 735, with 327 for Black drivers, 275 for Hispanic or Latino, and 113 for Asian. Each ratio that enters into the computation involves a comparison of one minority group to the White group for one agency.

Abbreviations for racial groups: Black = "Black or African American," HL = "Hispanic or Latino."

Table 7e shows the distribution of contraband-found ratios in searches of individual drivers or passengers in 2025 among the three largest minority groups and for all minority groups combined. Here we estimate that in 39.8% of all agencies with at least 50 stops for both White and Black groups, contraband is found in searches of Black drivers or their passengers at a higher rate than in searches of White drivers or their passengers (ratio > 1). For Hispanic or Latino drivers or their passengers, this number is 23.9%, for Asian drivers it is 24.4% and the overall percentage for all racial groups is 31.1%. This result does not suggest the presence of racial profiling related to this aspect of traffic stop data.

***Table 7e. Distribution of contraband-found ratios from searches of drivers or passengers for Black, Hispanic or Latino, and Asian drivers* — Illinois, traffic stops, 2025. Each minority group is compared to the White group at the agency level.**

Contraband rate ratios*	Black	HL	Asian	All minority groups
<0.25	25.4%	42.1%	67.9%	39%
0.25 to <0.5	9.8%	10.5%	3.8%	8.9%
0.5 to <1.0	25%	23.4%	3.8%	20.9%
1.0 to <2.0	27.7%	14.8%	2.6%	18.6%
2.0 to <4.0	9.8%	8.1%	9%	9.1%
≥4.0	2.3%	1%	12.8%	3.4%
All ratios**	100%	100%	100%	100%

*All comparisons of the White group and a minority group for all agencies; all comparisons must have at least 50 stops of White drivers and 50 stops of the compared minority group drivers. Excludes undefined ratios, or ratios where either the White group or the compared racial group have fewer than 50 stops.

**The number of ratios included in this analysis for 2025 stops was 559, with 25 for Black drivers, 209 for Hispanic or Latino, and 78 for Asian. Each ratio that enters into the computation involves a comparison of one minority group to the White group for one agency.

Abbreviations for racial groups: Black = "Black or African American," HL = "Hispanic or Latino."

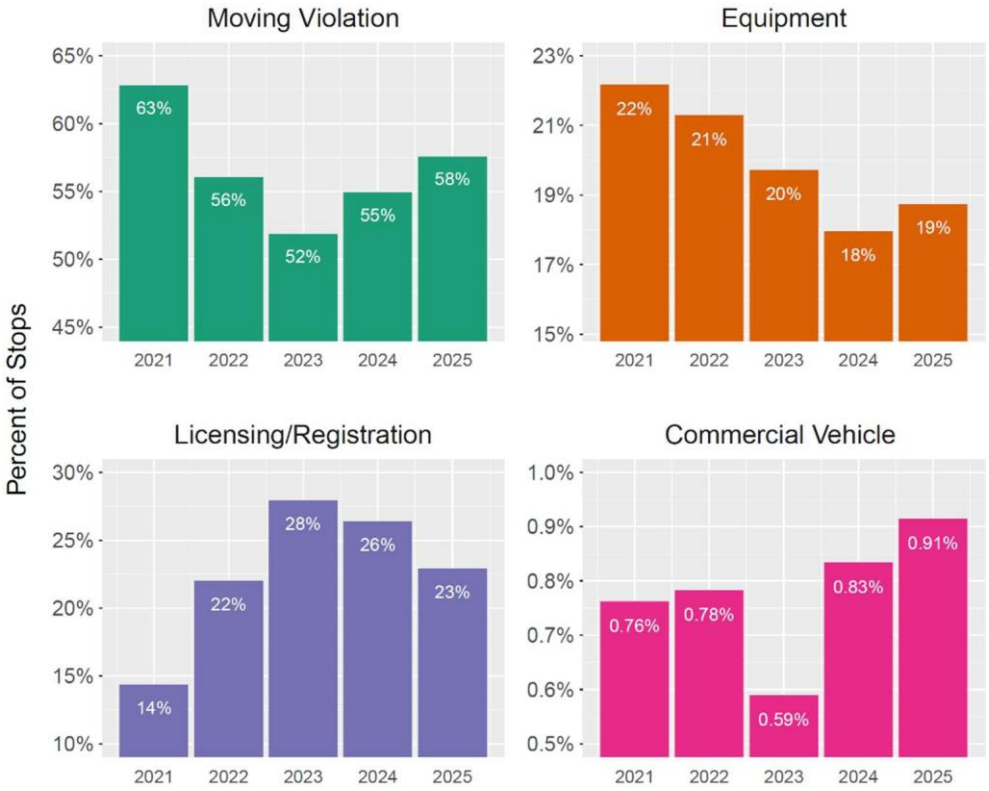
Note: For the rest of Section VI, the results presented do not involve a benchmark.

Reason for Stop

The reasons for traffic stops and their trends over the last five years, 2021–2025, are summarized in Figure 7a. Moving violations accounted for about 50-60% of traffic stops across years. Equipment violations and licensing and registration issues each involve around 20% of stops, with a slight downward trend over time for equipment violations. The final category, violation of rules and regulations specific to commercial vehicles, covers fewer than 1% of all stops. Consequently, moving violations and licensing/registration issues taken together account for about 80% of all stops and trend in opposite directions: they both had their extreme values in 2023 when moving violations were at their lowest (52%) and licensing/registration issues at their highest (28%). Note that "Commercial Vehicle" refers not to a reason for the stop but to a category of violations. Commercial vehicles have a different

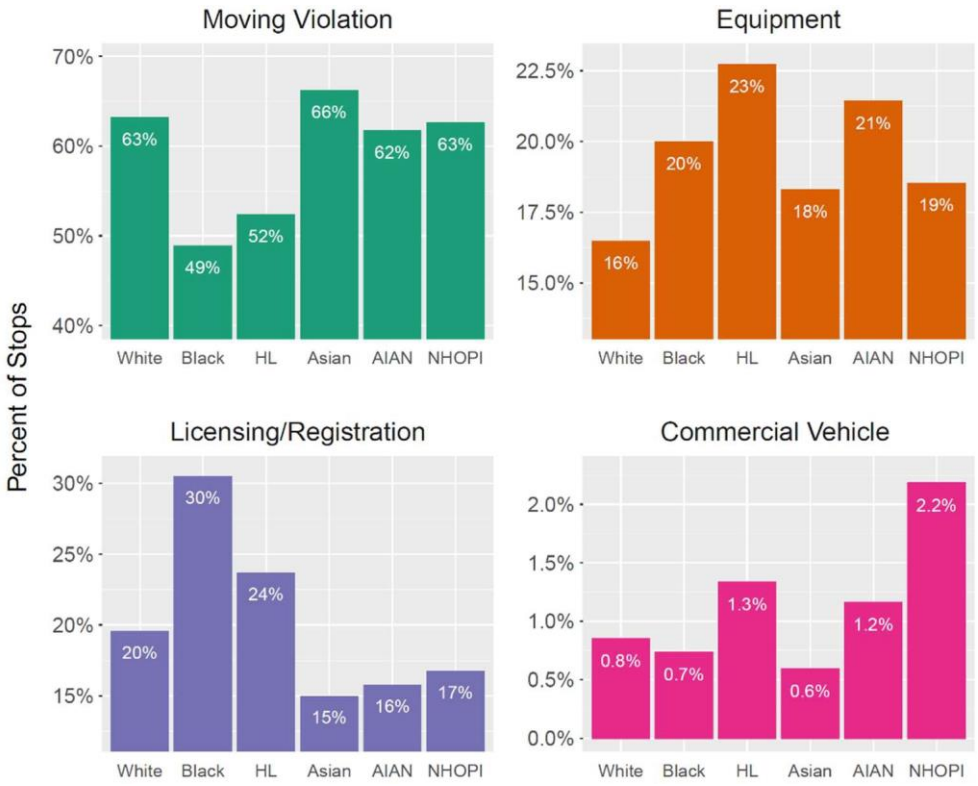
set of regulations and violations that may not apply to passenger vehicles. Therefore, commercial vehicles have unique reasons for being stopped, such as weight overages and unsecured loads.

Figure 7a. *Percentage of all stops by reason for stop* — Illinois, traffic stops, 2021–2025. In each year, the percentages of the four reasons sum to 100% (up to rounding). Note that the y-axis range varies across the panels.



The reasons for traffic stops varied substantially by racial group in 2025 (Figure 7b). Notably, moving violations and licensing/registration issues also trended in opposite directions with respect to driver's race. Stops involving Black drivers had the lowest proportion of moving violations (49%) and the highest proportion of licensing and registration issues (30%). Stops involving Asian drivers were at the opposite end, with the highest proportion of moving violations (66%) and the lowest of licensing and registration issues (15%). Stops involving Hispanic or Latino drivers had the highest proportion of equipment violations (23%) among racial groups. Stops involving Native Hawaiian or Other Pacific Islander drivers had a proportion of commercial vehicle violations (2.2%) nearly double that of the next-highest racial group. We conducted a chi-square test of independence to examine whether the reason for a stop and the driver's race were statistically associated. The p-value < 0.001 indicates that reason for a stop indeed differed across racial groups.

Figure 7b. ***Percentage of all stops by reason for stop and race of drivers*** **— Illinois, traffic stops, 2025. For each racial group separately, the percentages of the four reasons sum to 100% (up to rounding). Note that the y-axis range varies across the panels.**



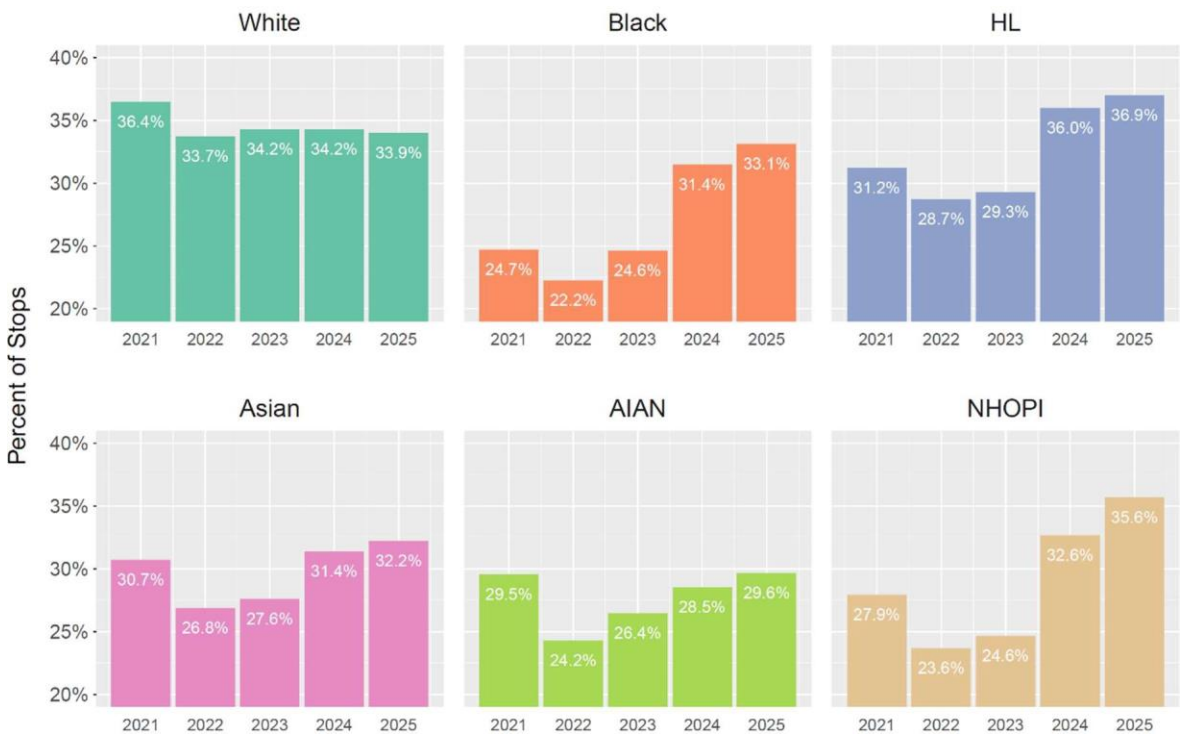
Abbreviations for racial groups: Black = "Black or African American," HL = "Hispanic or Latino," AIAN = "American Indian or Alaska Native," NHOPI = "Native Hawaiian or Other Pacific Islander."

Outcome of Stop: Citation

"Citation" is the most serious among the three outcomes recorded on the traffic stop data collection form: citation, written warning or verbal warning/stop card.

For the six racial groups, the percentage of stops receiving a citation as the outcome varied somewhat across the years 2021-2025 (Figure 8). The percentage was highest among White drivers, at just over a third of all stops (34%) and consistent over time. For all minority groups, the percentage of stops receiving a citation was lowest in 2022, but increased steadily thereafter, until in 2025 all racial groups reached a similar percentage. This increase was most prominent among Black and Native Hawaiian or Other Pacific Islander drivers, from 22-23% in 2021 to 33-36% in 2025. We conducted a chi-square test of independence to examine whether the citation rate and the driver's race were statistically associated. The p-value < 0.001 indicates that citations indeed differed across racial groups.

Figure 8. ***Percentage of all stops with a citation by race*** **— Illinois, traffic stops, 2021–2025.**

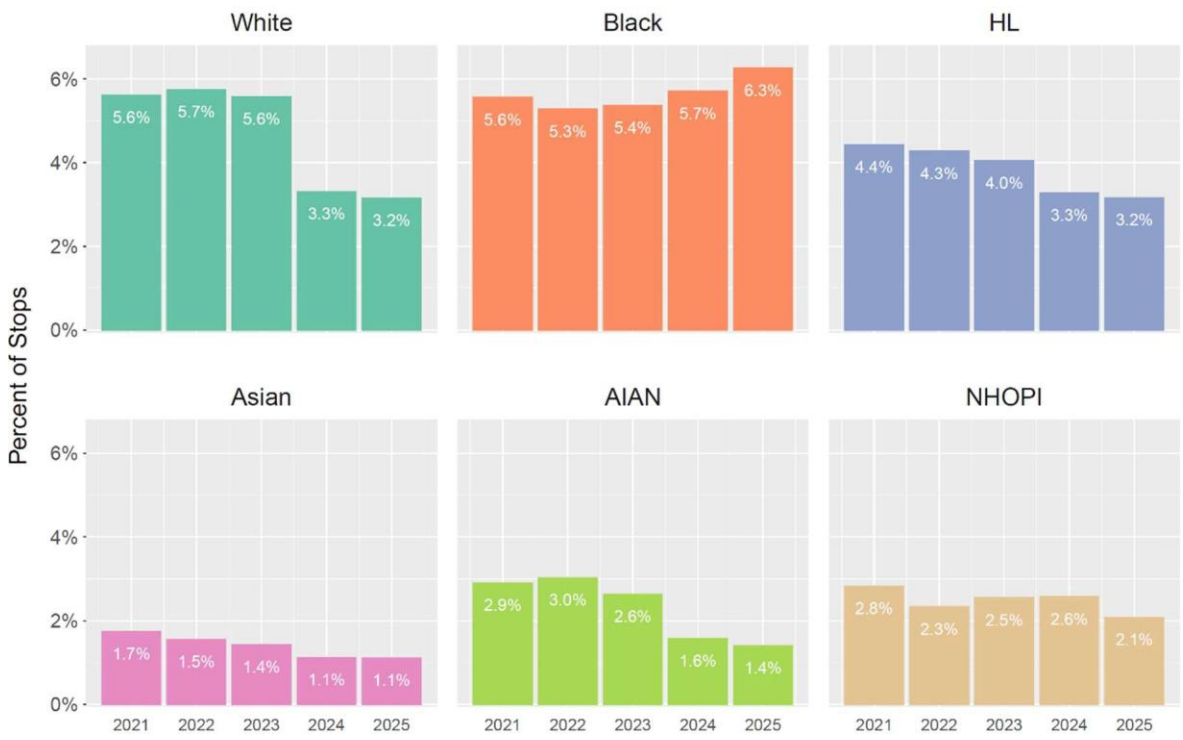


Abbreviations for racial groups: Black = "Black or African American," HL = "Hispanic or Latino," AIAN = "American Indian or Alaska Native," NHOPI = "Native Hawaiian or Other Pacific Islander."

Searches

The vehicle search rate was moderately low for all of the racial groups, with approximately 1-6% of all stops (Figure 9a). In recent years, the most notable change was a sudden drop in the vehicle search rate for stops involving White drivers in 2024. In 2025, the stops with Black drivers involved a vehicle search about twice as often (6.3%) as those with White and Hispanic or Latino drivers (3.2%), and nearly six times as often as those with Asian drivers (1.1%). We conducted a chi-square test of independence to examine whether the vehicle search rate and the driver's race were statistically associated. The p-value < 0.001 indicates that the rate indeed differed across racial groups.

Figure 9a. ***Percentage of all stops with vehicle searches by race*** **— Illinois, traffic stops, 2021–2025.**

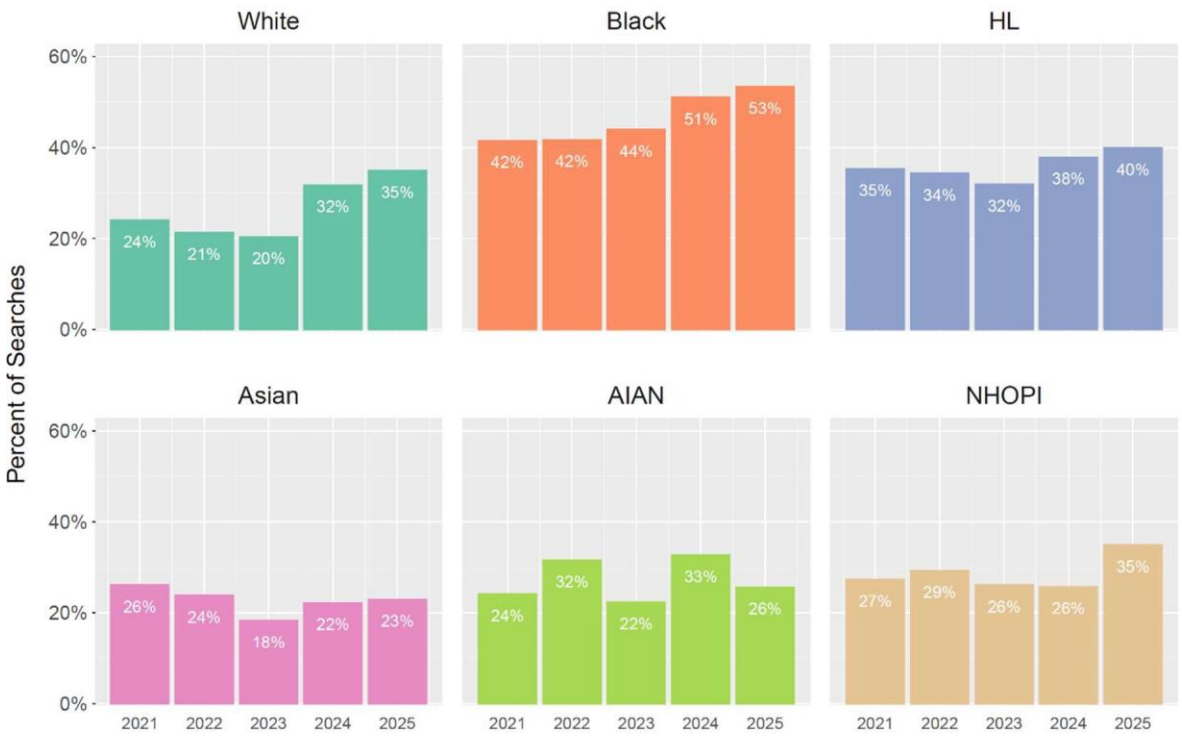


Abbreviations for racial groups: Black = "Black or African American," HL = "Hispanic or Latino," AIAN = "American Indian or Alaska Native," NHOPI = "Native Hawaiian or Other Pacific Islander."

Given that a vehicle search was conducted, the contraband was found in around 20-50% of searches (Figure 9b). There is variation among the racial groups, with the Black group having the highest (53%) and the Asian group the lowest (23%) contraband yield in 2025. We conducted a chi-square test of independence to examine whether the rate of contraband being found and the driver's race were statistically associated. The p-value < 0.001 indicates that this rate differed across racial groups.

Thus, although the stops with Black drivers had the most frequent vehicle searches, in those searches contraband was found most often among racial groups. The stops with Asian drivers showed the opposite pattern: vehicle searches were conducted least frequently and in those searches contraband was least frequently found.

Figure 9b. ***Percentage of vehicle searches with contraband found by race*** **— Illinois, traffic stops, 2021–2025.**



Abbreviations for racial groups: Black = "Black or African American," HL = "Hispanic or Latino," AIAN = "American Indian or Alaska Native," NHOPI = "Native Hawaiian or Other Pacific Islander."

Patterns seen in stops with vehicle searches and with contraband found after those searches, across racial groups and recent years, are similar to those in stops with driver or passenger searches and are not presented in visual form here. The main difference is that the rates of these searches are somewhat lower: searches of drivers or passengers were conducted less frequently and, when conducted, contraband was found less often than in vehicle searches.

Dog Sniffs

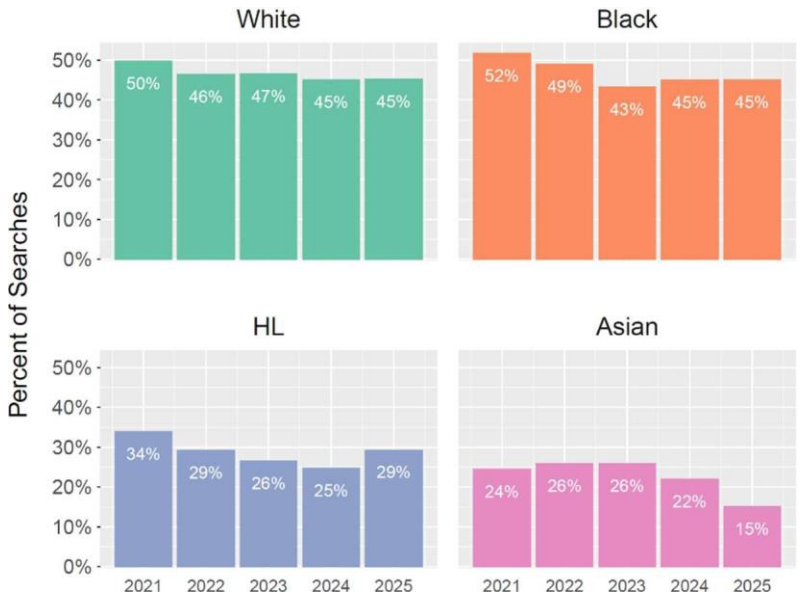
There were 5,477 dog sniffs performed statewide in 2025 representing an 11% increase from 4,950 in 2024. However, dog sniffs were still relatively rare — only one in every 376 stops in 2025 involved a dog sniff. Stops involving White and Black drivers had an increasing trend in dog sniffs (Figure 10a), which in 2025 were 2-3 times as frequent as in stops involving Hispanic or Latino and Asian drivers. Not all agencies conduct dog sniffs, as trained dogs are not available in every agency.

Figure 10a. ***Percentage of all stops with dog sniffs by race*** **— Illinois, traffic stops, 2021–2025.**

Abbreviations for racial groups: Black = "Black or African American," HL = "Hispanic or Latino."

While the frequency of dog sniffs was low statewide (0.10-0.32% of stops across the six racial groups in 2025), the contraband recovery rate following a vehicle search after a dog sniff was substantial, 15-45% of searches across the four racial groups (Figure 10b), excluding the American Indian or Alaska Native and Native Hawaiian or Other Pacific Islander groups due to insufficient stops for reliable comparison. In 2025, in vehicle searches after dog sniffs, contraband was found approximately in every second search for White and Black drivers; every third search for Hispanic or Latino drivers; and every sixth or seventh search for Asian drivers. We conducted a chi-square test of independence to examine whether the rate of dog sniffs and the rate of contraband being found after a dog sniff were statistically associated with driver's race. The p-values < 0.001 indicate that both rates differed across racial groups.

Figure 10b. ***Percentage of dog sniffs with contraband found*** **— Illinois, traffic stops, 2021–2025.**



Abbreviations for racial groups: Black = "Black or African American," HL = "Hispanic or Latino."

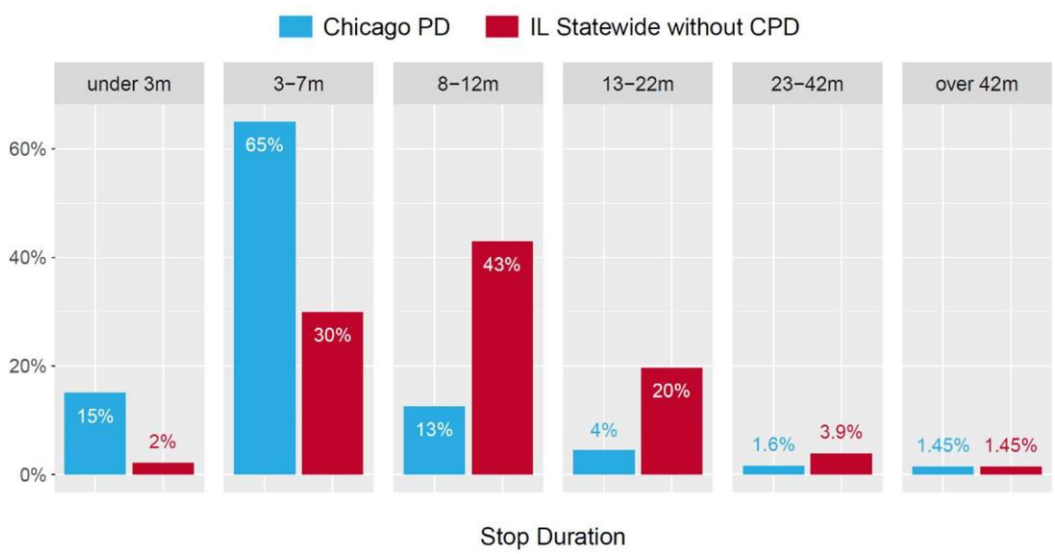
Duration of stops

In 2025, the median duration of traffic stops was 10 minutes statewide. For Chicago Police Department stops, it was 5 minutes, and for all other stops taken collectively it was 10 minutes. More detail on the distribution of stop durations is given in Figures 11a-b. According to the IDOT 2024 DB File Format[4], the durations should be given in actual minutes. However, the durations are frequently reported as rounded to the nearest 5-minute value (5, 10, 15, 20 minutes) so that a 4- or 7-minute-long stop is reported as lasting 5 minutes. For this reason, in Figures 11a-b the durations are partitioned into groups ("under 3 minutes," "3-7 minutes," "8-12 minutes," etc.) chosen to avoid splits near 5-minute values.

Figure 11a shows the difference between Chicago Police Department stops, 65% of which lasted around 5 minutes, and all other stops statewide, which were more evenly distributed across the 5-20 minute range.

[4] https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/pamphlets---brochures/safety/trafficstopdbfileformat.pdf. Last accessed 08/01/2026.

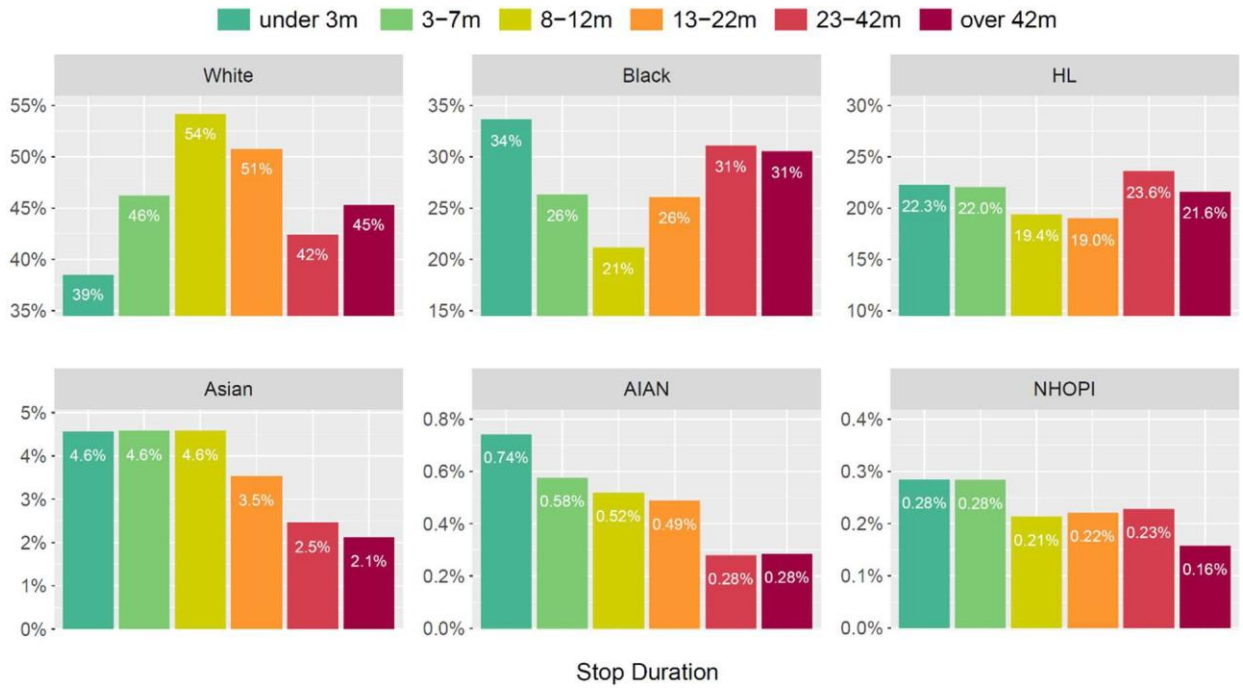
Figure 11a. *Distribution of stop durations* — Illinois, traffic stops, 2025.



In Figure 11b, each duration group is shown distributed by racial groups. To illustrate: among 8-12-minute-long stops, 54% involved White drivers, 21.1% Black drivers, 19.4% Hispanic or Latino drivers, and so on.

Stop duration and race were not independent of each other in 2025. For example, among stops lasting under 3 minutes, 39% involved White drivers and 34% involved Black drivers — similar counts. In contrast, among stops lasting 8-12 minutes, 54% involved White drivers and only 21% involved Black drivers — less than half as many stops. As shown by the highest bar in each panel of Figure 11b: White drivers' largest share (54%) occurred in stops 8-12 minutes long, Black drivers' largest share (34%) occurred in stops under 3 minutes long, and Hispanic or Latino drivers had about equal shares (19-24%) in stops of all durations. The remaining racial groups showed decreasing involvement with increasing stop duration. We conducted a chi-square test of independence to examine whether the stop duration and the driver's race were statistically associated. The p-value < 0.001 indicates that durations differed across racial groups.

Figure 11b. ***Distribution of stop durations by race*** **— Illinois, traffic stops, 2025. In each duration category separately, the percentages across racial groups sum to 100% (up to rounding). Note that the y-axis range varies across the panels.**



Abbreviations for racial groups: Black = "Black or African American," HL = "Hispanic or Latino," AIAN = "American Indian or Alaska Native," NHOPI = "Native Hawaiian or Other Pacific Islander."

Multiple Stops of Individual Drivers

Here we analyzed the number of times each stopped individual driver was stopped, and the potential connection with the race of the driver. This analysis was partially motivated by interviews with police officers (see Section VIII of the 2023 traffic stop report). Some officers stated that they may seek specific vehicles or behaviors, which entails recognizing and following individual drivers and, potentially, stopping them multiple times throughout the year. Analyses in our two previous reports suggested that this practice may indirectly involve a racial aspect. In this report, we examined stops reported in previous years to observe potential trends over time.

Individual drivers were recognized in the data by their unique combinations of name, year of birth, residential ZIP code and gender. Data cleaning was applied to officer-recorded names so that the most frequent patterns in name entry were captured and standardized. Through these adjustments, "John Doe," "Doe, John," "John L. Doe Junior," etc., were recognized as the same name. Some names may have been entered in nonstandard ways that the algorithm failed to recognize as matches. Thus,

multiple stops of the same individual may be somewhat more prevalent than detected in this analysis, and more sophisticated name-matching techniques could capture additional matches. This analysis found 1,581,221 individual drivers whose race was recorded in at least one stop in 2025. If an individual driver was assigned different races in different stops, we assigned them the most frequently recorded race (in the case of a tie, we randomly selected between several most frequent assignments).

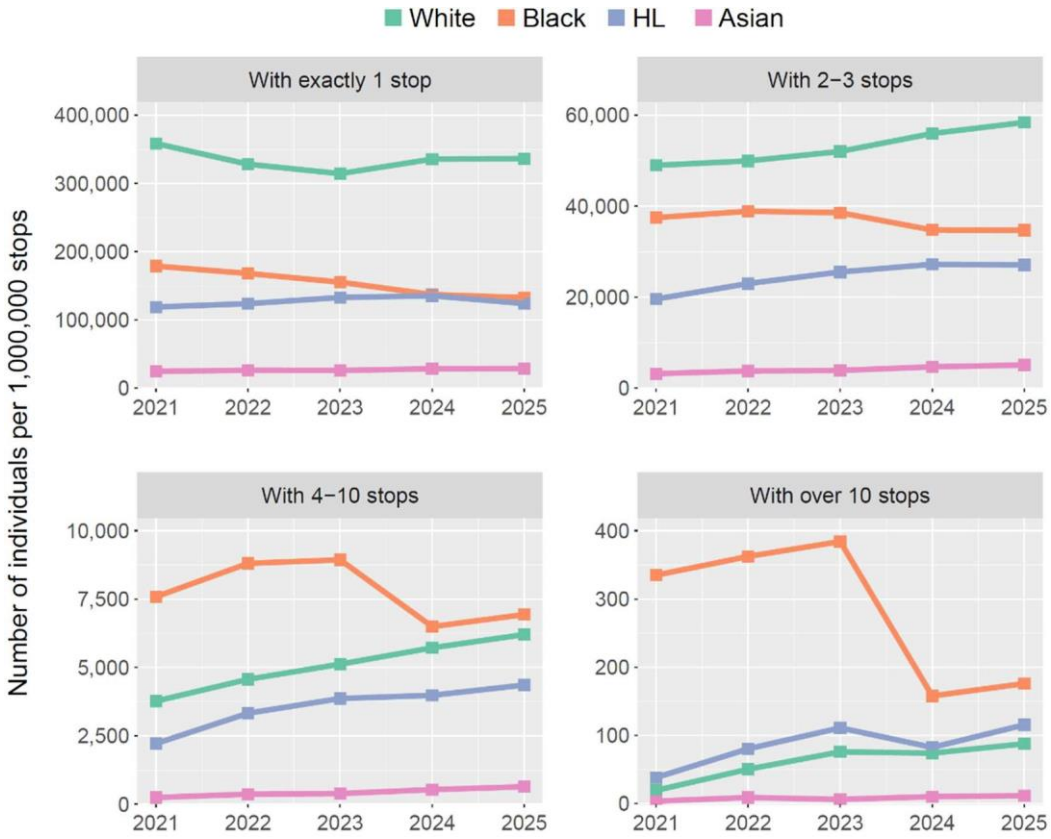
In summary, 81.2% of individual drivers were stopped exactly once, 16.4% were stopped 2-3 times, 2.4% were stopped 4-10 times and 0.05% were stopped over 10 times. These proportions are very similar to those observed in 2024. For each racial group, we then calculated the proportion of drivers stopped exactly once during 2025, stopped 2-3 times, 4-10 times and over 10 times. In each racial group, these proportions sum to 100%.

In 2025, stopped Black drivers stood out as the group whose individual members were stopped multiple times most often. Compared to stopped White drivers:

- the proportion of stopped Black drivers that were stopped 2-3 times was approximately one-third larger.
- the proportion of stopped Black drivers that were stopped 4-10 times was 2.6 times larger.
- the proportion of stopped Black drivers that were stopped over 10 times was 4.6 times larger.

Figure 12 compares the counts of individual drivers stopped during 2021-2025, by race and number of times stopped. To adjust for the varying number of total stops in each year, all counts are expressed per million traffic stops. In 2025, the White drivers far outnumbered all other racial groups among drivers stopped exactly once. Among drivers stopped 2-3 times, the White drivers remained the most numerous group. However, among drivers stopped 4-10 times, Black drivers surpassed White drivers, and among drivers stopped over 10 times, both Black and Hispanic or Latino drivers outnumbered White drivers.

Figure 12. ***Number of individual drivers stopped a particular number of times, per million stops*** **— Illinois, traffic stops, 2021–2025. Note that the y-axis range varies across the panels.**



In 2024, a marked drop occurred in the counts of Black drivers stopped four or more times, and among those stopped over 10 times, this drop was particularly pronounced. A much smaller drop was also observed among Hispanic or Latino drivers stopped 10 or more times. This sharp drop is nearly impossible to attribute to chance variation alone. In 2025, all counts remained close to their 2024 values.

Officer-Assigned Drivers Race Analysis

In our past reports on 2022-2024 stops, we introduced a method for statistically examining the officer-assigned race, to identify potential signs of racial misclassification. We employed Bayesian Improved Surname Geocoding, a statistical methodology commonly used in the social sciences that estimates the race based on a person's first name, last name and ZIP code. See our 2022 traffic stop report, Section VI, for more details.

In essence, for a given full name and ZIP code of residence, BISG returns a set of probabilities that a person belongs to each racial group. We defined "high-probability-mismatch" as a situation

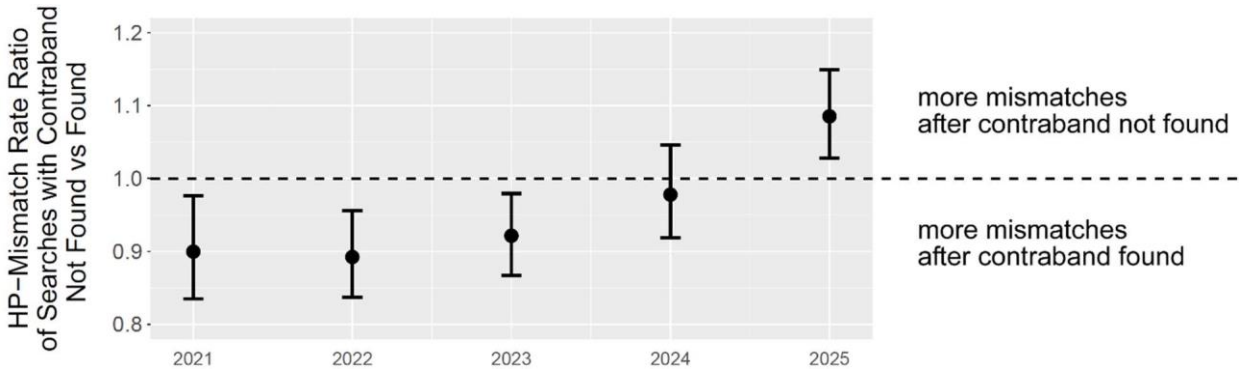
where BISG places a very high probability that a driver was of one particular race, and the officer-assigned race differed from the race predicted by BISG. Simply put, HP-mismatches are unlikely pairings of a name and a race. For example, an officer recording “Alistair Smith” as Asian would constitute an HP-mismatch.

In our previous report on 2024 stops, we focused on stops involving searches and examined whether HP-mismatches happened more often when contraband was found or when it was not found in a search. The assumption was that if some officers were influenced by the outcome of a search, they may have been incentivized to misrepresent the driver’s race after the search outcome became known. For this analysis, we calculated the rate of mismatches occurring in searches with contraband found and the rate of mismatches occurring in searches with contraband not found, and computed the ratio of these two rates.

We observed a linear trend between the average share of White drivers in the local population and the HP-mismatch rate ratio (2024 Traffic Stop Report, Section VI). However, that trend was largely absent not only in 2025 but also in earlier years. We therefore conclude that the association of the HP-mismatch rate ratio with racial composition of local drivers was likely a transient pattern that occurred in 2024 and not at other times.

Since searches with HP-mismatches occur rarely, it is difficult to analyze them by individual agencies or even by agencies grouped into subsets. Therefore, in concluding this investigation, we examined the HP-mismatch rate ratio at the statewide level, using all stops reported across recent years. This is shown in Figure 13.

Figure 13. *High-probability mismatch rate ratio over time* — Illinois, traffic stops, 2021–2025. Error bars quantify the play of chance in the data: they show the range within which the “true” rate ratio would likely fall in the absence of chance variation.



Each data point has error bars that quantify the possible play of chance in the data. (These are 95% confidence intervals calculated by a Monte Carlo simulation with a starting hypothesis that an HP-mismatch occurrence and the search outcome in a stop were independent.) The horizontal dashed line

shows where the rate of HP-mismatches is the same whether contraband was found or not in a search. During 2021-2023, the rate ratio was lower than one (close to 0.9). Thus, statewide, mismatches were occurring more often after a successful contraband search. The confidence intervals did not cross the dashed line, suggesting this pattern was unlikely due to chance variation alone. In 2024, the rate ratio was very close to one. In 2025 it was higher than one, suggesting that mismatches were occurring more often after a failed contraband search. The source of this shifting pattern remains unclear.

VII. Considerations for Interpreting the Data

This section reiterates some general considerations mentioned throughout the report, for interpreting the results shown in the statistical tables of individual agencies.

A considerable number of agencies have a relatively small number of stops for one or more of the racial groups. The limited stop counts yield a wide 95% confidence interval, which means high uncertainty in the corresponding rate, percentage or ratio, due to the play of chance. The uncertainty from potential benchmark issues (discussed earlier) or race classification issues (also discussed earlier) contributes additional uncertainty beyond that implied by the confidence intervals. Any investigation of racial profiling initiated on the basis of this report should consider both confidence intervals and those other potential sources of uncertainty.

In Part II of this report (agency tables), each agency's table contains rate ratios and percentage ratios. Some of them are bolded to indicate a "statistical deviation." The meaning and interpretation of bolded ratios are discussed elsewhere in this report. In addition to whether or not a ratio is bolded, the absolute magnitude of the ratio should be considered when interpreting the results, as noted earlier in this report.

If a ratio is not bolded, it does not prove that there is no racial profiling in the agency. It is worth looking at the upper and lower bounds of the 95% confidence interval to see what the uncertainty is. That interval quantifies the uncertainty due to the play of chance and shows the range of ratio values that are reasonably plausible, given the data.

For example, consider a ratio of ***1.0*** for the percentage of stops with a search for a specific minority group compared to White drivers in a particular agency. The ratio of 1.0 indicates that the percentage of stops with a search was the same for both the White group and for the specific minority group. However, the counts of searches were very small in this example, and the 95% confidence interval for the ratio is from ***0.025*** to ***5.8***. That is, it is plausible that the true search percentage of the minority group is anywhere from one-fortieth of the White percentage up to almost six times the White percentage.

Clearly, in a case like the one described above, we do not know enough about the ratio to draw any conclusion except that we are uncertain. Thus, a confidence interval for a ratio that includes 1.0 and is very wide (encompassing values well above the calculated ratio and also well below the ratio) usually means that presence or absence of potential racial profiling cannot be determined from the data in hand.

Lastly, while considerable attention is given to the stop rate ratios reported in Panel 1 of the tables in Part II of this report (detailed tables), the other panels provide complementary information on the outcomes of stops and how outcome statistics compare across racial groups. As noted earlier, the stop outcome results do not rely on any external benchmark.

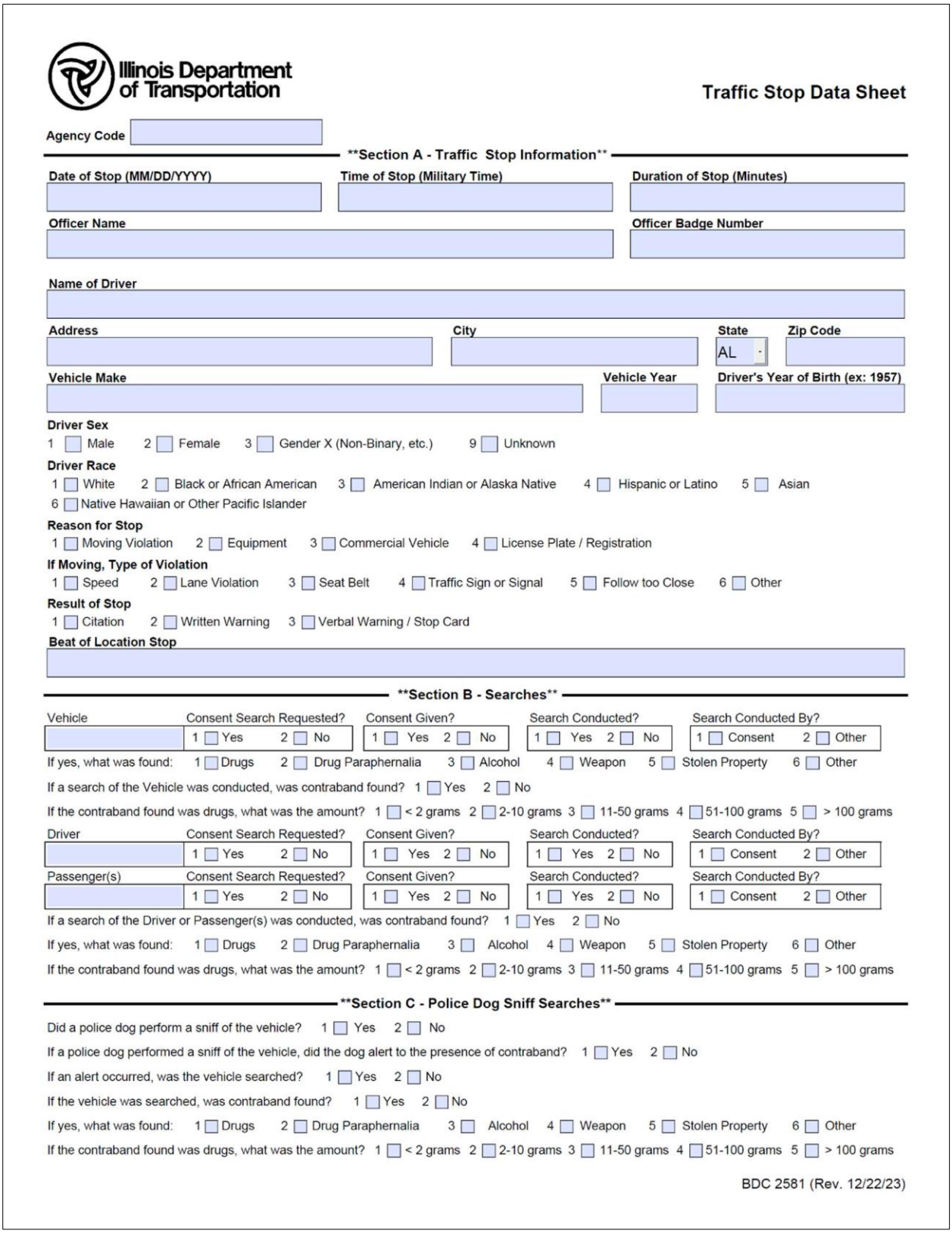
Ultimately, stop results for an agency should be interpreted holistically, considering all panels together; different panels may suggest different interpretations when viewed individually.

VIII. Looking Ahead

TMWL is continuing to review the current statistical methodology and consider refinements and improvements. In the analysis of 2021 stops, we made a major update to the benchmarking approach, which has been carried forward in subsequent reports. In the 2024 report, we introduced an alternative benchmark derived from a fundamentally different model and informed by distinct data sources. We will be carrying this model forward as well.

We will continue striving for increasingly accurate benchmark modeling as new and relevant information and methodologies emerge.

Appendix A. Traffic Stop Data Collection Form in Use During 2025



Illinois Department of Transportation

Traffic Stop Data Sheet

Agency Code

****Section A - Traffic Stop Information****

Date of Stop (MM/DD/YYYY) | Time of Stop (Military Time) | Duration of Stop (Minutes)

Officer Name | Officer Badge Number

Name of Driver

Address | City | State (AL) | Zip Code

Vehicle Make | Vehicle Year | Driver's Year of Birth (ex: 1957)

Driver Sex

1 ☐ Male 2 ☐ Female 3 ☐ Gender X (Non-Binary, etc.) 9 ☐ Unknown

Driver Race

1 ☐ White 2 ☐ Black or African American 3 ☐ American Indian or Alaska Native 4 ☐ Hispanic or Latino 5 ☐ Asian
6 ☐ Native Hawaiian or Other Pacific Islander

Reason for Stop

1 ☐ Moving Violation 2 ☐ Equipment 3 ☐ Commercial Vehicle 4 ☐ License Plate / Registration

If Moving, Type of Violation

1 ☐ Speed 2 ☐ Lane Violation 3 ☐ Seat Belt 4 ☐ Traffic Sign or Signal 5 ☐ Follow too Close 6 ☐ Other

Result of Stop

1 ☐ Citation 2 ☐ Written Warning 3 ☐ Verbal Warning / Stop Card

Beat of Location Stop

****Section B - Searches****

Vehicle	Consent Search Requested?	Consent Given?	Search Conducted?	Search Conducted By?
	1 ☐ Yes 2 ☐ No	1 ☐ Yes 2 ☐ No	1 ☐ Yes 2 ☐ No	1 ☐ Consent 2 ☐ Other

If yes, what was found: 1 ☐ Drugs 2 ☐ Drug Paraphernalia 3 ☐ Alcohol 4 ☐ Weapon 5 ☐ Stolen Property 6 ☐ Other

If a search of the Vehicle was conducted, was contraband found? 1 ☐ Yes 2 ☐ No

If the contraband found was drugs, what was the amount? 1 ☐ < 2 grams 2 ☐ 2-10 grams 3 ☐ 11-50 grams 4 ☐ 51-100 grams 5 ☐ > 100 grams

Driver	Consent Search Requested?	Consent Given?	Search Conducted?	Search Conducted By?
	1 ☐ Yes 2 ☐ No	1 ☐ Yes 2 ☐ No	1 ☐ Yes 2 ☐ No	1 ☐ Consent 2 ☐ Other

Passenger(s)	Consent Search Requested?	Consent Given?	Search Conducted?	Search Conducted By?
	1 ☐ Yes 2 ☐ No	1 ☐ Yes 2 ☐ No	1 ☐ Yes 2 ☐ No	1 ☐ Consent 2 ☐ Other

If a search of the Driver or Passenger(s) was conducted, was contraband found? 1 ☐ Yes 2 ☐ No

If yes, what was found: 1 ☐ Drugs 2 ☐ Drug Paraphernalia 3 ☐ Alcohol 4 ☐ Weapon 5 ☐ Stolen Property 6 ☐ Other

If the contraband found was drugs, what was the amount? 1 ☐ < 2 grams 2 ☐ 2-10 grams 3 ☐ 11-50 grams 4 ☐ 51-100 grams 5 ☐ > 100 grams

****Section C - Police Dog Sniff Searches****

Did a police dog perform a sniff of the vehicle? 1 ☐ Yes 2 ☐ No

If a police dog performed a sniff of the vehicle, did the dog alert to the presence of contraband? 1 ☐ Yes 2 ☐ No

If an alert occurred, was the vehicle searched? 1 ☐ Yes 2 ☐ No

If the vehicle was searched, was contraband found? 1 ☐ Yes 2 ☐ No

If yes, what was found: 1 ☐ Drugs 2 ☐ Drug Paraphernalia 3 ☐ Alcohol 4 ☐ Weapon 5 ☐ Stolen Property 6 ☐ Other

If the contraband found was drugs, what was the amount? 1 ☐ < 2 grams 2 ☐ 2-10 grams 3 ☐ 11-50 grams 4 ☐ 51-100 grams 5 ☐ > 100 grams

BDC 2581 (Rev. 12/22/23)

Appendix B. Technical Notes on Rates, Percentages and Ratios

B.1. Overview

This technical appendix includes a detailed explanation of the rate, ratio and post-stop outcome calculations used in constructing the statewide and agency tables that appear in Part II of this report. We explain how comparisons of each minority group to White drivers or pedestrians are carried out. We also explain how the confidence interval is calculated based on known sources of uncertainty in the data.[5] Further, this section describes how an agency may be designated (by a bold font in the tables) as potentially deviating from an assumption of no racial profiling. An agency so designated may use this report as a basis for further inquiry. As noted elsewhere in this report, there is nothing herein that proves an agency is practicing racial profiling. We provide some limitations for interpreting the findings based on the available data and methods.

B.2. Stop rates, post-stop outcomes and ratio calculations

We performed all calculations for the entire state of Illinois and for each agency.

B.2.1 Stop rates and rate ratios

We calculated stop rates separately for each racial group by dividing the number of stops in the racial group by the population benchmark estimate of the driving population in the racial group. The methods used to estimate the population benchmark are described at length in Appendix C of the 2022 traffic stop report (pages 34-89).[6] We assumed the number of stops followed a Poisson distribution, used in previous examinations of racial disparities in traffic stops (Gelman, et al. 2007, Ridgeway 2007). We calculated 95% confidence intervals for the rates using exact methods (Garwood 1936). (References are listed at the end of this section.) When the benchmark estimate of the population was zero, no rate or confidence interval could be calculated. A benchmark population of zero for a specific minority group occurs when the census population estimate for the minority is zero.

We compared each minority group to White drivers or pedestrians using the ratio of the minority group stop rate to the White group stop rate. We calculated a 95% confidence interval for each rate ratio by conditioning on the sum of the numbers of stops in the two racial groups being compared. Assuming the number of stops in each group followed a Poisson distribution, conditioning on the total number of stops yields a binomial variable. For distance-based population benchmarks, an exact confidence interval was calculated using binomial methods (Lehmann and Romano 2005). If it was impossible to calculate a rate because of a zero benchmark, or if the number of stops in the White group was zero, no rate ratio or confidence interval was reported.

[5] The estimated benchmark population is an example of a component of the methodology that has uncertainty that could not be quantified for this study.

[6] https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/reports/safety/traffic-stop-studies/final--part-i-executive-summary-traffic--6-30-23.pdf . Last accessed 08/01/2026.

We calculated the 95% confidence intervals for rate ratios from crash-based population benchmarks differently from those for distance-based population benchmarks to account for the number of crashes used in constructing the population benchmark (see Appendix C of the previous year's report for how crash-based and distance-based benchmarks were defined and calculated). For each minority group, the proportion of minority stops out of the sum of the minority and White stops (p_{stops}) and the proportion of the minority group in the benchmark population out of the minority and White groups ($p_{\text{benchmark}}$) were computed. The rate ratio (for a given minority compared to the White group) can be calculated from these proportions using the following formula:

$$\frac{\left(\frac{p_{stops}}{1-p_{stops}}\right)}{\left(\frac{p_{benchmark}}{1-p_{benchmark}}\right)}$$

However, the corresponding 95% confidence interval for the rate ratios requires the effective sample sizes (the numerator and denominator) corresponding to $p_{\text{benchmark}}$, which is related to the number of crashes used in the population benchmark.

The stop proportion was treated as a binomial variable, as described above. The population benchmark proportion was initially treated as an over- or under-dispersed binomial with the number of crashes used as the denominator. The variance of the population benchmark proportion was estimated using the parametric bootstrap, where the number of crashes per ZIP code was drawn from a multinomial distribution for each bootstrap iteration. The dispersion parameter of the population benchmark proportion was estimated as the bootstrap variance divided by the variance that is estimated assuming a standard binomial proportion (i.e., using the classic formula: $p[1-p]/N$, where p is the population benchmark proportion and N is the number of crashes). The dispersion parameter indicates how much more variable (dispersion > 1) or less variable (dispersion < 1) the proportion is than expected for a standard binomial variable if the denominator was the number of crashes. The effective denominator for the population benchmark proportion, which is the denominator that would produce the same variance as expected using the standard binomial formula, was then calculated as the number of crashes divided by the dispersion parameter. Similarly, the effective numerator of the population benchmark proportion was calculated as the benchmark proportion times the effective denominator. Using the number of minority stops, White stops, effective benchmark numerator and effective benchmark denominator, the 95% confidence interval of the rate ratio was calculated using exact binomial methods as carried out above for distance-based population benchmarks. This method tends to produce wider confidence intervals than if they were calculated the same way as for distance-based population benchmarks, because the effective benchmark numerator and denominator based on the number of crashes are each less than the corresponding benchmark population counts. This approach accounts for additional variability in the benchmark population estimates related to the number of crashes, which is generally smaller than the number of stops.

A rate ratio of 1.0 indicates the minority group and White drivers or pedestrians had equal stop rates. If the 95% confidence interval lies entirely above 1.0, the rate ratio is statistically significantly greater

than 1.0 and may warrant agency inquiry. These statistically significant rate ratios are bolded in the summary tables. These bolded ratios are statistical deviations and the basis for further consideration of potential racial disparities. Comparisons of minority groups to White drivers or pedestrians where the 95% confidence interval lies below 1.0 are not bolded because the intent of this study is to identify potential racial profiling that discriminates against minority drivers or pedestrians.

B.2.2 Post-Stop Outcomes

For all calculations, we assumed the population benchmark accurately captured the population of drivers or pedestrians. The population benchmark used to calculate each rate is itself an estimate of the population of drivers or pedestrians for a racial group. Confidence intervals of rates and rate ratios assumed only sampling error and thus do not account for this additional source of error in population benchmark estimates. Accounting for population benchmark error would increase the width of the confidence intervals reported for rates and rate ratios and would likely reduce the number of agencies that appear to stand out as needing further inquiry.

We calculated post-stop outcome percentages separately for each racial group. Table B1 shows the type of numerator and denominator used to calculate each percentage shown in the traffic tables. We assumed that percentages follow a binomial distribution and can be approximated by a Poisson distribution (Serfling 1978), and we calculated confidence intervals for the rates using exact methods (Garwood 1936). When the denominator of the percentage was zero (for example, an agency had a benchmark of zero for a specific racial group), no percentage or confidence interval could be calculated.

For selected outcomes we compared each minority group to White drivers, using the ratio of the minority group percentage to the White group percentage. We calculated a 95% confidence interval for each ratio using exact methods (Lehmann and Romano 2005). If it was impossible to calculate a percentage because of a zero denominator, or if the numerator of the White group percentage was zero, no ratio or confidence interval was reported.

Table B1. ***Numerators and denominators for traffic stop outcomes.***

Outcome	Numerator	Denominator
CATEGORY: *Reasons for Stop*		
Moving Violation	Number of moving violation stops	Number of stops
Equipment	Number of equipment stops	Number of stops
Licensing/Registration	Number of licensing/registration stops	Number of stops
Commercial Vehicle	Number of commercial vehicle stops	Number of stops
CATEGORY: *Outcomes of Stop*		
Verbal Warning	Number of verbal warnings	Number of stops
Written Warning	Number of written warnings	Number of stops
Citation	Number of citations	Number of stops
CATEGORY: *Vehicle Searches*		
Consent Search	Number of consent searches	Number of stops
All Searches	Number of searches	Number of stops
Contraband Found	Number of searches where contraband was found	Number of searches
CATEGORY: *Driver or Passenger Searches*		
Consent Search	Number of stops with a consent search*	Number of stops
All Searches	Number of stops with a driver or passenger search*	Number of stops
Contraband Found	Number of stops with a driver or passenger search where contraband was found*	Number of stops with a driver or passenger search*
CATEGORY: *Dog Sniff Searches*		
Dog Sniff	Number of dog sniffs	Number of stops
Dog Alert after Dog Sniff	Number of dog alerts	Number of dog sniffs
Vehicle Search after Dog Sniff	Number of vehicle searches after a dog sniff	Number of dog sniffs
Contraband Found after Vehicle Search	Number of vehicle searches after a dog sniff, where contraband was found	Number of vehicle searches following a dog sniff

*Although a stop may result in the search of more than one individual (e.g., both the driver and a passenger are searched), multiple individuals searched (from one vehicle) are counted here as one stop with a driver or passenger search or both.

B.3 Durations

We calculated the median durations of stops separately for each racial group. The median represents the value such that approximately half of stops have a shorter duration and half have a longer duration.

B.4 Limitations

For all calculations, we assumed that the driver or pedestrian was assigned to the correct racial group. However, an officer's assessment of the race of a driver may be in error compared to the driver's self-assessed race. Because police officers made the racial group assignment, there is a potential misclassification bias on the race of drivers or pedestrians. If misclassification resulted in a minority driver or pedestrian frequently being categorized in a different minority group, the stop rates of some minority groups may be underestimated, while others are overestimated. Consequently, the rate ratios of some minority groups may be underestimated, while others are overestimated. This is a limitation that would be difficult to correct based on the available information.

Some of the flagged rate ratios (**bolded font** in the tables) may be "false positives." This can happen as follows. Within the statewide or individual agency tables for traffic and pedestrian stops, we calculated five minority group comparisons with the White group. For example, there were five ratios comparing the stop rate for each of the five minorities to the stop rate for the White group.[7] Thus, we constructed five 95% confidence intervals — one each for the five stop-rate ratios. That is, each agency was examined across five minority groups for potential profiling. For each minority comparison with White drivers or White pedestrians there was the potential to make what statisticians refer to as a "Type I error." That is, by chance, a rate ratio and its confidence interval may have incorrectly indicated the need for inquiry for profiling. While we set a 5% Type I error rate for each minority comparison, multiple (five in this case) comparisons inflate the probability of making such an error overall to more than 5%. We chose not to correct for these multiple comparisons, viewing each minority comparison to the White group as an independent examination of profiling.

References (for Appendix B)

Garwood F. (1936). Fiducial limits for the Poisson distribution. *Biometrika*, Vol. 28, Issue 3-4: 437-442.

Gelman A, Fagan J, Kiss A. (2007). An analysis of the New York City Police Department's 'stop-and-frisk' policy in the context of claims of racial bias. *Journal of the American Statistical Association*, 201(479):813–823.

Lehmann EL, Romano JP. (2005). *Testing Statistical Hypotheses*, Third edition. Springer: New York.

Ridgeway G. (2007). *Analysis of Racial Disparities in the New York Police Department's Stop, Question, and Frisk Practices*. Santa Monica, CA: RAND Corporation. https://www.rand.org/pubs/technical_reports/TR534.html.

Serfling RJ. (1978). Some elementary results on Poisson approximation in a sequence of Bernoulli trials. *SIAM Review*, 20(3): 567-579.

[7] There may be fewer than five ratios depending on the occurrence of zero stops for the White group or zero benchmark for a minority. These are cases where a ratio cannot be calculated.

Appendix C. Technical Notes on Population Benchmarks

C.1. Overview

In the analysis of potential racial profiling, the number of stops by each agency of each racial group is compared to a "population benchmark" of the racial group. The rate of stops per benchmark population for the racial group can be compared to the same rate for the White group. The population benchmark provides an expected racial distribution of the local population of drivers.

This distribution would be approximately equal to the expected racial distribution of the stops if the stops were conducted in a completely randomized way, blind to the race and the behavior of the driver. That is, the stop rates calculated using a perfectly accurate population benchmark would be approximately constant across all racial groups if there were no profiling and if there were no difference in the general behavior of drivers across all racial groups.

This report employs the same population benchmark methodology as our previous year's report. The only difference is that our data sources were updated to their most recent available versions, along with some changes in the selection of data sources. Details are provided below. Details on how racial categories were defined, how population benchmark regions were determined, other benchmark calculations, the differences in population benchmark methodology employed now compared with prior years, and limitations and strengths of the methodology are described at length in Appendix C of our 2022 traffic stop report.

C.2. Data Sources

Multiple data sources were combined to calculate population benchmarks, including multiple datasets provided by the U.S. Census Bureau, Illinois Department of Transportation and Illinois Secretary of State. The U.S. Census Bureau datasets used include those from the decennial census, the American Community Survey and Gazetteer files, depending on the year and type of population benchmark (traffic stops or pedestrian stops).

C.2.1. Data from the U.S. Census Bureau

The ACS is an ongoing survey conducted by the U.S. Census Bureau that collects information on the U.S. population in all 50 states, the District of Columbia and Puerto Rico.[8] The information collected is similar to that collected by the U.S. decennial census, but the ACS results are released on an annual basis rather than every 10 years. Another difference between the ACS and the census is that the ACS is based on a random sample of about 3.5 million individuals, while the census attempts to reach every person living in the U.S. and its territories.

Besides the one-year (1Y) ACS releases, there are also five-year (5Y) releases. These 5Y releases combine five consecutive years, primarily to increase the sample size of relatively small areas or groups of individuals. It would be challenging to estimate the population of small communities

[8] https://www.census.gov/programs-surveys/acs. Last accessed 08/01/2026.

reliably with only one survey-year of data. In addition to standard tabulations, the ACS also provides individual-level data, referred to as the public use microdata sample. The PUMS data allows more detailed and complex analyses involving multiple variables. Due to privacy concerns, there are restrictions on the level of geographic identification provided with each type of release of ACS data.

The Gazetteer files provide geographic information, such as geographic area, latitude and longitude, for different relevant regions in the U.S., including ZIP codes, places (a city, town or village, referred to simply as city hereafter), counties and states. These files are updated annually.

The U.S. Census Bureau approximates ZIP codes (defined by the U.S. Postal Service) with ZIP code tabulation areas.[9] Throughout this report, the term "ZIP code" will be used to refer both to ZCTAs and the U.S. Postal Service ZIP code for simplicity.

Table C.1 lists the U.S. Census Bureau datasets used for different purposes, for both the traffic and pedestrian stop population benchmarks. Further details on pedestrian stop population benchmarks can be found in the corresponding Illinois pedestrian stops study report for 2025 stops, Part I. Notably, different datasets were used for traffic and pedestrian population benchmarks, which differs from past years. The primary reason is that pedestrian population benchmarks are based on city-, county- or state-level population statistics, while the traffic stop population benchmarks are based on ZIP-code-level population statistics.

The reader who compares this appendix to the corresponding appendix in the 2025 pedestrian stops report will note that the decennial 2020 census data is used neither in this traffic analysis nor in the 2025 pedestrian stop analysis. The reason is that the newest 2024 5Y ACS release covers years 2020-2024, with the year 2020 being earlier in that time interval, making the census data less current than the ACS data. We thus plan to keep using the newest 5Y releases until the next decennial census becomes available.

For this report, multiple ACS releases were used, all with 2024 as the most recent year of data. The first was the 2024 1Y PUMS, which was used to estimate the age distribution of the entire population of Illinois in 2024. The second release used was the 2020-2024 5Y PUMS, which was used to 1) estimate the state-level age distribution for each racial group, and 2) estimate reallocation factors for individuals reporting multiple races. The 5Y release was used instead of the 1Y release to achieve a larger sample size for those racial groups that had fewer individuals in Illinois. The third release used was the 2020-2024 5Y detailed table of race and ethnicity for each ZIP code in Illinois or any of the 24 surrounding states within 400 miles of Illinois (Alabama, Arkansas, Georgia, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, West Virginia and Wisconsin).

In general, the 2024 ACS datasets were used for both traffic stop and pedestrian stop benchmarks instead of the 2020 decennial census because ACS datasets (2020-2024) are more current than the

[9] https://www.census.gov/programs-surveys/geography/guidance/geo-areas/zctas.html. Last accessed 04/07/2026.

decennial dataset (2020) and will become more current in the coming years until a new decennial update becomes available.

Table C.1. ***U.S. Census Bureau datasets used for benchmarks.***

Information Needed	Traffic Stop Benchmarks	Pedestrian Stop Benchmarks
Age distribution in Illinois	1Y ACS PUMS 2024	N/A
Age distribution by race/ethnicity*	5Y ACS PUMS 2020–2024	5Y ACS PUMS 2020–2024
Individual race groups to reallocate residents with more than one race*	5Y ACS PUMS 2020–2024	5Y ACS PUMS 2020–2024
Population counts for each race/ethnicity		
By ZIP code†	5Y ACS 2020–2024	5Y ACS 2020–2024‡
By city	N/A	5Y ACS 2020–2024
By county	N/A	5Y ACS 2020–2024
For Illinois	N/A	5Y ACS 2020–2024
Geographic area of each city in Illinois	Gazetteer Files 2025	N/A
Geographic area of each county in Illinois	Gazetteer Files 2025	N/A
Latitude and longitude of each ZIP code	Gazetteer Files 2025	N/A

1Y = 1-year; 5Y = 5-year; ACS = American Community Survey; DEC = decennial census; PUMS = public-use microdata sample; *Includes Illinois and 24 states within 400 miles of Illinois; †ZIP codes approximated using ZIP code tabulation areas defined by the U.S. Census Bureau; ‡ZIP-code-level data was used for Chicago Police District benchmarks.

C.2.2. Data from Illinois Traffic Crash Reports

On behalf of this study, the Bureau of Data Collection in the Office of Planning and Programming at the Illinois Department of Transportation provided a report of data extracted from Illinois SR 1050 traffic crash reports from 2019-2024. Information in the crash reports included the date and time of the crash, the location of the crash (latitude, longitude, city and county), the number of vehicles involved, the ZIP code of each driver's address, the type of roadway on which the crash occurred and the type of law enforcement agency filing the report. This information was used to estimate driver benchmark populations for agencies with a sufficient number of usable crash reports. In particular, the crash data was used to estimate the proportion of drivers originating from ZIP codes directly associated with an agency's jurisdiction, as well as from surrounding ZIP codes.

C.2.3. Data from the Illinois Secretary of State

On behalf of this study, IDOT's Bureau of Data Collection requested and received from the Office of the Illinois Secretary of State a report containing counts of licensed drivers in Illinois for each year of age. The report was run in early March 2026, and it was combined with ACS estimates of the population count of each age in Illinois (2024 1Y PUMS) to determine the proportion of individuals who are potential drivers, as a function of age, based on having a driver's license.

Appendix D. Technical Notes on Mileage Benchmarks

D.1. Overview

Mileage benchmarks for drivers and pedestrians were generated for each agency using the Replica data platform (https://www.replicahq.com), of which IDOT is an existing client, along with other state and local government agencies that use Replica's traffic models.

This platform provides a large-scale simulation of traffic dynamics at a nationwide level with high spatial granularity. The model creates a synthetic population of individuals in their daily movements, calibrated to match the national population at an individual level. The population data is derived from the U.S. census, while the detailed commute patterns are modeled using data from a diverse set of third-party sources from the public and private sectors.

D.2 Data Sources

Replica's model is derived from sources that fall into five broad categories:

1) De-identified Mobile Location Data
    a. Location-Based Services (cellphone apps of opted-in users)
    b. Cellular Networks Data (cellphone interactions with tracking hardware)
    c. Vehicle In-Dash GPS Data (cellular hardware in vehicles for routing)
    d. Point-of-Interest Aggregates (detecting mobile devices in public venues)
2) Population Data
    a. Five-Year American Community Survey (ACS)
    b. Public Use Microdata Sample (PUMS)
    c. Longitudinal Employer-Household Dynamics (LEHD)
    d. Census Transportation Planning Products (CTPP)
3) Built Environment Data (transportation network/land use/real estate maps)
    a. OpenStreetMap (OSM)
    b. General Transit Feed Specification (GTFS)
    c. Various proprietary sources (building footprints and floor areas, restaurants, stadiums, theaters, hotel data, etc.)
4) Economic Activity Data (financial transactions data)
5) Ground Truth Data (actual observed counts)
    a. Automobile/Traffic Counts
    b. Transit Ridership Counts
    c. Bike and Pedestrian Counts
    d. Airport Data
    e. Border Crossing Data

D.3 Construction of the Benchmarks

The Replica model simulates individual trips taken during one typical weekday (Thursday) and one typical weekend day (Saturday), occurring in separate quarterly seasons. Each trip involves detailed

information about its route, timing, demographics of the driver, mode of travel (driving, cycling, walking), etc. Geographically, each trip is broken into discrete street segments based on the OpenStreetMap data, roughly 20-300 meters in length. Each segment is fully geolocated and can be readily determined to fall within a given polygon of any complicated shape, such as the collection of ZIP codes in a jurisdiction. Thus, by defining each jurisdiction's boundary as a polygon, it is straightforward to sum the lengths of all the street segments on a trip's route that are located within the jurisdiction. This gives the distance traversed by the trip inside the jurisdiction. Summing these distances over all daily trips in which the driver was of a particular race provides the mileage benchmark for a particular police agency and a particular racial group on that day. Mileage driven on a typical day was calculated as the average of the miles driven over five typical weekdays and two typical weekend days.

Individuals of Hispanic ethnicity were automatically assigned to the Hispanic racial group. The drivers of the "two or more races" groups were partitioned into other racial groups according to a scheme similar to the one used in creating population benchmarks. First, equal-fraction-based fractional reallocation factors for Illinois residents who self-identify as not Hispanic or Latino and more than one race, based on the 2024 5Y ACS PUMS, were estimated (representation of 53.9% White, 21.6% Black, 15.0% Asian, 8.4% AIAN, 1.1% NHOPI). These fractions were also applied in population benchmarks, when allocating "two or more races" drivers. Next, we calculated the prevalence of each single-race group among the agency's trips, measured as their share in the total mileage. Finally, we constructed reallocation weights by multiplying the statewide fractions by the local prevalences and then normalizing the weights. In this scheme, miles of multi-race drivers were allocated not only according to their state-level averages, but also according to the local presence of single-race drivers. For example, the American Indian fraction from multi-race drivers is allocated proportionally more to localities where single-race American Indians drive. We excluded trips in which the driver belonged to the "other race alone" group.

In calculating mileage benchmarks, we selected trips of three specific travel modes: walking (for the pedestrian benchmark), and biking and personal vehicle (for traffic benchmarks).

We made a distinction between two types of road segments:

1) Special: belonging to interstate, federal and state highways
2) Regular: all other road segments.

In calculating the mileage benchmarks, the Illinois State Police was associated solely with the special segments. All other agencies were associated with all road segments, meaning that their benchmarks were calculated as the total length of all trip segments within their jurisdictions across both regular and special road segments. This is a change from the previous report (on 2024 stops), in which most agencies were associated with regular road segments only. We are grateful for the feedback we received from a number of agencies, which prompted this methodological change.

Finally, we collected the data for the two most recent available seasons, Fall 2024 and Spring 2025. The mileage benchmark value for each race group was first calculated independently for the two seasons and then averaged over the two seasonal values.

D.4 Advantages

The Replica model presents two major advantages for calculating benchmarks over the methodology used in the past.

First, it is informed by large, relevant and diverse datasets that include tracking and observing various aspects of commuting behavior and the activities that shape traffic patterns. Second, it offers exceptionally fine spatial resolution. While calculating population benchmarks, we relied on treating jurisdictions as collections of ZIP areas or census block group areas that are often too coarse for smaller agencies. With mileage benchmarks, geographic boundaries can be defined with any desired level of precision.

For city- and county-level agencies, their jurisdictions were assigned as their natural city or county boundaries. State-level agencies were assigned a jurisdiction over the whole state. University-level agencies were assigned jurisdiction corresponding to their specific campus boundaries extended by 200-500 meters in all directions. Other agencies were assigned boundaries on a case-by-case basis. One particular agency, Round Lake Park Police, was assigned only the northern part of its village area, based on information obtained in earlier communication with the agency.

The spatial resolution of the Replica model also opens the possibility of placing different emphasis on particular locations within a jurisdiction. For example, a particular section of a street or a specific intersection could be given more weight when calculating the agency's benchmarks.

D.5 Limitations

The main limitation in using Replica software is the difficulty of independently checking the accuracy of the model. We are simply the users of the platform. In particular, it is unclear how the model performs in localities where traffic density is very low, with very few cellphones to track, particularly for drivers belonging to the smallest racial groups.

Because of the enormous size of the simulation in terms of datasets involved and the many details of their software and hardware implementation, not all open to the public, the only way to establish the accuracy of the model is through communal effort and consensus among researchers over time, which is a process that has gained some momentum over the years.

Replica has provided some validation results submitted by its clients on its data validation page (https://www.replicahq.com/data-validations). These reports involve comparing results from the Replica service with equivalent "ground truth" data obtained by the client via after-the-fact surveys, transit service tables, etc. The following examples are drawn from the linked webpage:

- MassDOT used Replica for travel demand model improvements for the Boston Metro area. Actual counts from the region showed strong correlation with the modeled values.
- Florida DOT explored using Replica for travel demand model improvements. The Replica-generated results showed satisfactory agreement with actual counts.
- Puget Sound Regional Council looked into telecommuting rates and compared the Replica output with a travel survey. The results "looked similar."

- Valley Metro, Arizona: Origin-destination flows on transit trips in Replica matched well with surveys on transit trips by origin districts.
- Metropolitan Council, Minnesota: Replica data matched well with surveys on transit trips.
- Atlanta Regional Commission, Georgia: Has a proprietary synthetic model for its planning department. The Replica site has an extensive report on the comparisons between Replica, the ARC and the census showing the similarities between these sources across population, demand, traffic and transit models. Replica's data matched well with surveys on transit trips.

Appendix E. Additional Notes on Illinois Law Concerning the Stop Study

The Illinois General Assembly has promulgated laws that require the collection and analysis of data on traffic and pedestrian stops by law enforcement agencies in the state. See the Compiled Statutes of the Illinois General Assembly, 625 ILCS 5/11-212, effective 6/21/2019. See also Public Act 101-0024.

Section 11-212 of the Illinois statute authorizes the "Traffic and Pedestrian Stop Statistical Study." This section also requires that when a police officer stops an individual, a specific set of information is to be recorded. This information includes driver's name, address, sex, race (six specific categories: White, Black or African American, Hispanic or Latino, Asian, American Indian or Alaska Native, and Native Hawaiian or Other Pacific Islander), the violation, vehicle information, date, time, location, search information, whether contraband was found, disposition of the stop (warning, citation or arrest — arrest recorded only for pedestrian stops[10]) and the name and badge number of the officer. Similar information is to be obtained whether the police officer makes a traffic stop or a pedestrian stop and either issues a citation or a warning (or arrest for a pedestrian stop). In addition, the length of the contact in minutes is to be recorded for traffic stops. These data items are recorded using the data collection form included in Appendix A. The law further specifies that the collected data is to be sent to the Illinois Department of Transportation by a specific date each year for the stops data collected in the preceding year.

The Illinois Department of Transportation is further directed by statute to analyze the data and submit summary reports to the governor, General Assembly and Racial Profiling Agency. The Illinois Department of Transportation is authorized to contract with an outside entity for the analysis of the data. That analysis is the purpose of this report. Moreover, the reporting entity is directed to scrutinize the data for evidence of "statistically significant aberrations." An illustrative list of possible aberrations recorded in the statute includes: (1) a higher-than-expected number of minorities stopped, (2) a higher-than-expected number of citations issued to minorities, (3) a higher-than-expected number of minorities stopped by a specific police agency and (4) a higher-than-expected number of searches conducted on minority drivers or pedestrians.

The relevant statute, 625 ILCS 5/11-212 and subsection (a) provides that the law enforcement officer "…shall record at least the following…". The statute seems to suggest the current data collection form includes a minimum level of information, and leaves open the possibility of gathering additional information in the future.

A few additional data items could be collected during traffic stops to enhance the analysis. These might include: (1) arrest for DUI, (2) officer's race (which has been shown to affect stop rates; see Ba, et al., 2021), (3) occurrence of a physical arrest during a traffic stop (the arrest outcome is currently included only in the pedestrian stop data collection form) and (4) latitude and longitude of the stop

[10] The pedestrian stop data collection form in use during 2025 has provision for recording an arrest. The traffic stop data collection form in use during 2025 does not provide a means of recording an arrest.

(which can be used to determine the benchmark more precisely for drivers or pedestrians but might require some technological adjustments).

References (for Appendix D)

Ba B, Knox D, Mummolo J, Rivera R. (2021) The role of officer race and gender in police-civilian interactions in Chicago. *Science*; 371(6530):696-702. DOI:10.1126/science.abd8694.

Compiled Statutes of the Illinois General Assembly, 625 ILCS 5 website: https://www.ilga.gov/Legislation/ILCS/Articles?ActID=1815&ChapterID=49&Chapter=VEHICLES&MajorTopic=TRANSPORTATION (last accessed 04/07/2026).