REPORT ON ANALYSIS OF TRAFFIC STOP DATA COLLECTED UNDER VIRGINIA'S COMMUNITY POLICING ACT

SEPTEMBER 2022

Virginia Department of Criminal Justice Services
1100 Bank Street, Richmond, Virginia 23219

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Re: Community Policing Reporting Database Annual Report:
"Report on Analysis of Traffic Stop Data Collected under Virginia's Community Policing Act"

Attached is the 2022 Community Policing Reporting Database Annual Report produced by the Virginia Department of Criminal Justice Services (DCJS) entitled "Report on the Analysis of Traffic Stop Data Collected under Virginia's Community Policing Act". In addition to the statutorily required report recipients of the Governor, Attorney General, and members of the General Assembly, a copy of the report shall also be provided to each attorney for the Commonwealth of the county or city in which a reporting law enforcement agency is located.

This report is required under § 9.1-192 and summarizes the findings and recommendations resulting from the analysis and interpretation of data from the Community Policing Database maintained by Virginia State Police as required by §§ 15.2-1609.10, 15.2-1722.1, and 52-30.2. The report examines the racial/ethnic makeup of drivers involved in 567,181 traffic stops in Virginia during the nine-month period between July 1, 2021, and March 31, 2022. While new and expanded information about traffic stops and use of force by Virginia's police officers was included in this year's report, the limited scope of data collection does not allow for the determination or measurement of specific reasons for disparities in traffic stop rates related to race / ethnicity.

Additionally, the intentional increase of police presence through traffic policing remains one of the most important tools to address high crime, especially violent crime involving a firearm. The reduction of traffic-related fatalities, seizures of guns, confiscation of drugs, and the arrests of individuals with outstanding warrants are important benefits that focused traffic enforcement provides but are outside of the mandate of this report and require further investigation and study.

We look forward to furthering the recommendations enclosed to improve the Community Policing Act analysis, and balanced conversation around the challenges and benefits that community policing provides.

Should you have any questions about the attached report, please contact Joseph Boelsche, Research Analyst within the Criminal Justice Research Center at DCJS, at (804) 316-3459 or joseph.boelsche@dcjs.virginia.gov.

Sincerely,

Jackson Miller
Director

Attachment

Executive Summary

Background

The Community Policing Act of 2020 (HB 1250; "the Act") mandated that the Virginia State Police (VSP) and other state and local law enforcement agencies, including police departments and sheriff's offices (PDs and SOs), begin collecting and reporting data on traffic stops as of July 1, 2020. State law enforcement agencies, PDs, and SOs are required to collect data on the race, ethnicity, and other characteristics of the drivers stopped, and on other circumstances of the stop such as the reason for the stop, whether any individuals or vehicles were searched, and the outcome of the stop (arrest, citation, warning, etc.). All reporting agencies are to submit this data to VSP, who maintain the data in the Community Policing Database.

The Act also mandated that the Virginia Department of Criminal Justice Services (DCJS) periodically obtain data from the Community Policing Database and produce an annual report "*for the purposes of analyzing the data to determine the existence and prevalence of the practice of bias-based profiling and the prevalence of complaints alleging the use of excessive force."*[1] Such reports shall be produced and published by July 1 of each year.

This is the second of these reports from DCJS. It contains a review of how the data was collected and analyzed as well as preliminary findings of data from 567,181 traffic stops reported in Virginia during the nine-month period between July 1, 2021, and March 31, 2022. This report also presents the findings from analyses of statewide data; aggregated data from the seven VSP Divisions; and data from each individual law enforcement agency that reported sufficient data to the Community Policing Database.

The information presented in this report is preliminary and should be interpreted with caution. Although this analysis identified disparities in traffic stop rates related to race/ethnicity, it does not allow us to determine or measure specific reasons for these disparities. Most importantly for this study, this analysis does not allow us to determine the extent to which these disparities may or may not be due to bias-based profiling or to other factors that can vary depending on race or ethnicity. These other factors include differences in locations where police focus their patrol activities, differences in underlying regional populations, differences in driving patterns among individuals, and the lack of a scientifically established baseline for determining the number of drivers in each racial/ethnic group who are on the road and subject to being stopped while driving.

The analysis of racial disparity is a complex field with many potential contributing factors. Many factors could affect racial/ethnic patterns of traffic enforcement, but data on these factors are now unavailable to DCJS. Factors like the race of the officer performing the stop, agency policies and community priorities driving enforcement patterns, and police report narratives outlining legal justifications for stop, search, and arrest can all inform stop patterns but are not captured in the current Community Policing Act data. Additionally, the data presented in this report does not reflect any stop trends from agencies which did not provide data or records that were excluded for

[1] Use-of-force data reporting under HB 1250 began on July 1, 2020. Appendix J provides a summary of the data that agencies have reported to VSP for the period from January 1, 2021–December 31, 2021. Due to the limited amount of data reported, no analysis of the data is presented in this report; only the numbers of complaints reported are shown. VSP and DCJS are examining future options for reporting use-of-force data.

completeness issues. Further, the data within the Community Policing Database does *not* document—at all, let alone with respect to race or ethnicity—what happens after a given traffic stop, search, or arrest, such as findings within the judicial system about the appropriateness or adherence to due process. As such, while this report presents stop, search, and arrest disparities based on the available data, any disparities identified herein should not be construed as proof of biased policing or of accounting for unmeasured factors which may contribute to disparities identified in this report.

This report does not tabulate the many positive actions that can occur for a traffic stop such as seizures of guns, confiscation of drugs, and ensuring valid and current drivers' licenses. The Community Policing Act imposes narrow requirements for data collection and analysis, and any benefits of traffic or pedestrian stops are not within the scope of current law.

While DCJS and VSP have introduced process improvements based on lessons learned in the first year of reporting, the Community Policing Act is still in the early stages of implementation. More and better data, as noted in the recommendations, is needed to make the observations in this report more than directional, and the costs of such data gathering need further evaluation. As the report notes, many PDs and SOs – especially smaller agencies with limited resources – continue to face challenges establishing the data collection and reporting required under the Act. The majority of law enforcement agencies (LEAs) in Virginia (250, or 73%) employ 50 or fewer officers, including 112 (or 33%) employing 10 or fewer officers. Many of these agencies have faced challenges fulfilling all requirements imposed by the Act and aligning their collection practices with the changes introduced for FY2022. For this reason, some agencies were unable to report complete data responsive to the Community Policing Act for the entire year, and in some cases the quality of the data was limited. Additionally, a substantial number of smaller agencies reported so few traffic stops that it was not possible to interpret data related to driver race/ethnicity. The state may wish to consider providing additional resources to LEAs, particularly smaller agencies, to support their ability to comply with the data-related provisions of the Act.

Another important limitation to the data and findings presented in this report relates to the race/ethnicity data in the Community Policing Database itself. Because the state lacks a standardized mechanism for reporting the race or ethnicity of a given driver, law enforcement officers must either make their own determination about a driver's race/ethnicity (which may or may not be accurate) or ask for that information in the course of the traffic stop, which could raise constitutional concerns or escalate the perception of conflict in certain situations. Virginia does not collect and store information about a driver's race/ethnicity, whether in driver-related databases maintained by the Virginia Department of Motor Vehicles or on individual driver's licenses. Whether and to what extent the data related to driver race/ethnicity in the Community Policing Database accurately captures this information cannot be determined without further review.

The factors described above limited the ability of DCJS staff to conduct any complex statistical analysis of the data or to draw any firm conclusions about the existence and prevalence of the practice of bias-based profiling in a given agency or jurisdiction. It is anticipated that the reporting, analysis, and interpretation of Community Policing Act data will improve in the future as the program matures.

Differences in 2022 Report

This marks the second annual report on Community Policing Act data, and many developments have changed the process of the report's collection and analysis since the inaugural report. Key differences are summarized below:

- Effective July 1, 2021, SB 5030 from 2020 Special Session I introduced three new data elements to CPA collection requirements: whether the person stopped spoke English, whether the law enforcement officer used physical force against any person, and whether any person used physical force against any officer(s) (See Appendix G for full text of this bill). Descriptive statistics on these new elements have been added to this report.
- Additionally, SB 5030 expanded CPA data collection requirements to include any stop where an officer "stops and frisks a person based on reasonable suspicion, or temporarily detains a person during any other investigatory stop." To incorporate these new stops, VSP added a Pedestrian subject type value to the CPA technicial specifications. The pedestrian cases have been excluded from this report, and DCJS plans to release a separate Pedestrian Stop Data Report in November 2022.
- In Version 4 of the *Community Policing Act Instructions and Technical Specifications* (see Appendix 4), VSP also added a Passenger value to the Person Type variable and removed the "Additional Arrest" data element. For FY2022, agencies were instructed to create a separate record for any traffic stop passenger subject to an investigatory detention; any details pertaining to the passenger's detention (search, arrest, etc.) were recorded in the passenger's record instead of the driver's. This change in reporting gives DCJS access to passenger demographics and case circumstances; however, DCJS staff determined that the frequency of valid passenger cases in the 2022 CPA dataset was too low to serve as a representative sample of stopped passengers. Finally, VSP added a Record ID data element assigned by the reporting agency to uniquely identify each stop. The Record ID serves as an administrative variable to improve data cleaning and preparation efforts for both VSP and DCJS.
- The FY2021 analysis included drivers with race/ethnicity categorized as "Unknown." However, further review by DCJS staff has indicated that this value may have been inconsistently selected either by the officer who performed the stop as a reflection of actual case circumstances (i.e., the officer noting inability to determine the driver's race/ethnicity on scene), or after the fact by LEA administrators or VSP reviewers (i.e., to indicate that the race/ethnicity data field was missing from the record). The uncertainty of the input coding for each "Unknown" race value means that there is no practical method to determine how many drivers labeled "Unknown" were actually perceived to be a certain race by the officer but such race was simply not recorded. As such, the real-world implications of the "Unknown" group's statistics are indeterminate, and DCJS has excluded these cases from this report. Because race was categorized to include "Hispanic (any race)" as a superseding category, cases with the race value "Unknown" but the ethnicity value of "Hispanic" were preserved in the dataset and coded as "Hispanic (any race)."
- To improve the precision of population benchmarks used for developing locality disparity indices, DCJS acquired race-aggregated incarceration facility population data from the Virginia Department of Corrections to remove these populations from the estimated pool of potential drivers in each facility's jurisdiction. This adjustment is negligible on a statewide level, but it does have the

mathematical effect of raising DIs for facility jurisdictions where certain races are overrepresented via incarceration (compared to the general population). See Appendix I for further details.

- To incorporate the new FY2022 data elements and to refine the analysis dataset toward stops initiated by officer discretion, DCJS has revised the exclusion criteria for this year's report. Each of the three new data elements must have a valid "Y" or "N" value for inclusion in the analysis dataset. Cases with a "C" reason for stop (indicating a stop initiated by dispatch or a call for service) are newly excluded from analysis this year due to the minimal role of the responding officer in deciding to initiate such stops. See the "How the Data Was Analyzed" section on page 23 for further details on record exclusions.
- Finally, DCJS has recategorized Disparity Indices of "0.0" into the "No Overrepresentation" category for all report summaries to better reflect cases where agencies had the opportunity to perform stops, searches, or arrests of a racial or ethnic group but did not. See page 36 for further details on this change.

Factors Influencing 2022 Data Trends

In addition to administrative changes to the methods and processes of Community Policing Act data collection, reporting, and analysis, two major external factors may explain shifts in FY2022 data trends compared to last year's report:

- Under SB 5029 of Special Session I of the 2020 Virginia General Assembly, effective March 1, 2021, numerous traffic offenses were removed as primary (stoppable) offenses or restricted with respect to the circumstances in which an officer may perform a stop[2]. Equipment violations no longer eligible for primary offenses include issues with tail lights, brake lights, exhaust systems, and recently expired registration stickers. Certain violations related to juvenile and learner's permit drivers were similarly reduced. Notably, SB 5029 also prohibited officers from making stops, searches, or seizures based solely on the odor of marijuana. The compounding effect of these changes to traffic law likely reduced the number of potential stops, arrests, and searches Virginia officers could lawfully make during 2022 compared to the July 2020–March 2021 analysis year.
- As was the case for last year's analysis, the COVID-19 pandemic reached several peaks in Virginia during FY2022. Case surges in September 2021 and all-time-high case counts in late December 2021–January 2022[3] (following the holiday season) likely impacted driving patterns in Virginia as events were canceled and social gatherings were limited, reducing the number of drivers on the road compared to pre-pandemic traffic levels. On the other hand, many emergency regulations prohibiting gatherings and travel expired in June of 2021, and there may have been a subsequent trend of increased traffic across the state as people made up for previously canceled or prohibited activities. As with many societal elements across the globe, the COVID-19 pandemic has likely lent a mixed and not yet estimable impact on traffic stop patterns in Virginia.

[2] Full text of the law as approved is available here: https://lis.virginia.gov/cgi-bin/legp604.exe?202+ful+CHAP0051
[3] www.vdh.virginia.gov/coronavirus/see-the-numbers/covid-19-in-virginia/covid-19-in-virginia-cases

Given both the methodological differences and external factors involved in this report, it is difficult to directly compare results from the 2022 analysis to the 2021 analysis. Any year-to-year comparison of traffic stop data in these reports should take into consideration the items outlined above.

Key Findings

Despite the limitations noted earlier, DCJS staff were able to identify differences in traffic stop rates for persons in different racial/ethnic groups for FY2022. This was done by comparing the percentage of persons in each racial/ethnic group in Virginia's population age 15 and older (generally the legal age to drive in Virginia) to the percentage of persons in each racial/ethnic group among drivers in traffic stops. The ratio between these two percentages was used to calculate a statewide Disparity Index (DI) for stops for each driver group. Traffic stop DIs were not calculated for town and "other" agencies (such as airport or campus PDs) because population breakouts by age and race/ethnicity were not available for these areas.

DCJS staff also examined differences in what happens to drivers in different racial/ethnic groups once a stop has occurred, although this analysis was conducted only for those agencies reporting a sufficient number of searches and actions taken toward the driver. This was done by comparing the percentage of drivers stopped in each racial/ethnic group to the percentage in each group for which the stop resulted in a particular outcome such as a search or arrest. As was the case in the 2021 report, differences between driver racial/ethnic groups were found regarding the reasons a stop was made, whether a search of individuals or the vehicle occurred, and what action was taken toward the driver (warning, citation, arrest, etc.).

Calculated DI values were used to assess whether drivers in different racial/ethnic groups were overrepresented (or underrepresented) in their likelihood to be stopped, or in events that occurred after a stop was made. While the values of the disparity indices are derived from a mathematical formula, the "high, moderate, no overrepresentation" categories are subjective benchmarks which are not statistically derived and are purely for relative comparison, as follows[4]:

- A **DI of 2.0 or higher** indicates *high overrepresentation* for a group in how likely it is that a driver will be stopped, or that a particular event (search, arrest, etc.) will occur during the stop.
- A **DI of 1.1 to 1.9** indicates *moderate overrepresentation* for a group in how likely it is that a driver will be stopped, or that a particular event (search, arrest, etc.) will occur during the stop.
- A **DI of 1.0 or less** indicates *no overrepresentation* (and possibly underrepresentation) for a group in how likely it is that a driver will be stopped, or that a particular event (search, arrest, etc.) will occur during the stop.

The DIs calculated for both traffic stops and for events after a stop was made are descriptive and intended only to show relative degrees of disparity; they are not, and should not be interpreted as, measures of statistically significant levels of disparities between driver groups.

[4] In some cases involving very small numbers of traffic stops, Disparity Indices (DI) of 3.0 and greater were calculated. However, these should generally be considered unreliable due to the small numbers of stops available for analysis.

Analysis of Traffic Stops: Statewide

Overview of Statewide Traffic Stops

In total, 567,181 traffic stops made in Virginia were analyzed, representing all stops with full data reported by VSP and 304 other PDs and SOs for the nine-month period from July 1, 2021 through March 31, 2022. All references to "2021" refer to the previous analysis year.

- The vast majority (97.6% or 553,654) of the traffic stops were made for traffic or motor-vehicle equipment violations. Last year, 96.7% of stops were for traffic or equipment violations.
- Only 2.4% (13,390) of the traffic stops resulted in a search of the driver or the vehicle. This is lower than last year's rate of 3.8% for searches of driver, vehicle, or passenger.
- The most frequent outcome of a traffic stop was issuing a citation or summons (64.1% or 363,617 stops, compared to 63.3% in 2021). A warning was issued in another 31.9% (180,891) of stops, compared to 31.3% in 2021.
- Only 1.5% of the traffic stops (8,257 stops) resulted in a driver being arrested. This is down from last year's rate of 2.0% for drivers arrested.
- Physical force by either party was a rare occurrence in traffic stops. Officer force against the subject(s) of a traffic stop was recorded for 652 stops (0.1%), and subject force against an officer was recorded for 730 stops (0.1%).

Driver Racial/Ethnicity Analysis of Statewide Traffic Stops

- During the 2022 reporting period, Black drivers were stopped at higher rates than White drivers. Although only 19.5% of Virginia's driving-age population in the dataset was Black, 30.8% of drivers stopped were Black.
  - In 2021, 19.6% of Virginia's driving-age population in the dataset was Black, while 31% of drivers stopped were Black.
- Black drivers who were stopped were searched at higher rates than White drivers. 2.8% of stopped Black drivers had a search of their person or vehicle conducted, compared to 2.1% of White drivers.
  - In 2021, 5.2% of stopped Black drivers had a search of their person, a passenger, or vehicle conducted, compared to 3.1% of White drivers.
- Black drivers who were stopped were arrested at higher rates than White drivers. 1.9% of Black drivers stopped were arrested, compared to 1.2% of White drivers.
  - In 2021, 2.4% of Black drivers stopped were arrested, compared to 1.6% of White drivers.
- Hispanic drivers (of any race) were also stopped at higher rates than White drivers, although not to the same extent as Black drivers. Although Hispanics made up only 8.9% of Virginia's driving-age population in the dataset, they made up 9.5% of drivers stopped.
  - In 2021, Hispanics made up 8.7% of Virginia's driving-age population in the dataset and 9.5% of drivers stopped.

- Hispanic drivers who were stopped were searched at higher rates than White drivers. 2.9% of stopped Hispanic drivers had a search of their person or vehicle conducted, compared to 2.1% of White drivers.
  - In 2021, 4.7% of stopped Hispanic drivers had a search of their person, a passenger, or vehicle conducted compared to 3.1% of White drivers.
- Hispanic drivers who were stopped were arrested at higher rates than either White drivers or Black drivers. 2.1% of stopped Hispanic drivers were arrested, compared to 1.2% of White drivers and 1.9% of Black drivers.
  - In 2021, 3.5% of stopped Hispanic drivers were arrested, compared to 1.6% of White drivers and 2.4% of Black drivers.
- Statewide, White, American Indian/Alaskan Native, and Asian/Pacific Islander drivers were stopped at rates near or below their representation in the driving-age population. This underrepresentation occurred not only for drivers stopped but also for all related measures including reasons for stops, searches of drivers and vehicles, and stop outcomes such as arrests or citations.
  - This general finding was the same in the 2021 report.

Analysis of Traffic Stops: Agency-Level

For the 2022 report, DCJS examined traffic stop data for Virginia State Police (VSP) as an agency statewide and for 304 other individual PDs and SOs.[5] The degree to which each agency's data could be analyzed depended on both the amount of data reported by the agency and the amount of resident population data available for the locality served by the agency. Therefore, the findings are presented separately for four different groups of law enforcement agencies: VSP, agencies serving cities and counties, agencies serving towns, and other agencies.

[5] Sixty-one (61) Virginia agencies were not included in the analysis because they do not make any traffic stops, they do not patrol public roadways, they are no longer operational, or DCJS did not receive their data until after April 26, 2022.

Preliminary Analysis Tables

Preliminary Analysis and Disparity Index (DI) by Law Enforcement Agency (LEA) Type: Traffic Stops[6]

Traffic Stops Conducted by Virginia State Police: *1 statewide agency (7 VSP Divisions combined) of 305 LEAs in preliminary dataset (0.3%); 24.3% of analyzed stops*	**Traffic Stops Conducted by City and County LEAs:** *150 of 305 LEAs in preliminary dataset (49.2%); 61.4% of analyzed stops*	**Traffic Stops Conducted by Town LEAs:** *110 of 305 LEAs in preliminary dataset (36.1%); 11.7% of analyzed stops*	**Traffic Stops Conducted by "Other" LEAs:** *44 of 305 LEAs in preliminary dataset (14.4%); 2.6% of analyzed stops*
Summary of preliminary data: Black drivers had higher VSP traffic stop DIs than other drivers.	**Summary of preliminary data:** Black and Hispanic drivers had higher DIs in terms of traffic stops by city and county LEAs.	**Summary of preliminary data:** The percentages of Black and Hispanic drivers stopped by town LEAs were lower than the percentages of stops for these drivers statewide.	**Summary of preliminary data:** Hispanic drivers were stopped at a higher rate by "other" agencies compared to the statewide percentage. White drivers were stopped at a lower rate.
Highlights from preliminary data: • No driver groups had **high overrepresentation** for traffic stops made by VSP. • Black and Hispanic drivers had **moderate overrepresentation** for stops made by VSP. No other driver groups had moderate overrepresentation for stops made by VSP. • VSP had **no overrepresentation**[6] for stops of American Indian, Asian, and White drivers.	**Highlights from preliminary data:** • 32.7% of agencies had **high overrepresentation** for stops of Black drivers, and 21.3% of agencies had the same for stops of Hispanic drivers. However, less than one percent of agencies had high overrepresentation for White drivers stopped. • 47.3% of agencies had **moderate overrepresentation** for stops of Black drivers, and 42.0% of agencies had the same for stops of Hispanic drivers. Only 13.3% of agencies had moderate overrepresentation for White drivers stopped. • Only 20.0% of agencies had **no overrepresentation**[7] for stops of Black drivers, and only 36.7% of agencies had the same for stops of Hispanic drivers. However, 86.0% of agencies had no overrepresentation for White drivers stopped.	**Highlights from preliminary data:** • While 30.8% of drivers stopped statewide were Black, 21.8% of drivers stopped by town agencies were Black. • Hispanic drivers were 9.5% of those stopped statewide and slightly lower for drivers stopped by town agencies (9.3%). • The percentage of White drivers stopped by town agencies – 66.2% – was higher than the percentage of White drivers stopped statewide (57.0%).	**Highlights from preliminary data:** • 53.2% of drivers stopped by "other" agencies were White, compared with 57.0% of stops statewide. • 30.7% of drivers stopped by "other" agencies were Black, compared with 30.8% of all stops statewide. • The percentage of Hispanic drivers stopped by "other" agencies – 11.1% – was higher than the percentage stopped statewide (9.5%).

[6] Due to data limitations, a DI could not be calculated to indicate whether any driver group was overrepresented in traffic stops by town LEAS and other LEAs.

[7] "No overrepresentation" rate includes agencies where there were 0 stops from a given racial group.

Preliminary Analysis and Disparity Index (DI) by LEA Type: Driver/ Vehicle Searches

Traffic Stops Conducted by Virginia State Police: *1 statewide agency (7 VSP Divisions combined) of 305 LEAs in preliminary dataset (0.3%); 12.4% of analyzed searches*	**Traffic Stops Conducted by City and County LEAs:** *150 of 305 LEAs in preliminary dataset (49.2%); 76.6% of analyzed searches*	**Traffic Stops Conducted by Town LEAs:** *110 of 305 LEAs in preliminary dataset (36.1%); 9.4% of analyzed searches*	**Traffic Stops Conducted by "Other" LEAs:** *44 of 305 LEAs in preliminary dataset (14.4%); 1.5% of analyzed searches*
Summary of preliminary data: Black, Hispanic, and Asian drivers had higher DIs than other driver groups in terms of searches conducted by VSP.	**Summary of preliminary data:** Black and Hispanic drivers had higher DIs than other driver groups in terms of searches conducted by city and county LEAs.	**Summary of preliminary data:** Black and Hispanic drivers again had higher DIs than other driver groups in terms of searches conducted by town LEAs.	**Summary of preliminary data:** Black and Hispanic drivers again tended to have higher DIs than other driver groups in terms of searches conducted by "other" LEAs.
Highlights from preliminary data: • No driver groups had **high overrepresentation** for searches made by VSP. • Black, Hispanic, and Asian drivers had **moderate overrepresentation** for searches made by VSP. No other driver groups had moderate overrepresentation for VSP searches. • There was **no overrepresentation** for searches of American Indian and White drivers in searches made by VSP.	**Highlights from preliminary data:** • 6.7% of agencies had **high overrepresentation** for searches involving Black drivers or their vehicle, and 14.0% of agencies had the same for searches involving Hispanic drivers or their vehicle. Only 1.3% of agencies had high overrepresentation for searches involving White drivers or their vehicle. • 34.0% of agencies had **moderate overrepresentation** for searches involving Black drivers or their vehicle, and 22.0% of agencies had the same for searches involving Hispanic drivers or their vehicle. 29.3% of agencies had moderate overrepresentation for searches involving White drivers or their vehicle. • 57.3% of agencies had **no overrepresentation**[1] for searches involving Black drivers or their vehicle, while 56.0% of agencies had the same for searches involving Hispanic drivers or their vehicle. By comparison, 68.7% of agencies had no overrepresentation for searches involving White drivers or their vehicle.	**Highlights from preliminary data:** • 10.9% of agencies had **high overrepresentation** for searches involving Black drivers or their vehicle, and 14.5% of agencies had the same for searches involving Hispanic drivers or their vehicle. By comparison, only 1.8% of agencies had high overrepresentation for searches involving White drivers or their vehicle. • 24.5% of agencies had **moderate overrepresentation** for searches involving Black drivers or their vehicle, and 12.7% of agencies had the same for searches involving Hispanic drivers or their vehicle. 24.5% of agencies had moderate overrepresentation for White drivers or their vehicle. • 60.0% of agencies had **no overrepresentation**[1] for searches involving Black drivers or their vehicle, while 57.3% of agencies had the same for searches involving Hispanic drivers or their vehicle. By comparison, 73.6% of agencies had no overrepresentation for searches involving White drivers or their vehicle.	**Highlights from preliminary data:** • 6.8% of agencies had **high overrepresentation** for searches involving Black drivers or their vehicle, and 15.9% of agencies had the same for searches involving Hispanic drivers or their vehicle. No agency had the same for searches involving White drivers or their vehicle. • 15.9% of agencies had **moderate overrepresentation** for searches involving Black drivers or their vehicle, and 9.1% of agencies had the same for searches involving Hispanic drivers or their vehicle. 11.4% of agencies had moderate overrepresentation for searches involving White drivers or their vehicle. • 70.5% of agencies had **no overrepresentation**[1] for searches involving Black drivers or their vehicle, and 47.7% of agencies had the same for searches involving Hispanic drivers or their vehicle. By comparison, 81.8% of agencies had no overrepresentation for searches involving White drivers or their vehicle.

[1] "No overrepresentation" rate includes agencies for which there were drivers stopped from X racial/ethnic group, but 0 searches within that group.

Preliminary Analysis and Disparity Index (DI) by LEA Type: Driver Arrests

Traffic Stops Conducted by Virginia State Police: *1 statewide agency (7 VSP Divisions combined) of 305 LEAs in preliminary dataset (0.3%); 14.1% of analyzed arrests*	**Traffic Stops Conducted by City and County LEAs:** *150 of 305 LEAs in preliminary dataset (49.2%); 76.3% of analyzed arrests*	**Traffic Stops Conducted by Town LEAs:** *110 of 305 LEAs in preliminary dataset (36.1%); 7.8% of analyzed arrests*	**Traffic Stops Conducted by "Other" LEAs:** *44 of 305 LEAs in preliminary dataset (14.4%); 1.8% of analyzed arrests*
Summary of preliminary data: Black and Hispanic drivers had higher DIs than other driver groups in terms of arrests made by VSP.	**Summary of preliminary data:** Black and Hispanic drivers had higher DIs than other driver groups in terms of arrests made by city and county LEAs.	**Summary of preliminary data:** Black and Hispanic drivers again had higher DIs than other driver groups in terms of arrests made by town LEAs.	**Summary of preliminary data:** DIs for arrests of Black and Hispanic drivers by "other" agencies were generally higher than for White drivers.
Highlights from preliminary data: • No driver groups had **high overrepresentation** for arrests in stops made by VSP. • Black and Hispanic drivers had **moderate overrepresentation** for arrests made by VSP. No other driver groups had moderate overrepresentation for arrests made by VSP. • There was **no overrepresentation** for American Indian, Asian and White drivers in arrests made by VSP.	**Highlights from preliminary data:** • 18.0% of agencies had **high overrepresentation** for Hispanic drivers arrested, and 6.0% of agencies had the same for Black drivers arrested. 1.3% of agencies had high overrepresentation for White drivers arrested. • 30.7% of agencies had **moderate overrepresentation** of Black drivers arrested, and 15.3% of agencies had the same for Hispanic drivers arrested. 23.3% of agencies had moderate overrepresentation of White drivers arrested. • 61.3% of agencies had **no overrepresentation**[1] for Black drivers arrested, and 58.7% of agencies also had the same for Hispanic drivers arrested. 74.7% of agencies had no overrepresentation for White drivers arrested.	**Highlights from preliminary data:** • 11.8% of agencies had **high overrepresentation** for Black drivers arrested, and 15.5% of agencies had the same for Hispanic drivers arrested. 1.8% of agencies had high overrepresentation for White drivers arrested. • 20.9% of agencies had **moderate overrepresentation** for Black drivers arrested, and 5.5% of agencies had the same for Hispanic drivers arrested. 14.5% of agencies had moderate overrepresentation for White drivers arrested. • 62.7% of agencies had **no overrepresentation**[1] for Black drivers arrested, and 63.6% of agencies had the same for Hispanic drivers arrested. 83.6% of agencies had no overrepresentation for White drivers arrested.	**Highlights from preliminary data:** • 9.1% of agencies had **high overrepresentation** for Black and drivers arrested. 13.6% of agencies had high overrepresentation for Hispanic drivers arrested. 2.3% of agencies had high overrepresentation for White drivers arrested. • 11.4% of agencies had **moderate overrepresentation** for Black and White drivers arrested. 9.1% of agencies had moderate overrepresentation for Hispanic drivers arrested. • 72.7% of agencies had **no overrepresentation**[1] for Black drivers arrested, and 50.0% of agencies had the same for Hispanic drivers arrested. By comparison, 79.5% of agencies had no overrepresentation for White drivers arrested.

[1] "No overrepresentation" rate includes agencies with at least one stop from X racial/ethnic group, but 0 arrests within that group.

Data on Complaints Alleging Excessive Use of Force

The Community Policing Act also directs DCJS to obtain data from VSP on "*the prevalence of complaints alleging the use of excessive force.*" Use-of-force data is reported to VSP by local LEAs on the VSP SP-335 form. Use-of-force data reporting under HB 1250 began on July 1, 2020. DCJS examined the data that agencies reported to VSP for the period from January 1, 2021 – December 31, 2021. Due to the limited amount of data reported, no analysis of the data is presented in this report. VSP and DCJS are examining future options for reporting use-of-force data. Therefore, the focus of the current report is on the analysis of traffic stop data.

Conclusions and Recommendations

The overall finding of this analysis is that, statewide, Black and Hispanic drivers in Virginia were disproportionately stopped by law enforcement when compared to other drivers between July 1, 2021, and March 31, 2022, based on the number of drivers stopped relative to their numbers in Virginia's driving-age population. This type of disparity was seen among traffic stops made by many individual law enforcement agencies for which disparity measures could be calculated. Stops of Black and Hispanic drivers were also more likely to result in a search or an arrest than stops of drivers from other racial groups. This finding is consistent with traffic stop research conducted in other states, and with the general findings of the *2021 Traffic Stop Report* produced by DCJS.

Although this analysis identified disparities in traffic stop rates related to race/ethnicity, it does not allow us to determine or measure specific reasons for these disparities. Most importantly for this study, this analysis does not allow us to determine the extent to which these disparities may be due to bias-based profiling or other factors that can vary depending on race or ethnicity.

Previous research has identified various factors other than bias-based profiling that could help to explain why members of a given racial/ethnic group may be stopped at a higher or lower rate than their presence in the driving-age population would suggest. These include:

- Different driving rates or patterns by different racial groups (perhaps linked to differences in housing or employment locations, in use of public transportation, etc.).
- Socioeconomic impacts on vehicle maintenance which may lead to racial/ethnic trends in the rate of equipment violations.
- Different rates of policing in different areas (i.e., racial minorities may be more likely to drive in or through higher-crime areas, which are policed more than other areas).
- Different agency practices (i.e., some law enforcement agencies differ on how much discretion they give officers in deciding when to make a stop).

A major limitation of this study is that it used each racial/ethnic group's proportion of the resident driving-age population as a benchmark for measuring traffic stop disparities. This approach provides only a crude measure of each group's exposure to potential traffic stops; in other words, a racial/ethnic group's proportion of the driving-age population in a locality provides only a rough *estimate* of that group's proportion of the *actual* driving population in that locality.

Currently, researchers across the United States have no precise measure of how often drivers of a given racial/ethnic group drive in their communities. Within each racial/ethnic group's population in a locality, some individuals do not drive at all; they may be incapable of driving, not have a driver's license or a motor vehicle, or simply choose not to drive even if they can. Others may drive, but rarely, and others still may be more likely to use public transportation than drive. Additionally, many localities have high numbers of drivers from different racial/ethnic groups who are passing through the locality – and subject to being stopped – but who are not residents and therefore are not counted in the localities' resident population figures. These nonresident driver stops can skew measures of traffic stop disparities for such localities. Effective July 1, 2022, VSP has updated the CPA technical specifications to include Residency as a required data element. With this new data element, each stop record will note whether the subject is a resident of the locality of the stop, a Virginia resident of another locality, or a resident from out of state. While this update does not resolve the fundamental benchmarking problem, it will allow DCJS to develop a more precise understanding of the demographics of stop subjects in comparison to population baseline demographics.

Progress on 2021 Recommendations

In the 2021 report, DCJS included 11 recommendations to improve future CPA analysis. Below is an update on the progress of each 2021 recommendation. See the 2021 report for additional background information on the rationale behind each recommendation. Each item still in progress is a standing recommendation from DCJS, as the changes proposed can still benefit future analysis.

Progress on 2021 Community Policing Act Report Recommendations

2021 Recommendation	Recommendation Update
Recommendation 1: *The percentages and Disparity Indexes (DIs) presented in this preliminary report should not be interpreted to indicate that any individual law enforcement agency is practicing bias-based profiling. Given the limitations noted above, these figures should only be used to identify where the numbers indicate that certain ethnic/racial groups are being disproportionately stopped, which may bear further review to identify why this is occurring and whether any action should be considered to reduce or eliminate it.*	This is a standing recommendation given the limitations of the CPA's current data fields. In addition, any year-to-year comparison of CPA findings should take into consideration both methodological differences and external factors involved in each year's report.
Recommendation 2: *Collect data on the time of day at which each traffic stop was made, and add this data to the CPA database. This data would allow DCJS to analyze traffic stop data by comparing disparities in driver stops made during hours of daylight and nighttime.*	HB 1142 of the 2022 General Assembly session proposed adding time of stop to the mandated CPA data elements, but this bill ultimately failed passage. Including this data field would still lend analytical weight to the CPA Report. Additionally, time of stop would serve as a valuable identifier variable to help resolve the issue of record duplicates which has emerged in the CPA dataset (see Exclusion Criteria).

2021 Recommendation	Recommendation Update
Recommendation 3: *Collect data on the race/ethnicity, age, and gender of drivers involved in traffic accidents in each Virginia locality. (It would not be necessary to collect personally identifiable information on the driver, only the demographic data.) How and where this data would be collected and stored would need to be determined, but the data would need to be maintained in a way that would allow DCJS to compare it with traffic stop data for each locality.*	DCJS and VSP have explored the possibility of this recommendation, and have determined that this data is currently unavailable from either the Virginia Department of Transportation, the Department of Motor Vehicles, or the State Police. DCJS will continue to research possible methods of improving estimates on the Virginia driving population.
Recommendation 4: *Collect data on searches made for contraband during traffic stops, and the results of the searches, and add this data to the CPA database.*	HB 1142 of the 2022 General Assembly session proposed adding additional search data to the mandated CPA data elements, but this bill ultimately failed passage. Including this data field would still lend analytical weight to the CPA Report, allowing for statistical analysis which bypasses the population benchmarking problem and draws instead from the known pool of stopped and searched drivers.
Recommendation 5: *Collect data on the residence of drivers involved in traffic stops, and add this data to the CPA database. This might be done using data collected from the driver's license.*	VSP added Residency as an optional data for the fiscal year 2022 Community Policing Act Database. Beginning July 1, 2023, Residency will be a mandatory field required for all stop records. This will allow for DCJS to derive an understanding of the proportion of drivers which reside outside of the jurisdiction of their traffic stop, and help to measure the validity of the population estimate data used to develop disparity index benchmarks.
Recommendation 6: *Collect data on the method by which the traffic stop was initiated, to distinguish stops in which an officer's observation of the driver's race/ethnicity could have played a role from stops in which it would be less likely to play a role. Add this data to the CPA database.*	While no additional data fields have been added to the CPA for method of stop initiation, DCJS has added the "Call For Service" reason for stop to the analysis dataset exclusion criteria. This change eliminates a subset of stops with a low degree of officer discretion involved in stop initiation. DCJS is in discussion with VSP to clarify training and instructions on which cases to include in the "Calls for Service" type, including traffic accidents. VSP has also issued clarifying instruction to agencies on the use of the "Checkpoint" stop reason, to help identify these cases for exclusion from the analysis dataset.

2021 Recommendation	Recommendation Update
Recommendation 7: *Virginia should examine the need to provide resources to smaller law enforcement agencies that had difficulty implementing the CPA data collection and reporting requirements. Assistance could be provided in several ways, such as helping these agencies train staff on reporting requirements and practices, and providing them with more effective data collection tools such as a statewide electronic summons application.*	In November 2021, DCJS distributed a Community Policing Act Needs Assessment to all Virginia law enforcement agencies, garnering input on resourcing priorities to help the agencies improve CPA data collection and submission. The results of this assessment have been compiled and utilized in an application to the National Highway Traffic Safety Administration's (NHTSA) federal grant on collecting and reporting racial trends in traffic stop data. Currently, no state funds have been disbursed to local law enforcement agencies for Community Policing Act implementation.
Recommendation 8: *Virginia should examine the feasibility of obtaining more accurate data on the race and ethnicity of drivers who are involved in law-enforcement traffic stops. Under the CPA, law-enforcement officers now have two methods for determining the race/ethnicity of a driver: officers must either make their own determination about a driver's race/ethnicity (which may or may not be accurate) or ask for that information in the course of the traffic stop, which could raise constitutional concerns or escalate the perception of conflict in certain situations. Virginia does not collect and store information about a driver's race or ethnicity.*	SB 277 of the 2022 General Assembly session proposed that the Virginia Department of Motor Vehicles collect driver race and ethnicity data solely for use in the Community Policing Act Database, but this bill failed passage. While substantiating data on the self-reported race and ethnicity of drivers could be a helpful supplement for analysis, the variable of interest for most research on bias based profiling is the officer's *perceived* race of the driver as the influential factor in profiling. Therefore, the officer's estimate of a driver's race and ethnicity remains a relevant data element for collection. At the same time, officers should not be put in the position of having to ask drivers to report their race/ethnicity during traffic stops.
Recommendation 9: *Virginia should examine the feasibility of collecting data on the race/ethnicity of the law-enforcement officers making traffic stops, and adding it to the CPA database. This would allow DCJS staff to assess whether there are indications that the race/ethnicity of the officer making a stop is related to racial/ethnic disparities in stops.*	HB 1142 of the 2022 General Assembly session proposed adding officer race and ethnicity to the mandated CPA data elements, but this bill ultimately failed passage. This variable would still add analytical strength to the report if added, allowing DCJS to analyze the impact of officer race on stop decisions and racial/ethnic disparities in drivers stopped.
Recommendation 10: *DCJS staff should conduct additional research on methods for calculating driver racial/ethnic disparities for agencies serving towns. Currently, the resident driving-age population data needed to examine stops by these agencies is limited, and DCJS staff should determine if this data, or other suitable data, is available. Similarly, DCJS staff should examine whether it is feasible to reliably assess traffic stop disparities for "other" agencies that do not have stable, defined resident population figures.*	DCJS has identified a census-derived data source, IPUMS NHGIS, which publishes age and race grouped population estimates at the town level. While IPUMS experienced COVID delays and did not publish the 2022 release for this dataset in time for incorporation into this year's analysis, DCJS plans to use the NHGIS estimates as Town agency benchmarks for the 2023 analysis. This data will allow for the report to include disparity indices and other population-based analyses at the Town agency level, similar to the City and County Agency findings currently included.

2021 Recommendation	Recommendation Update
Recommendation 11: *DCJS staff should continue to work with VSP to determine how data on complaints of excessive use of force can be collected in a manner that allows for an examination of bias-based profiling in use of excessive force cases.*	The reporting format for use of force complaint data is the same this year as for 2021. DCJS will continue to coordinate with VSP on potential opportunities to update data collection and reporting.

New Recommendations for 2022

The following recommendations are new to this year's report:

RECOMMENDATION 12: *The General Assembly should consider providing more specific definitions on the types of investigatory detentions which require CPA data collection. VSP's* Instructions and Technical Specifications Version 5.2 *(effective July 1, 2022)*[8] *includes a section providing clarification on investigatory detentions; however, the addition of pedestrian stops to the collection mandate has introduced many nuanced detention scenarios which are ultimately left up to the interpretive judgement of individual LEAs on whether to report them as Community Policing Act data.*

Code of Virginia § 52-30.2(C) currently states that officers must collect Community Policing Act data

> "Each time a law-enforcement officer or State Police officer stops a driver of a motor vehicle, stops and frisks a person based on reasonable suspicion, or temporarily detains a person during any other investigatory stop."

This broad definition includes many situations which are not relevant to the analysis of discretionary profiling in police encounters. To narrow down situations in which either criminal suspicion or officer discretion are not involved, DCJS proposes that the General Assembly consider amending this section to require the collection of CPA data as follows (or with substantially similar language):

> "Each time a law-enforcement officer or State Police officer stops a driver of a motor vehicle, stops and frisks a person based on reasonable suspicion, or temporarily detains a person ***on the basis of criminal suspicion during any other investigatory stop not in service of a warrant or other court orders***."

This change would ensure that Community Policing Act data collection is focused on stops which are relevant to analysis, and that law enforcement agencies are given less of a burden in determining which stops mandate collection.

RECOMMENDATION 13: *Consider amending Community Policing Act legislation to change the report deadline to November 1.*

Because this report is due to the General Assembly on July 1 of each year per § 9.1-192(B) of the *Code of Virginia*, the date range of Community Policing Act data used for analysis cannot span the full fiscal year at hand. With an additional three months to process and analyze more recent data, the report could cover the full 12 months of each preceding fiscal year, including any seasonal trends from April through June currently missing from the report's data.

[8] Available at: https://vsp.virginia.gov/wp-content/uploads/2022/01/CommunityPolicingDataInstructionsTechnicalSpecificationsv5.2.pdf

RECOMMENDATION 14: *DCJS should continue to research additional sources of information and analytic approaches to help determine whether any observed disparities between different racial/ethnic groups in traffic stops are due to bias-based policing or they are due to other factors that could lead to disproportionate numbers of stops for minority drivers. One such factor that DCJS should attempt to examine is whether there are differences in the proportion of successful legal challenges made to traffic stops, searches, and arrests for minority and non-minority drivers.*

Authority for Report

In 2020, Virginia policymakers enacted § 52-30.3 of the *Code of Virginia,* which directed the Virginia State Police (VSP) to create a uniform statewide database (the Community Policing Report Database) to collect data on law-enforcement motor vehicle and investigatory stops, and on complaints alleging the use of excessive force. All Virginia state and local law enforcement agencies were required to report this data to the Virginia State Police.

In 2020, Virginia policymakers also enacted § 9.1-192, which directed the Virginia Department of Criminal Justice Services (DCJS) to obtain data contained in the Community Policing Reporting Database, analyze the data to determine the existence and prevalence of the practice of bias-based profiling and the prevalence of complaints alleging the use of excessive force, and prepare an annual report on the findings of this analysis.

§ 9.1-192. Community Policing Reporting Database; annual report

A. The Department shall periodically access the Community Policing Reporting Database, which is maintained by the Department of State Police in accordance with § 52-30.3, for the purposes of analyzing the data to determine the existence and prevalence of the practice of bias-based profiling and the prevalence of complaints alleging the use of excessive force. The Department shall maintain all records relating to the analysis, validation, and interpretation of such data. The Department may seek assistance in analyzing the data from any accredited public or private institution of higher education in the Commonwealth or from an independent body having the experience, staff expertise, and technical support capability to provide such assistance.

B. The Director shall annually report the findings and recommendations resulting from the analysis and interpretation of the data from the Community Policing Reporting Database to the Governor, the General Assembly, and the Attorney General beginning on or before July 1, 2021, and each July 1 thereafter. The report shall also include information regarding state or local law enforcement agencies that have failed or refused to report the required data to the Department of State Police as required by §§ 15.2-1609.10, 15.2-1722.1, and 52-30.2. A copy of the Director's report shall also be provided to each attorney for the Commonwealth of the county or city in which a reporting law-enforcement agency is located.

2020, c. 1165, § 9.1-191.

This report is the second report prepared by DCJS in response to the § 9.1-192 mandate.

DCJS wishes to acknowledge the efforts made by the Virginia State Police, other state law enforcement agencies, and the numerous large and small local police departments and sheriff's offices that worked to establish the traffic stop data collection and reporting system that made this report possible.

Introduction

The "Bias-Based Profiling" Issue

Traffic stops are perhaps the most frequent encounters between law enforcement and citizens. It is estimated that police stop more than 20 million motorists a year in the United States (Pierson et. al., 2020). Given the frequency of these encounters, they are likely to play a major role in shaping how citizens perceive law enforcement officers. As one author noted, "It is no exaggeration to say that traffic stops are the epicenter of police-citizen interactions. Perceptions about their fairness will go a long way toward shaping citizens' opinions of the police…." (Baumgartner, Epp and Shoub, 2018).

Discussions about fairness in police traffic stops often center around race and ethnicity – do police practice biased-based profiling when deciding who to stop, or in how drivers are treated during a stop?

Attempts to objectively assess the degree to which race or ethnicity plays a role in traffic stops, including legislatively mandated attempts to do so, are relatively new. Some of the earliest attempts grew out of legal action in the early and middle 1990s alleging that state police in New Jersey and Maryland were aggressively profiling and stopping Black and other minority drivers in efforts to interdict drug traffickers. As a result of these legal findings, data was collected in both states which showed that minority drivers were being stopped at much higher rates than White drivers. (Harris, D. 2020).

Publicity from the Maryland and New Jersey cases was a major impetus for the introduction of the federal Traffic Stops Statistics Act of 1997 (H.R. 118). The Act was intended to address the question of bias-based profiling – do law-enforcement officer disproportionately profile and stop Black and other minority drivers for traffic infractions as a pretext for investigating suspected other crimes? H.R. 118 passed the U.S House of Representatives, but failed to receive the votes needed to pass the U.S. Senate. Attempts to revive the bill in later years also failed.

Although H.R. 118 failed in the U.S. Congress, the national conversation it spurred led various states to examine the bias-based profiling issue within their own borders, and multiple states to begin pass anti-racial-profiling legislation in the ensuing years.

Virginia Legislation

To address the issue of bias-based profiling in Virginia, the 2020 General Assembly session passed HB 1250, The Virginia Community Policing Act (the "Act" or the CPA). The Act, effective July 1, 2020, defines bias-based profiling, prohibits bias-based profiling by law enforcement agencies (LEAs), and requires LEAs to collect traffic stop data, including data on the racial/ethnic characteristics of the drivers stopped.

In addition to directing DCJS to publish an annual report analyzing traffic stop data (§ 9.1-192), the Act contained the following provisions:

§ 52-30.1. Definition.

For purposes of this chapter, unless the context requires a different meaning, "bias-based profiling" means actions of a law-enforcement officer that are based solely on the real or perceived race, ethnicity, age, gender, or any combination thereof, or other noncriminal characteristics of an individual, except

when such characteristics are used in combination with other identifying factors in seeking to apprehend a suspect who matches a specific description.

§ 52-30.2. Prohibited practices; collection of data.

A. No State Police officer shall engage in bias-based profiling in the performance of his official duties.

B. State Police officers shall collect data pertaining to motor vehicle or investigatory stops to be reported into the Community Policing Reporting Database. State Police officers shall submit the data to their commanding officers, who shall forward it to the Superintendent of State Police.

C. Each time a law-enforcement officer or State Police officer stops a Individual or Driver of a motor vehicle, such officer shall collect the following data based on the officer's observation or information provided to the officer by the Individual or Driver: (i) the race, ethnicity, age, and gender of the person stopped; (ii) the reason for the stop; (iii) the location of the stop; (iv) whether a warning, written citation, or summons was issued or whether any person was arrested; (v) if a warning, written citation, or summons was issued or an arrest was made, the warning provided, violation charged, or crime charged; and (vi) whether the vehicle or any person was searched.

D. Each state and local law-enforcement agency shall collect the number of complaints the agency receives alleging the use of excessive force.

§ 52-30.3. (Effective until July 1, 2021) Community Policing Reporting Database established.

The Department of State Police shall develop and implement a uniform statewide database to collect motor vehicle and investigatory stop records, records of complaints alleging the use of excessive force, and data and information submitted by law-enforcement agencies pursuant to §§ 15.2-1609.10, 15.2-1722.1, and 52-30.2. The Department of State Police shall provide the Department of Criminal Justice Services with secure remote access to the database for the purposes of analyzing such data as required by subsection A of § 9.1-192.

§ 52-30.4. Reporting of state and local law-enforcement agencies required.

All state and local law-enforcement agencies shall collect the data specified in subsections C and D of § 52-30.2, and any other data as may be specified by the Department of State Police, on forms developed by the Department of State Police.

§ 15.2-1609.10. (Effective until July 1, 2021) Prohibited practices; collection of data.

A. No sheriff or deputy sheriff shall engage in bias-based profiling as defined in § 52-30.1 in the performance of his official duties.

B. The sheriff of every locality shall collect data pertaining to motor vehicle or investigative stops pursuant to § 52-30.2 and report such data to the Department of State Police for inclusion in the Community Policing Reporting Database established pursuant to § 52-30.3. The sheriff of the locality shall be responsible for forwarding the data to the Superintendent of State Police.

§ 15.2-1722.1. (Effective until July 1, 2021) Prohibited practices; collection of data.

A. No law-enforcement officer shall engage in bias-based profiling as defined in § 52-30.1 in the performance of his official duties.

B. The police force of every locality shall collect data pertaining to motor vehicle or investigatory stops pursuant to § 52-30.2 and report such data to the Department of State Police for inclusion in the Community Policing Reporting Database established pursuant to § 52-30.3. The chief of police of the locality shall be responsible for forwarding the data to the Superintendent of State Police.

In the summer of 2020, the General Assembly Special Session I added additional provisions to the CPA with SB 5030. Effective July 1, 2021, LEAs must also collect data similar to that above whenever a law enforcement officer stops and frisks a person based on reasonable suspicion, or temporarily detains a person during any other investigatory stop. For traffic and other investigatory stops, data must be collected on whether the person stopped spoke English, whether the law enforcement officer used physical force against any person, and whether any person used physical force against any officer(s) (see Appendix G for the SB 5030 language). LEAs were also required to post their traffic stop data on a publicly available website.

How the Data Was Collected and Reported

Virginia State Police (VSP) Data Collection System

Summary of VSP Traffic Stop Reporting Process

On July 1, 2021, the *Community Policing Data Collection Instructions and Technical Specifications Version 4* (see Appendix H) developed by Virginia State Police (VSP) took effect for all Virginia law enforcement agencies (LEAs). As with previous versions, this document instructed LEAs on the data required to be reported, defined the data variables and codes to be used in reporting, and provided data file submission specifications.

The variables VSP identified to be reported under the Virginia Community Policing Act (CPA) are shown in Table 1:

Table 1. Traffic Stop Data Reported Under The Community Policing Act, Effective July 1, 2021

Incident Details	*Subject Details*	*Additional Stop Details*
Record ID	Driver race	Persons searched
Stop date	Driver ethnicity	Vehicle searched
ORI (Originating Agency Identifier)	Driver age	Physical force by officer
Location	Driver gender	Physical force by subject
Jurisdiction Code	Driver English Speaking (Y/N)	
Initial Reason for Stop	Action taken	
Person Type	Type of violation	
	Specific violation	
	Virginia Crime Code (optional)	

How Law Enforcement Agencies Reported to VSP

Law enforcement agencies began collecting this year's data on July 1, 2021. Not all agencies were able to start CPA-mandated data collection and reporting at that time, and some were unable to begin reporting until 2022. Agencies collected and submitted traffic stop data for either a monthly or quarterly period via their computer-aided dispatch/records management systems, or via manual entry using an Excel spreadsheet, to the Criminal Justice Information Services Division's Data Analysis and Reporting Team (DART) within VSP. VSP instructed agencies to submit data at least quarterly on or by the 15th of the following month. Agencies may submit a monthly data file, but not any more frequently than each month.

VSP Quality Checks and Assistance to Reporting Agencies

Staff of VSP's DART reviewed all data submitted by agencies for correctness and adherence to VSP's technical specifications. When agencies had questions or issues about CPA data collection and reporting, DART staff worked with them to provide assistance to resolve these issues. Through this process, reporting improved over time. One major issue identified by VSP was that smaller LEAs with few resources had difficulty meeting the reporting requirements of the CPA.

New to this year's process, DART instituted a file review procedure in which agency submissions with large amounts of missing or invalid data elements were "rejected" and required resubmission once the

data issues were fixed. Agencies only received credit for such file submissions once their resubmissions met approval standards. Because many quality issues in the traffic stop data can only be resolved through follow-up with the originating LEAs and officers involved, this resubmission process enabled DCJS to preserve records that would have otherwise been excluded from analysis due to invalid data values.

VSP Data Dissemination

Although §§ 15.2-1609.10 and 15.2-1722.1 of the *Code of Virginia* did not require LEAs to publicly post their traffic stop data until July 1, 2021, some LEAs began to post their data in late 2020 and early 2021. Some agencies posted this data on their own agency websites, or though social media sites such as Facebook or Twitter.

To help agencies meet the public traffic stop data posting requirement, VSP worked with the Library of Virginia to enable agencies to meet their public reporting mandate by having VSP post their data to the Library's Open Data Portal. Through this agreement, VSP was able to begin publishing data for some agencies on the Open Data Portal beginning in May of 2021, and is making this process available to all agencies. This will allow smaller agencies without their own capacity to post website data to meet the public reporting requirement.

The Community Policing Act data can be found at: https://data.virginia.gov/stories/s/rden-cz3h.

It should be noted that traffic stop data in this report will not match the data posted on the VSP Open Data Portal website because the numbers in the Portal are constantly updated by VSP, and their data includes records which were removed from the DCJS analysis dataset per the exclusion criteria. All data used for the analysis in this report was "frozen" on April 26, 2022. The DCJS 2022 Analysis Dataset used for this report is posted separately at:
https://www.dcjs.virginia.gov/sites/dcjs.virginia.gov/files/publications/research/cpad-appendices/2022/Community-Policing-Act-Traffic-Stop-Analysis-Dataset-Pre-Aggregated-2022.csv

The following supplemental materials for the Analysis Dataset are also publicly available:

- Data Dictionary: https://dcjs.virginia.gov/sites/dcjs.virginia.gov/files/publications/research/cpad-appendices/2022/CPA Traffic Stop Analysis Data Dictionary.xlsx
- Dataset User Guide: https://www.dcjs.virginia.gov/sites/dcjs.virginia.gov/files/publications/research/cpad-appendices/2022/FY22%20CPA%20Traffic%20Stop%20Data%20User%20Guide.pdf

Data on Complaints Alleging Use of Excessive Force

In addition to directing DCJS to analyze data on traffic stops, § 9.1-192 (as amended by HB 1250) directs DCJS to obtain data on complaints alleging the use of excessive force by law enforcement, and to analyze this data to examine the prevalence of excessive use of force. Use-of-force data is reported to VSP by local LEAs on VSP's SP-335 form.

Use-of-force data reporting under HB 1250 began on July 1, 2020. Appendix J provides a summary of the data that agencies have reported to VSP for the period from January 1, 2021–December 31, 2021. Due to the limited amount of data reported, no analysis of the data is presented in this report; only the numbers of complaints reported are shown. VSP and DCJS are examining future options for reporting use-of-force data.

How the Data Was Analyzed

Selection of Data to Analyze

The Virginia Department of Criminal Justice Services (DCJS) began receiving Virginia Community Policing Act data from Virginia State Police (VSP) in August 2021 via a secure electronic file transfer process, and eventually received a total of 615,071 traffic stop records for the period from July 1, 2021 through March 31, 2022. DCJS and VSP then did additional work to review the records, resolve any data issues identified in the records, and identify any remaining records with issues that could affect the analysis and interpretation of the data.

During this review, some traffic stop records were excluded from the analysis dataset for various reasons. Stops made at checkpoints or performed as "Calls for Service" were eliminated because these stops are not discretionary (i.e., all vehicles passing through the checkpoint are stopped). Records were excluded if they were not "reported completely" (that is, if data elements in the record were not reported with valid data values as defined in *VSP Data Collection Instructions and Technical Specifications Version 4).*

After DCJS reviewed the remaining records, additional records were excluded from the analysis because some of the data variables needed for the analysis had no value coded (null values) or the values coded were outside the bounds of the allowable codes. Records removed for these reasons are listed in Table 2.

Table 2. Records Excluded from Traffic Stop Analysis

Data Element	*Criteria for DCJS Analysis Dataset*	*Number of records null or out of bounds*	*Total number of records to exclude*
Incident Date	Between 7/1/2021 and 3/31/2022	1 dated 4/1/2022	1
Agency ORI	Valid and not null	0	0
Reason for Stop	Values "E", "O", "S", or "T"	5,058 null; 17,055 "C"; 1,326 "P"	23,439
Age	15 or greater	11,357 age=0 (unknown); 120 age between 1 and 14	11,477
Person Type	Value "D"	1,641 null 5,617 "P"; 14,727 "F"	21,985
Race	Values "A", "B", "I", "W"; "U" included if Ethnicity is "H"	17,176 "U" (and not Ethnicity "H")	17,176
Gender	Values "F", "M", "O"	183 null	183
Action Taken	Values "W", "A", "S", or "N"	16 null	16
English Speaking	Values "Y" or "N"	6,666 null	6,666
Person Searched	Values "Y" or "N"	5,866 null	5,866
Vehicle Searched	Values "Y" or "N"	7,097 null	7,097
Officer Physical Force	Values "Y" or "N"	8,956 null	8,956
Subject Physical Force	Values "Y" or "N"	8,968 null	8,968
Record ID	Unique ID for each driver record	3,194 duplicates	3,194
Total Records Excluded from Analysis			47,890

Note that because records may be excluded for more than one reason, the "Total number of records to exclude" column does not sum up to the overall number of records excluded (47,878).

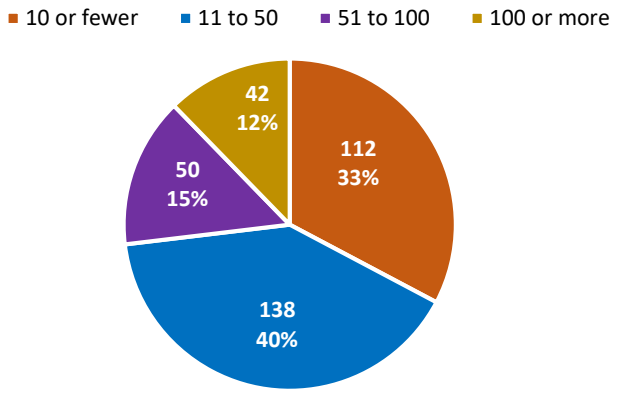
Based on the records review described above, 47,890 of the original 615,071 records were excluded, leaving a final statewide analysis dataset containing a total of 567,181 records on drivers age 15 and older that were stopped by Virginia LEAs from July 1, 2021 through March 31, 2022. These records were based on the VSP CPA file finalized on April 26, 2022.

In addition to removing problematic traffic stop records from the analysis dataset, DCJS staff elected not to examine several of the variables contained in the remaining traffic stop records for this report. These variables include: Location, Jurisdiction Code, Violation Type, and Specific Violation.

It is common to encounter these types of data issues when a new statewide data collection system is implemented. VSP had to develop and distribute the data collection forms and instructions to virtually every law enforcement agency in Virginia, and each of these agencies in turn had to distribute CPA-related forms and instructions to every one of its officers who might make a traffic stop. There are always startup issues and a considerable learning curve when implementing a data collection and reporting program of this size.

Implementing the traffic stop data collection and reporting continues to be a challenge for Virginia's smaller LEAs, which struggle to provide the staffing, training, and equipment needed for the CPA data collection. This is because many of Virginia's local LEAs have small staffs and limited resources. As seen in Figure 1 below, 73% of local LEAs have 50 or fewer officers, and 112 agencies – about one-third – have 10 or fewer officers.

Figure 1: Law Enforcement Agencies by Size



Analysis Approach

The primary approach used in this analysis to look for possible evidence of bias-based profiling was as follows:

- For traffic stops, the percentage of drivers stopped in each racial/ethnic group was compared to the percentage of driving-age individuals in each racial/ethnic group. This comparison was made at the state and local level, including by individual law enforcement agencies when appropriate data was available.

- For events that occurred after a traffic stop was made, such as whether a search was conducted or an arrest was made, the comparison made was the percentage of drivers in each racial/ethnic group stopped for which each event such as a search or arrest occurred. These comparisons were also made at the state and local level, including by individual law enforcement agencies when appropriate data was available.
- To provide a standardized method for identifying and comparing disparities between different racial/ethnic groups in traffic stops and in the events that occurred after a stop was made, DCJS calculated a Disparity Index (DI). The DI indicates the degree to which members of any racial/ethnic group were stopped relative to the group's presence in the driving-age population, or the degree to which members of any group were involved in events that occurred after a stop was made. The DI value for each racial/ethnic group indicates whether drivers in that group were *equally represented or showed no overrepresentation, moderately overrepresented, or highly overrepresented* in traffic stops or post-stop events, relative to what would be expected if no disparities existed.
- The percentage comparisons and the DIs described above were calculated using several different methods, depending on the level of geographic area (i.e., statewide or by locality) and the type of law enforcement agency being examined (VSP, city and county agencies, town agencies, etc.). The calculation method used depended primarily on the amount of information available about the racial/ethnic demographics of the resident populations in each area examined. Details of how the percentages and DIs were calculated are presented in each section of the report, and additional details about the data used and calculations made are presented in Appendix I.

Findings from Analysis of Statewide Traffic Stop Data

Overview of Statewide Data—All Driver Racial/Ethnic Groups Combined

The final statewide analysis dataset contained a total of 567,181 records for drivers age 15 and older that were stopped by all Virginia LEAs reporting usable Virginia Community Policing Act data for the period from July 1, 2021 through March 31, 2022. This nine-month date span is consistent with the range of the 2021 report. Numbers of traffic stops may be greater in future reports because the current report is based on nine months of data; should the General Assembly amend CPA legislation to adopt a report deadline later in the calendar year, DCJS may analyze a full 12 months of fiscal year data in future reports.

Of the 567,181 traffic stops in the 2022 dataset, 61.4% (348,083) were reported by LEAs that serve cities and counties, 24.3% (137,969) were reported by VSP, 11.7% (66,109) were reported by agencies serving towns, and 2.6% (15,020) were reported by other types of LEAs.

This section provides an overview of the statewide data (all drivers combined), including the reasons for the stops, numbers of searches made, and outcomes of the stops.

Reasons for Traffic Stops

Table 3 shows a breakout of the reasons for the 567,181 traffic stops statewide.

Table 3. Reasons for Traffic Stops, Virginia Statewide		
	All Drivers	
Reason for Stop	*Number of Stops*	*Percent of Stops*
Violation Total	553,654	97.6%
Traffic Violation	516,368	91.0%
Equipment Violation	37,286	6.6%
Investigative Total	13,527	2.4%
Other Non-consensual	10,044	1.8%
Terry Stop[9]	3,483	0.6%
Grand Total	567,181	100.0%

Nearly 98% (553,654) of all stops reported were made for traffic or equipment violations. The vast majority (91.0%) of these were for traffic violations; only 6.6% were for equipment violations. This finding is consistent with traffic stop data from last year's report, where violations were the majority of the reasons for stops.

Investigative stops made up only 2.4% of all stops. Among the investigative stops, other non-consensual reasons (stops for confirming or dispelling the suspicion of unlawful or unsafe activity or taking enforcement action in response to unlawful activity) made up 1.8% of all stops. Terry stops (stops based on a reasonable suspicion of involvement in criminal activity) made up 0.6% of all driver stops.

Person and Vehicle Searches

Only 2.4% (13,390) of the 567,181 stops made resulted in law enforcement searching the driver and/or the vehicle. Table 4 shows a breakdown of searches made during the stops. Due to concerns about the completeness of passenger data in this year's CPA data, data on passenger searches has not been included.

Table 4. Driver and Vehicle Searches, Virginia Statewide		
	All Drivers	
	Number of Stops	*Percent of Stops*
No Search	553,729	97.6%
Driver, vehicle, or both searched	13,390	2.4%
Grand Total	567,181	100.0%

[9] Terry stops are stops based on a reasonable suspicion of involvement in criminal activity.

Outcomes of Stops

Table 5 provides a breakdown of the outcomes for the 567,181 traffic stops.

Table 5. Outcome of Driver Stops, Virginia Statewide		
	All Drivers	
	Number of Stops	*Percent of Stops*
Driver citation/summons issued	363,617	64.1%
Warning issued to driver	180,891	31.9%
No enforcement action to driver	14,416	2.5%
Driver arrested	8,257	1.5%
Grand Total	567,181	100.0%

The most frequent outcome of a stop was issuing a citation or summons (64.1%, or 363,617 stops). A warning was issued in 31.9% (180,891) of the stops. In only 1.5% of the stops was a driver arrested.

Demographics of Drivers Stopped

Unless stated otherwise, percentages based on population used in this report refer to the Virginia population age 15 and above (generally the legal driving age in Virginia). A very small number of drivers stopped were below age 15, and these stops were excluded from the analysis as described in the previous section of this report.

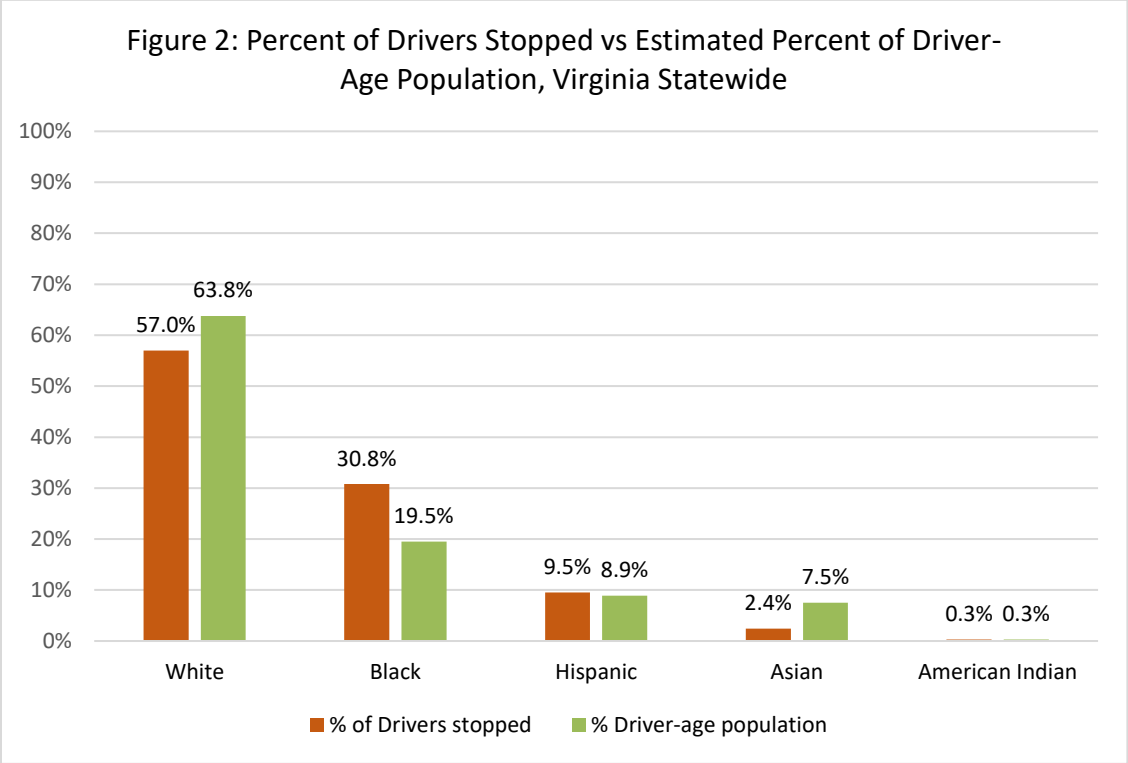
Population figures used in this report are from The National Center for Health Statistics (NCHS) vintage 2020 post-Census estimates of the resident population of the United States. Racial/ethnic categories used in this report are based on legacy U.S. Census definitions of four racial groups. The Black category used in this report includes Black or African American; the American Indian category includes American Indians or Alaskan Native; and the Asian category includes Asian or Other Pacific Islanders. The Hispanic category can include any race with Hispanic origin. More information about the population data used for the calculations in this report can be found in Appendix I.

Table 6 shows a breakdown of the race/ethnicity of the 567,181 drivers stopped by Virginia law enforcement from July 1, 2021 through March 31, 2022.

Table 6. Race/Ethnicity of Drivers Stopped, Virginia Statewide		
Race/Ethnicity	*Number*	*Percent*
White	323,180	57.0%
Black	174,825	30.8%
Hispanic (any race)	53,891	9.5%
Asian	13,632	2.4%
American Indian	1,653	0.3%
Grand Total	567,181	100.0%

White drivers made up more than half (57.0%) of all drivers stopped statewide. Black drivers made up 30.8%, Hispanic drivers made up 9.5%, Asian drivers made up 2.4%, and American Indian drivers made up 0.3% of the drivers.

Figure 2 compares the percentage of each racial/ethnic group among drivers stopped to the percentage of each racial/ethnic group in Virginia's driving-age population (age 15+).



As can be seen in Figure 2, although only 19.5% of Virginia's driving-age population is Black, 30.8% of the drivers stopped by law enforcement were Black. Hispanic drivers were also overrepresented relative to their share of the population (9.5% and 8.9%, respectively). White and Asian drivers were stopped at rates lower than their share of the driving-age population.

English Speaking Status of Subjects

Table 7. English Speaking Status of Driver, Virginia Statewide		
English Speaking Driver	*Number*	*Percent*
Yes	550,530	97.1%
No	16,651	2.9%
Grand Total	567,181	100.0%

New to the 2022 Report, the CPA data includes a field on whether the stop subject speaks English (per the officer's observation). The majority of drivers stopped (97.1%) spoke English. 16,651 drivers (2.9%) were reported to not speak English.

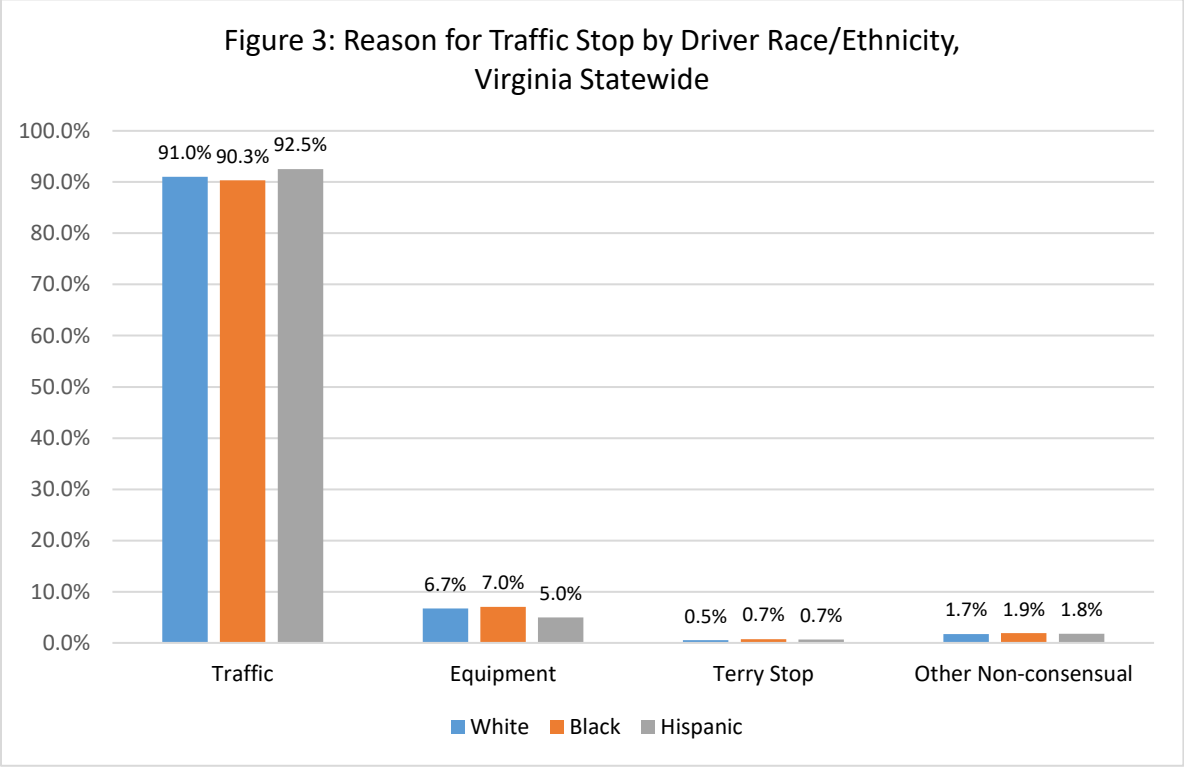
Use of Force

Table 8. Use of Physical Force		
Type of Force	*Number of Stops*	*Percent of Stops With Force Reported*
Officer Against Driver Only	307	32.0%
Driver Against Officer Only	229	23.9%
Both	423	44.1%
Any Physical Force	959	100.0%

Also new to the 2022 Report, the CPA data includes fields on whether an officer used physical force against a subject, or a subject used force against an officer. Instances of either force types constituted less than 0.2% of all traffic stops (959 cases). Use of force counts by race/ethnicity can be found in the statewide summary table on pg. 36, and the agency tables in Appendices B–E.

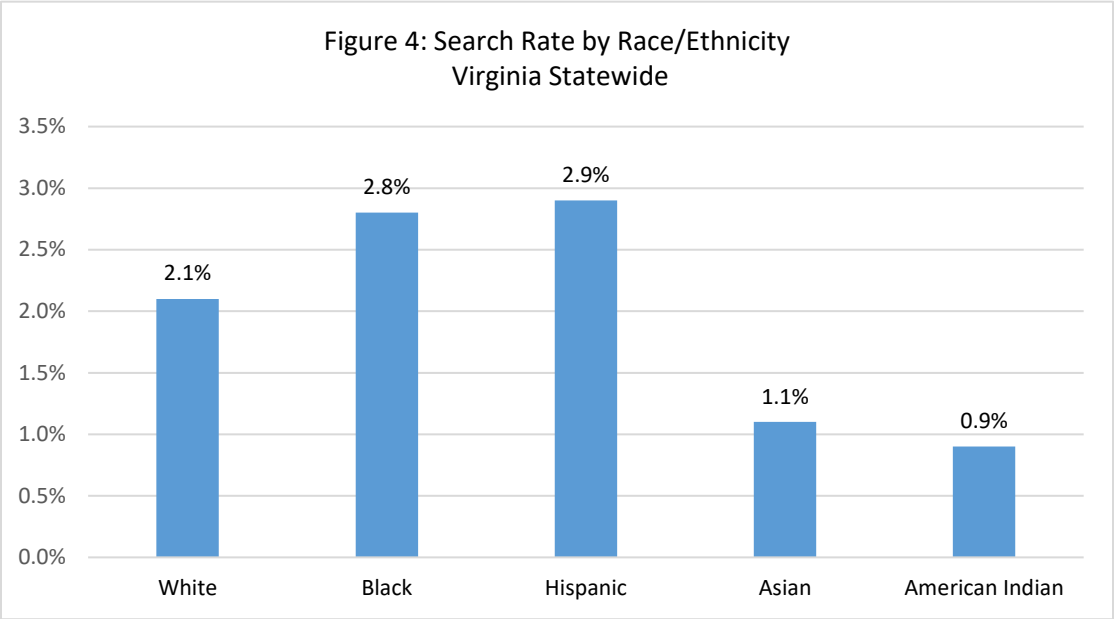
Reason for Traffic Stops, by Driver Race/Ethnicity

Figure 3 presents the reasons for traffic stops, by driver race/ethnicity. American Indian and Asian drivers were excluded from the figure due to the small numbers in each stop category.



Traffic violations were the overwhelming reason for driver stops among all racial/ethnic groups. Black drivers were slightly less likely (90.3%) to be stopped for a traffic violation than White (91.0%) or Hispanic (92.5%) drivers. On the other hand, Black drivers were slightly more likely (7.0%) to be stopped for equipment violations than White (6.7%) or Hispanic (5.0%) drivers.

Searches Made During Traffic Stops, by Driver Race/Ethnicity

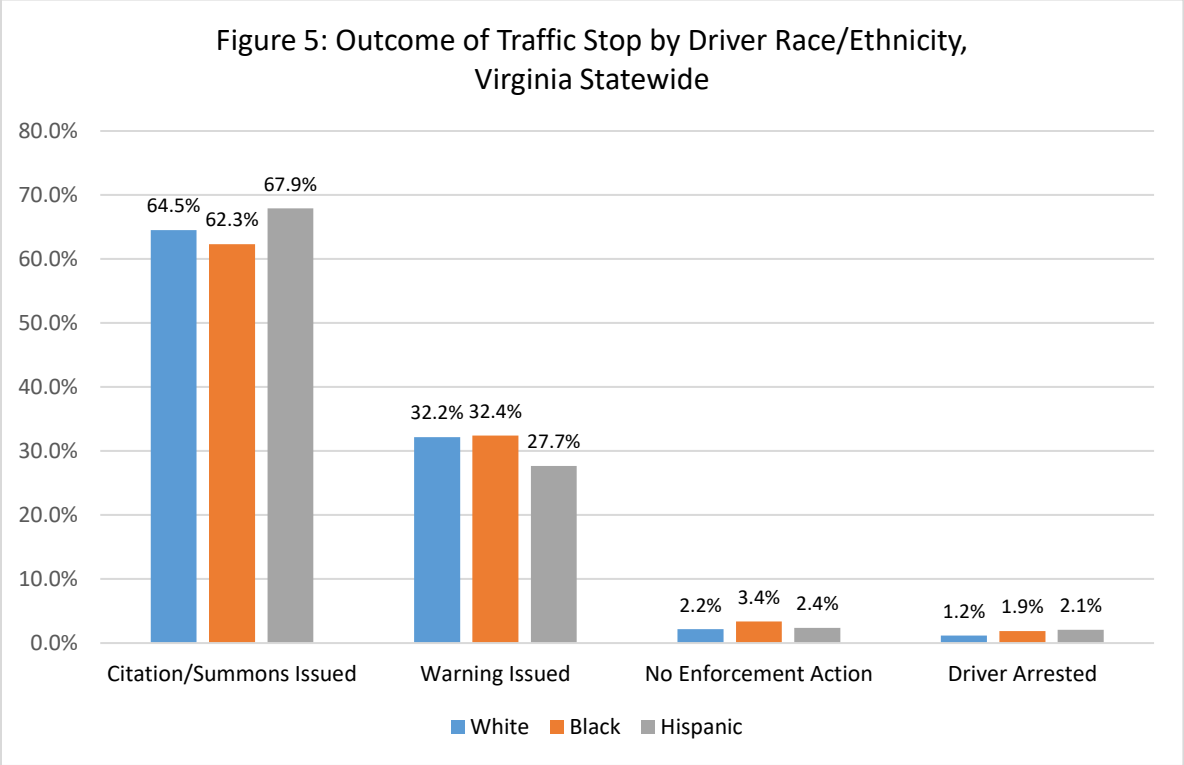


Given that a certain number of drivers are stopped, how likely is it that the stop will subsequently result in a search of the driver and/or the vehicle? Figure 4 shows the percentage of drivers in each racial/ethnic group for which a search was conducted. "Search" means the driver and/or the vehicle was searched.

Overall, searches of drivers and/or vehicles were rare following traffic stops. Only 2.4% of all driver stops resulted in such a search. As can be seen, Black and Hispanic drivers who were stopped were searched at higher rates than White drivers. 2.1% (6,769 out of 323,180) of stops of White drivers resulted in a search, whereas 2.8% (4,902 out of 174,825) of stops of Black drivers and 2.9% (1,555 out of 53,891) of Hispanic drivers resulted in a search. American Indian and Asian drivers who were stopped were less likely than White drivers to have a search conducted.

Outcome of Traffic Stops, by Driver Race/Ethnicity

Figure 5 presents the outcome of traffic stops, by driver race/ethnicity. Outcomes were coded based on the most serious outcome of the stop, even though more than one outcome was possible for a stop. American Indian and Asian drivers were excluded from the figure due to the small numbers in each stop category.



Issuance of a citation or summons was the most likely outcome (more than 60% of the time) of a traffic stop, regardless of driver race/ethnicity. Warnings were the second most likely outcome for all drivers (28% to 32% of the time) across all driver race/ethnicities.

No enforcement action was taken in 2.5% of the stops.

Overall, only about 1.5% of driver stops resulted in an arrest of the driver. The largest post-stop differences observed were based on race/ethnicity of drivers arrested. Although an arrest occurred in 1.2% of White driver stops, an arrest occurred in 1.9% of Black driver stops and 2.1% of Hispanic driver stops.

Driver Gender, by Race/Ethnicity

Table 9 presents the gender of all drivers stopped, by race/ethnicity.

Table 9. Gender of Drivers Stopped, by Race/Ethnicity, Virginia Statewide						
	White		*Black*		*Hispanic (any race)*	
	# of stops	% of stops	# of stops	% of stops	# of stops	% of stops
Male	199,664	61.8%	107,786	61.7%	39,006	72.4%
Female	123,392	38.2%	66,993	38.3%	14,865	27.6%
Other	124	0.0%	46	0.0%	20	0.0%
Total	323,180	100.0%	174,825	100.0%	53,891	100.0%
	American Indian		*Asian*		*Total*	
	# of stops	% of stops	# of stops	% of stops	# of stops	% of stops
Male	1,222	73.9%	8,719	64.0%	356,397	62.8%
Female	430	26.0%	4,911	36.0%	210,591	37.1%
Other	1	0.1%	2	0.0%	193	0.0%
Total	1,653	100.0%	13,632	100.0%	567,181	100.0%

Males made up the majority of drivers stopped, regardless of race/ethnicity. The percentage of male drivers stopped was about equal for both White (61.8%) and Black (61.7%) drivers. Males made up a somewhat higher percentage of Hispanic (72.4%) and American Indian (73.9%) drivers stopped. Males made up 64.0% of Asian drivers stopped.

Driver Age, by Driver Race/Ethnicity

Table 10 presents the age of all drivers stopped, by race/ethnicity.

Table 10. Age of Drivers Stopped, by Race/Ethnicity, Virginia Statewide						
	White		*Black*		*Hispanic (any race)*	
	# of stops	% of stops	# of stops	% of stops	# of stops	% of stops
15 to 24	75,451	23.3%	42,877	24.5%	14,925	27.7%
25 to 34	79,344	24.6%	54,869	31.4%	16,083	29.8%
35 to 44	60,063	18.6%	34,117	19.5%	12,121	22.5%
45 to 54	46,983	14.5%	21,650	12.4%	6,983	13.0%
55 to 64	37,087	11.5%	14,678	8.4%	2,896	5.4%
65 and older	24,252	7.5%	6,634	3.8%	883	1.6%
Total	323,180	100.0%	174,825	100.0%	53,891	100.0%
	American Indian		*Asian*		*Total*	
	# of stops	% of stops	# of stops	% of stops	# of stops	% of stops
15 to 24	305	18.5%	2,877	21.1%	136,435	24.1%
25 to 34	446	27.0%	3,193	23.4%	153,935	27.1%
35 to 44	399	24.1%	2,730	20.0%	109,430	19.3%
45 to 54	274	16.6%	2,474	18.1%	78,364	13.8%
55 to 64	147	8.9%	1,540	11.3%	56,348	9.9%
65 and older	82	5.0%	818	6.0%	32,669	5.8%
Total	1,653	100.0%	13,632	100.0%	567,181	100.0%

Younger drivers (age 15–34) made up 47.9% of White drivers stopped, but 55.9% of Black drivers and 57.5% of Hispanic drivers stopped. Asian drivers had the lowest percentage of younger drivers stopped. White and Asian drivers had a higher percentage of drivers over age 55 stopped.

Statewide Disparity Index (DI)

To provide a standardized method for comparing disparities between different racial/ethnic groups in traffic stops, DCJS calculated a Disparity Index (DI). For traffic stops, the DI indicates the degree to which members of any racial/ethnic group were stopped relative to the group's prevalence in the driving-age population.

The DI for each racial/ethnic group was calculated as:

$$\frac{\text{Group's percentage of all stops reported by agency}}{\text{Group's percentage of population age 15+ statewide or in locality served by agency}}$$

DIs of with a value of 1.0 or less for a group indicate that stops for that group occurred at a rate that is less than or equal to that group's share of the driving-age population. DIs with a value greater than 1.0 indicate that stops for that group occurred at a rate that is higher than that group's share of the driving-age population. The interpretation of different DI levels is shown in Table 11.

Table 11. Interpretation of Driver Stop DIs

DI Range	Traffic Stop DI Interpretation Used in Report
1.0 or less	Driver group had *no overrepresentation* or is *underrepresented* in stops when compared to its proportion of the population age 15+
1.1 – 1.9	Driver group had *moderate overrepresentation* in stops compared to its proportion of the population age 15+
2.0 or higher	Driver group had *high overrepresentation* in stops compared to its proportion of the population age 15+

Note: The DI descriptors above (under-, moderate-, and high overrepresentation) are not based on tests of statistical significance. They are used merely as descriptors to differentiate between the levels of disparity observed. Some agencies had calculated driver stop DIs of 3.0 and higher, indicating very high overrepresentation for a driver group in stops. These higher DIs should be interpreted cautiously, because they may be skewed by large differences between the group's resident population and the number of stopped drivers in the group who are transient drivers and are not part of the resident population. Also, DIs of 3.0 or higher may be the result of very low population percentages coupled with a very low number of stops.

In addition to calculating a DI to indicate the degree to which drivers in different racial/ethnic groups were stopped, DCJS also calculated a separate DI to indicate the degree to which drivers in each group were involved in events following traffic stops, including the reason for stops, whether persons and/or vehicles were searched, and actions taken towards drivers (summons/citation issued, warning given arrest, etc.). The DI for events occurring after the stop is calculated in a different manner than the DI is calculated for the stop itself.

The DI for events occurring after the stop for each racial/ethnic group was calculated as:

$$\frac{\text{Group's percentage for each stop reason, search, or stop outcome}}{\text{Group's percentage of all stops reported by agency}}$$

DIs for events occurring after the stop, unlike those calculated for whether a stop occurred in the first place, were not calculated using the group's percentage of the resident driving-age population, but were calculated using the percentage of drivers stopped by a given law enforcement agency in each group.

Statewide DIs for driver stops, and for events following the stop, for each driver racial/ethnic group are displayed in Table 12.

To illustrate how the data is presented in Table 12, the "Driver Stopped" section of Table 12 shows that Black drivers made up 19.5% of Virginia's driving-age population, yet they made up 30.8% of the drivers stopped in Virginia. The comparison of the percentage of Black drivers stopped to the percentage of Virginia's statewide Black driving-age population produces a traffic stop DI of 1.6 for Black drivers statewide (19.5%/30.8% = 1.6).

For another example of how the data in Table 12 is presented, the "Outcome of Stop" section of this report shows that Black drivers made up 30.8% of the drivers stopped in Virginia, but they made up 39.6% of the drivers arrested in Virginia. The comparison of the percentage of Black drivers stopped to the percentage of Black drivers arrested produces an arrest DI of 1.3 for Black drivers statewide (39.6.%/30.8%= 1.3).

An unusually high traffic stop DI can occur when a racial or ethnic group comprises a very small percentage of a locality's driving-age population, but also comprises a relatively high percentage of its traffic stops. This is especially true when a local LEA reports a small number of stops to begin with. For example, the Fredericksburg City Sheriff's Office had a notably high driver stop DI of 3.1 for Asian drivers in the 2022 report. This group made up only 3.62% of the jurisdiction's total driving-age population, but it made up 11.11% of the drivers stopped by the LEA. In this case, the LEA reported only 27 traffic stops, 3 of which involved an Asian driver. The driver stop DI was therefore calculated as:

$$\frac{\text{11.11\% (the percentage of all stops that involved Asian drivers)}}{\text{3.62\% (the percentage of driving-age population that was Asian)}} = 3.1$$

11.11% is disproportionately higher than 3.62%, resulting in the very high DI of 3.1. In this particular case, the DI should not be considered meaningful because of the small number of stops involved.

Importantly, the DI does not tell us the reason(s) why members of a particular racial/ethnic group are being stopped at a higher or lower rate than their presence in the population. The DI simply tells us that members of a group are being disproportionately stopped compared to their presence in the population. It cannot tell us the motivations of the officers making the stops. (See the section "Interpretation of Findings" for a further explanation of why disparities in numbers of stops or in the outcomes of traffic stops cannot automatically be assumed to be evidence of bias-based profiling.)

2022 Change to Categorizing DIs as "No Overrepresentation"

In the 2021 report, agency DIs with no cases for outcomes of interest among the target group were excluded from summary statistics which used the DI ranges and interpretations in Table 11. For instance, if an agency had 500 stops of Black drivers, zero searches of Black drivers, and 23 total driver searches, the Black search DI for that agency would technically be 1.0 or less (0.0), but the DI would not have been included in the "no overrepresentation" group. For this report, such DIs will now be included under the "no overrepresentation" statistics *so long as the agency reported stops for the target racial/ethnic group*. While DIs with no outcomes of interest do not allow for a sense of scale in traffic stop patterns (e.g., "how many Black driver stops would it take for the agency to perform a search?"), DCJS has reasoned that because the agency had a pool of stopped drivers to potentially search/arrest and did not perform any searches/arrests within the target group, "no overrepresentation" is a suitable Disparity Index descriptor for these scenarios. Following the same logic, stop DIs with no stops of the target group are now categorized as "no overrepresentation" because the agency had a pool of Black, Asian, etc. drivers in their jurisdiction to potentially stop. Search and arrest DIs for racial/ethnic groups in which the agency performed no stops of said group will continue to be excluded from summary statistics and the "no overrepresentation" descriptor for in this report.

With this change in categorization, percentages of "no overrepresentation" agency DIs will be much higher for this year's report. It is important to note that much of this increase is due to the report's change in methodology rather than a change in real-world traffic stop practices. Not all "no overrepresentation" DIs will reflect a raw indication of underrepresentation (if an agency had a single American Indian driver stop, the probability is high that the single stop would not result in a search), but they all reflect instances where there is no preliminary indication of overrepresentation in the data given the agency's potential to stop/search/arrest the target group.

Table 12. Traffic Stop Report: Virginia Statewide

Traffic Stop Report: Virginia Statewide

Stops Dated July 1, 2021-March 31, 2022

	Total	White	Black-African American	Hispanic (any race)	American Indian or Alaska Native	Asian-Other Pacific Islander
Population Demographics						
Number Age 15+ in CY2020 Population	7,017,603	4,476,664	1,366,787	624,539	22,123	527,490
Percent Age 15+ in CY2020 Population	100.00%	63.79%	19.48%	8.90%	0.32%	7.52%
Drivers Stopped						
Number of Drivers Age 15+ Stopped	567,181	323,180	174,825	53,891	1,653	13,632
Percent of Drivers Age 15+ Stopped	100.00%	56.98%	30.82%	9.50%	0.29%	2.40%
Disparity Index		0.9	1.6	1.1	0.9	0.3
Reason for Stop						
Number Stopped for Traffic Violation	516,368	294,111	157,931	49,870	1,556	12,900
Percent Stopped for Traffic Violation	100.00%	56.96%	30.58%	9.66%	0.30%	2.50%
Disparity Index		1.0	1.0	1.0	1.0	1.0
Number Stopped for Equipment Violation	37,286	21,731	12,284	2,680	76	515
Percent Stopped for Equipment Violation	100.00%	58.28%	32.95%	7.19%	0.20%	1.38%
Disparity Index		1.0	1.1	0.8	0.7	0.6
Number Stopped for Terry Stop	3,483	1,740	1,293	362	5	83
Percent Stopped for Terry Stop	100.00%	49.96%	37.12%	10.39%	0.14%	2.38%
Disparity Index		0.9	1.2	1.1	0.5	1.0
Number Stopped for Other Reason	10,044	5,598	3,317	979	16	134
Percent Stopped for Other Reason	100.00%	55.73%	33.02%	9.75%	0.16%	1.33%
Disparity Index		1.0	1.1	1.0	0.5	0.6
Outcome of Stop						
Number of Stops with Warning Issued	180,891	104,000	56,692	14,917	555	4,727
Percent of Stops with Warning Issued	100.00%	57.49%	31.34%	8.25%	0.31%	2.61%
Disparity Index		1.0	1.0	0.9	1.1	1.1
Number of Stops with Citation/Summons issued	363,617	208,434	108,962	36,600	1,064	8,557
Percent of Stops with Citation/Summons issued	100.00%	57.32%	29.97%	10.07%	0.29%	2.35%
Disparity Index		1.0	1.0	1.1	1.0	1.0
Number of Stops with Driver Arrested	8,257	3,766	3,272	1,107	10	102
Percent of Stops with Driver Arrested	100.00%	45.61%	39.63%	13.41%	0.12%	1.24%
Disparity Index		0.8	1.3	1.4	0.4	0.5
Number of Stops with No Enforcement Action	14,416	6,980	5,899	1,267	24	246
Percent of Stops with No Enforcement Action	100.00%	48.42%	40.92%	8.79%	0.17%	1.71%
Disparity Index		0.8	1.3	0.9	0.6	0.7
Additional Details of Stop						
Number of Stops with Driver or Vehicle Search	13,390	6,769	4,902	1,555	15	149
Percent of Stops with Driver or Vehicle Search	100.00%	50.55%	36.61%	11.61%	0.11%	1.11%
Disparity Index		0.9	1.2	1.2	0.4	0.5
Number of Stops with Office Force Against Subject	652	343	236	59	2	12
Percent of Stops with Office Force Against Subject	100.00%	52.61%	36.20%	9.05%	0.31%	1.84%
Disparity Index		0.9	1.2	1.0	1.1	0.8
Number of Stops with Subject Force Against Officer	730	389	251	72	3	15
Percent of Stops with Subject Force Against Officer	100.00%	53.29%	34.38%	9.86%	0.41%	2.05%
Disparity Index		0.9	1.1	1.0	1.4	0.9

Data sources:

Community Policing Data Collection, Virginia Department of State Police, May 2022.

Vintage 2020 postcensal estimates of the resident population of the United States (April 1, 2010, July 1, 2010-July 1, 2020), by year, county, single-year of age, bridged race, Hispanic origin, and sex. Available from: http://www.cdc.gov/nchs/nvss/bridged_race.htm as of July 9 2021.

Prepared by: Virginia Department of Criminal Justice Services Research Center, July 1 2022.

Search can involve driver, vehicle, or both.

The disparity index for small numbers of stops and small populations should be interpreted with caution because of the small numbers involved.

Summary of Statewide Race/Ethnicity Analysis

A review of the statewide data for July 2021–March 2022 shows that Black and Hispanic drivers were disproportionately stopped, and tended to have higher rates of search and arrest when they were stopped, compared to White, American Indian, or Asian drivers in Virginia. This finding is similar to the finding in the DCJS 2021 report.

- During the 2022 reporting period, Black drivers were stopped at higher rates than White drivers. Although only 19.5% of Virginia's driving-age population in the dataset was Black, 30.8% of drivers stopped were Black.
  - In 2021, 19.6% of Virginia's driving-age population in the dataset was Black, and 31% of drivers stopped were Black.
- Black drivers who were stopped were searched at higher rates than White drivers. 2.8% of stopped Black drivers had a search of their person or vehicle conducted, compared to 2.1% of White drivers.
  - In 2021, 5.2% of stopped Black drivers had a search of their person, a passenger, or vehicle conducted, compared to 3.1% of White drivers.
- Black drivers who were stopped were arrested at higher rates than White drivers. 1.9% of Black drivers stopped were arrested, compared to 1.2% of White drivers.
  - In 2021, 2.4% of Black drivers stopped were arrested, compared to 1.6% of White drivers.
- Hispanic drivers (of any race) were also stopped at higher rates than White drivers, although not as much so as Black drivers. Although Hispanics made up only 8.9% of Virginia's driving-age population in the dataset, they made up 9.5% of drivers stopped.
  - In 2021, Hispanics made up 8.7% of Virginia's driving-age population in the dataset and 9.5% of drivers stopped.
- Hispanic drivers who were stopped were searched at higher rates than White drivers. 2.9% of stopped Hispanic drivers had a search of their person or vehicle conducted, compared to 2.1% of White drivers.
  - In 2021, 3.5% of stopped Hispanic drivers were arrested, compared to 1.6% of White drivers and 2.4% of Black drivers.
- Statewide, White, American Indian/Alaskan Native and Asian/Pacific Islander drivers were stopped at rates near or below their representation in the driving-age population. This underrepresentation occurred not only for drivers stopped, but also for all related measures including reasons for stops; searches of drivers and vehicles; and stop outcomes such as arrests or citations.
  - This general finding was the same for the 2021 report.

Findings from Analysis of Agency-Level Data

The analysis of statewide driver stop data showed that Black and Hispanic drivers were disproportionately stopped, and experienced more serious outcomes during those stops, than other drivers. This section provides a summary of the findings from the analysis of traffic stop data for individual law enforcement agencies (LEAs) in Virginia. Tables providing stop details for each individual agency are provided in Appendices B through E.

First, data is presented showing how likely drivers in each racial/ethnic group were to be stopped by LEAs. Second, data is presented on the events that occurred after each stop was made (searches made, stop outcome) for each driver racial/ethnic group.

The VSP provided DCJS with a list of 366 LEAs in Virginia. However, only 305 of these agencies were included in the traffic stop analysis. Sixty-one agencies were not included (see Appendix F) for reasons such as:

- The agencies are no longer operational.
- The agencies did not begin reporting traffic stop data to VSP until after April 15, 2022.
- The agencies have no primary law-enforcement duties (typically a sheriff's office that provides staff and security for jails and courthouses), or reported their stops under the primary agency for their jurisdiction due to a shared data collection system.
- All of the agencies' cases were removed from the DCJS analysis dataset per the exclusion criteria.
- The agencies' jurisdictions do not include public roadways (typically agencies serving some colleges or universities or commercial properties).

The traffic stop analyses for these 305 agencies are presented separately for four different types of LEAs, depending upon the amount of driver traffic stop and driver demographic data available for the areas they serve. The four agency types are: Virginia State Police, local agencies serving cities and counties, local agencies serving towns, and other state, local, and private agencies.

Virginia State Police Traffic Stop Analysis

VSP provides traffic enforcement on state roadways and interstate highways throughout Virginia. Due to Virginia's geography and size, these enforcement duties are divided among seven VSP divisions, with each division including multiple counties, cities, and towns. Traffic stop data was provided for stops made by VSP officers in each VSP division, and the data was combined for analysis and presented here statewide. A Disparity Index (DI) was calculated for each group of drivers who were stopped by VSP statewide, and for the events following the stop. Statewide driving age population age 15 and older by race and ethnic group was used to calculate DIs for VSP driver stops, searches, and arrests.

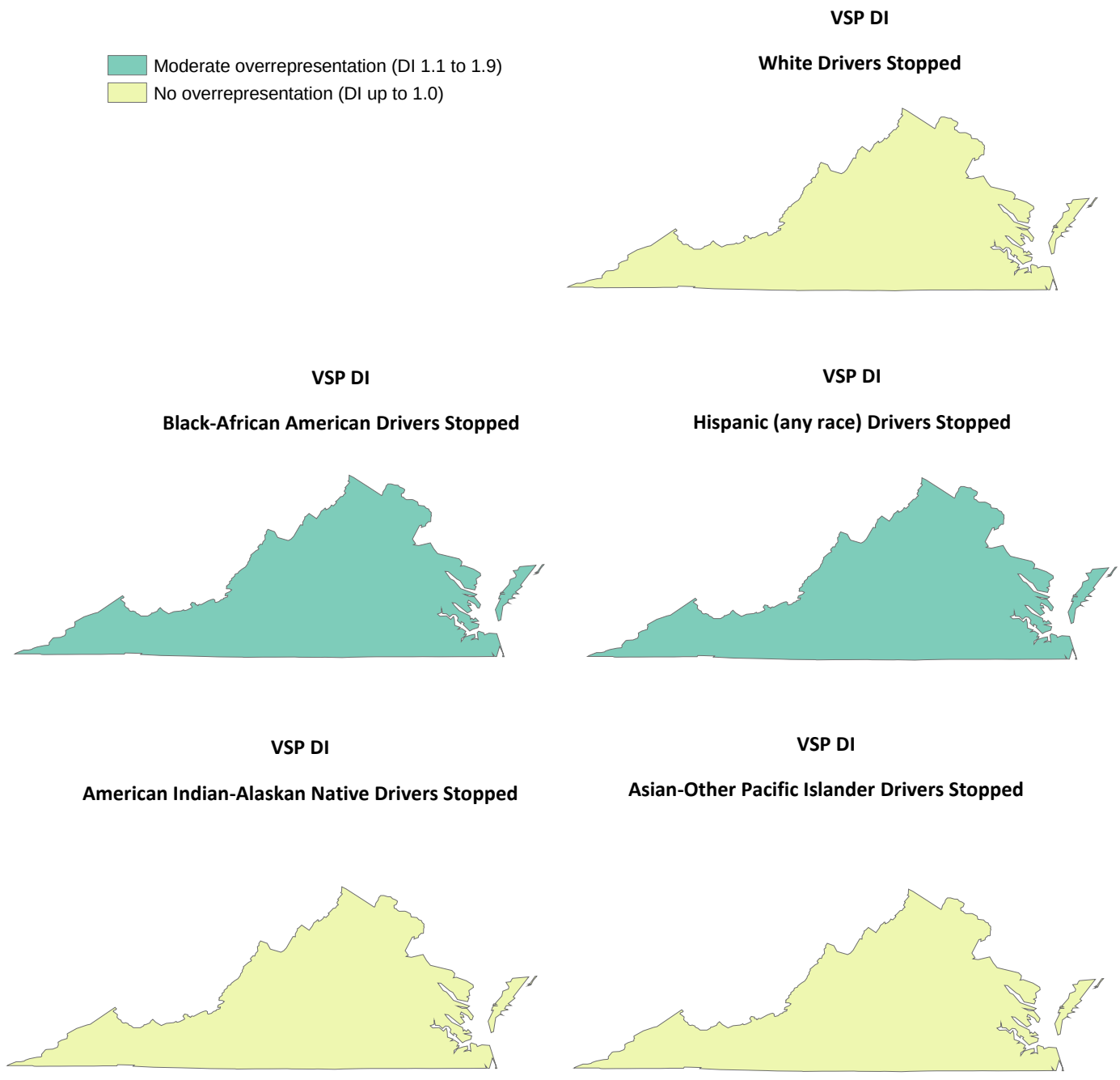
Due to limitations in the data, DCJS was unable to accurately calculate DIs for driver stops or post-stop events for each of the seven individual VSP divisions. Findings for VSP's stops are instead reported on an aggregated statewide level.

Detailed DI information for VSP traffic stops, as well as for events that occurred after the stops were made, is shown in Appendix B.

Geographic Presentation of VSP Driver Stop Disparity Indexes (DIs)

The maps in Figure 6 illustrate which driver racial/ethnic groups had moderate or no overrepresentation for driver stops conducted by VSP. Black and Hispanic drivers were moderately overrepresented in VSP driver stops; there was no overrepresentation of any other driver racial/ethnic group among VSP stops. No driver racial/ethnic group had high overrepresentation in stops conducted by VSP.

Figure 6
VSP Maps for Driver Stops by Driver Race/Ethnicity



Analysis of Events Following VSP Traffic Stops

This section examines two major events that can occur once a traffic stop is made: Are there racial/ethnic disparities in how often a driver or vehicle is searched, or in how often a driver is arrested? In this section, for any single stop, a search was counted if a search of a driver, vehicle, or both of these, occurred. It is considered one search; they are not counted separately. Also, in this section, the analysis of arrests examines only driver arrests. Some data on passenger arrests was also included in the data collection, but is excluded from the analysis.

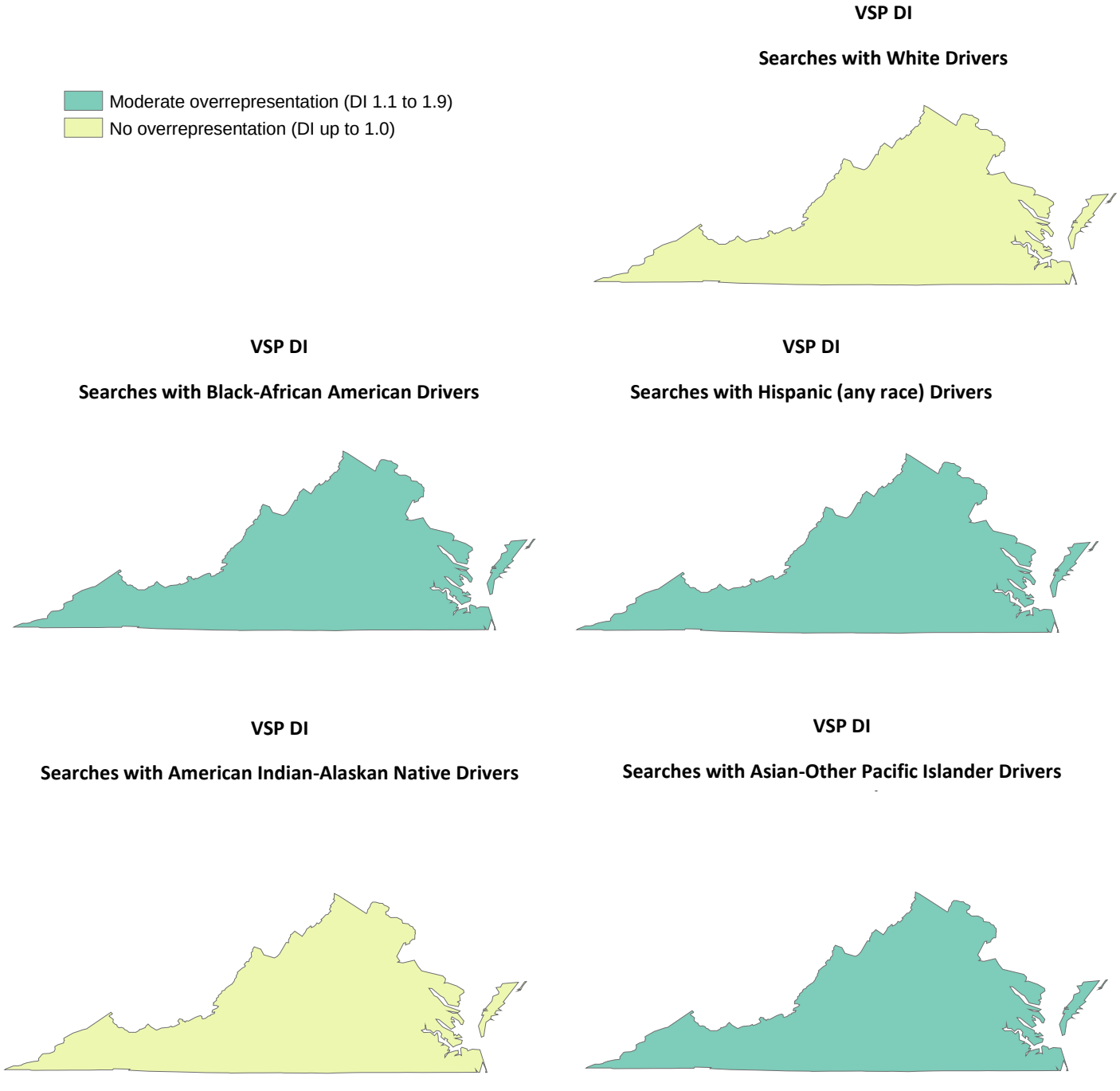
The DIs for events following a traffic stop can be calculated more precisely than the DI regarding whether or not a driver was stopped in the first place. The driver stop DI is based on a comparison of the percentage of drivers in each racial/ethnic group stopped by VSP statewide to the percentage of driving-age individuals in each group in the resident population statewide. As previously stated, knowing the resident population age 15+ for each racial/ethnic group is not the same as knowing the actual number of drivers on the road in each group. It is only an approximation.

However, once a stop occurs, the actual percentage of drivers in each group who were stopped is known, and we know the actual percentage of drivers in each group where a person or vehicle search occurred, and/or we know if the driver was arrested.

Geographic Presentation of VSP Search DIs

The maps in Figure 7 illustrate which driver racial/ethnic groups had moderate or no overrepresentation in searches conducted by VSP. Black, Asian, and Hispanic drivers were moderately overrepresented in searches conducted by VSP. White and American Indian drivers were underrepresented in VSP driver and/or vehicle searches. No driver racial/ethnic group had high overrepresentation in VSP searches.

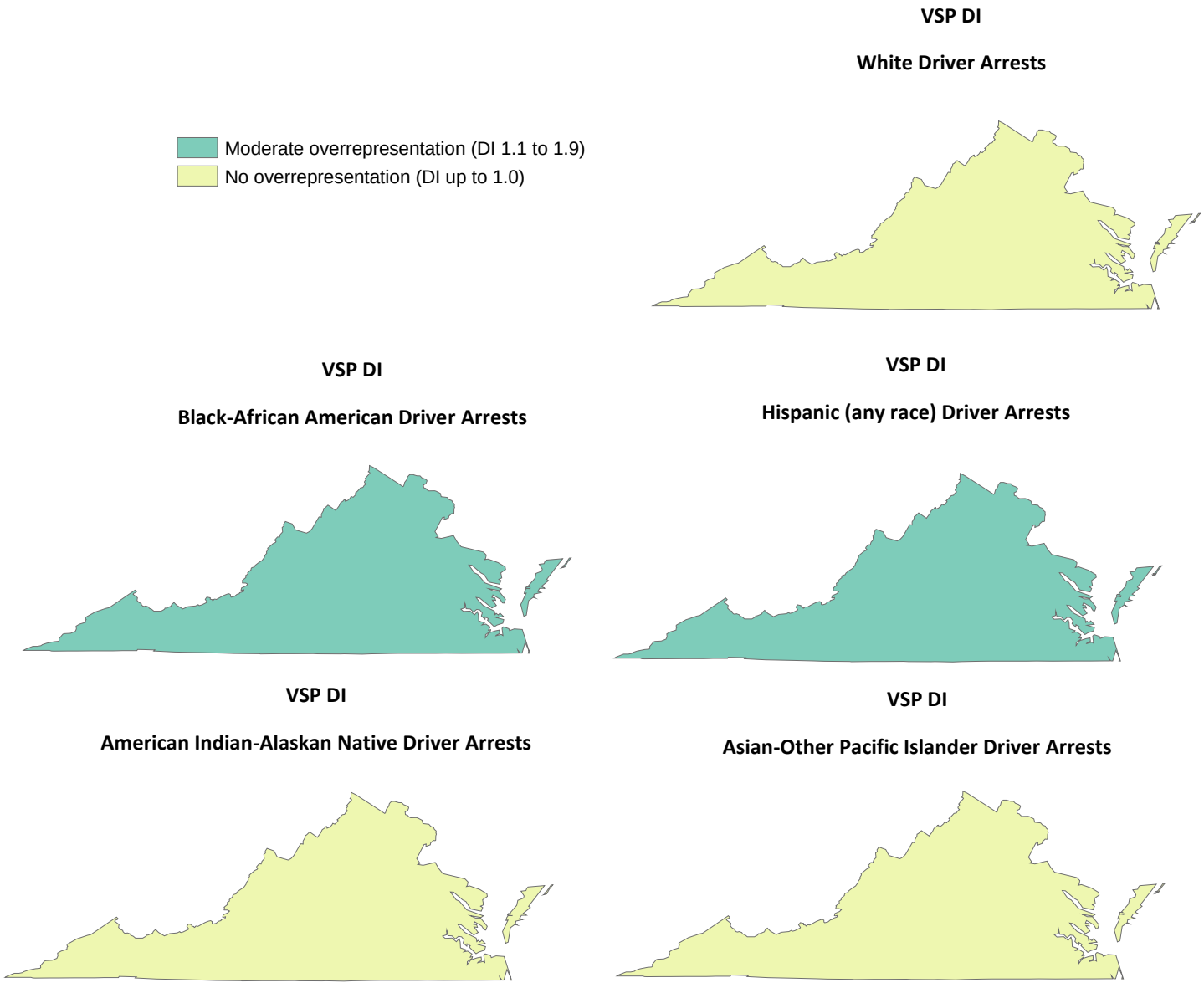
Figure 7
VSP Statewide Maps for Searches by Driver Race/Ethnicity



Geographic Presentation of VSP Driver Arrest DIs

The maps in Figure 8 illustrate which driver racial/ethnic groups had moderate or no overrepresentation for driver arrests conducted by VSP. Black and Hispanic drivers were moderately overrepresented in driver arrests conducted by VSP. White, American Indian, and Asian drivers were underrepresented in VSP driver arrests. No driver racial/ethnic group had high overrepresentation in driver arrests conducted by VSP.

Figure 8
VSP Statewide Maps for Driver Arrests by Driver Race/Ethnicity



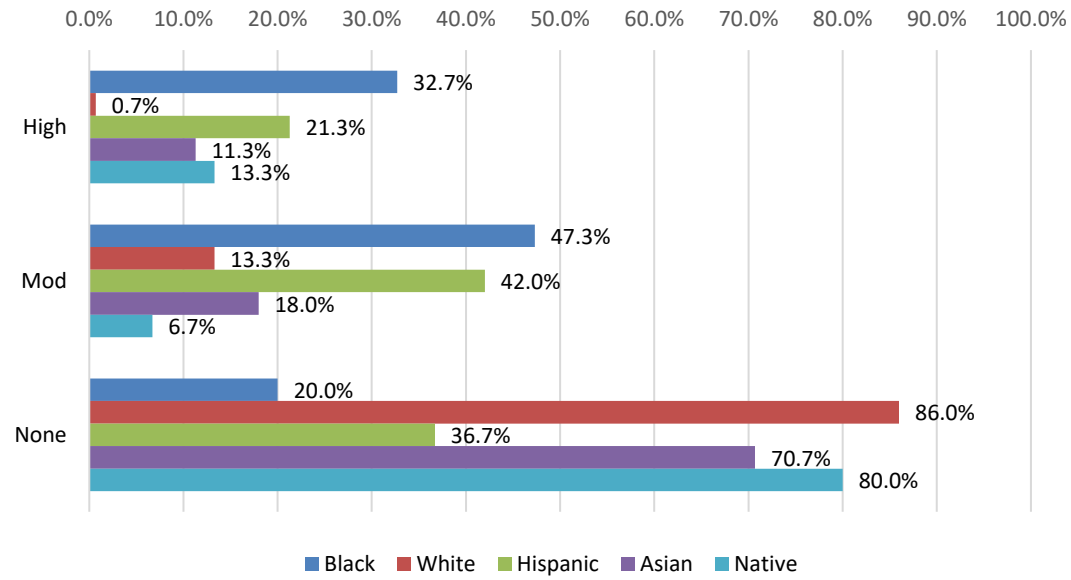
City and County Agency Traffic Stop Analysis

These 150 local agencies serve cities and counties. Racial/ethnic data for the resident population age 15+ was available for localities served by these agencies. A DI was calculated for each group of drivers who were stopped, and for the events following the stop (i.e., reason for stop, whether a search was conducted, and outcomes of the stop). See Appendix A for a comprehensive listing of driver stop DIs for each individual city and county agency.

Driver Stop DIs for City and County Agencies

Figure 9 shows the percentages of the 150 LEAs with driver stop DIs indicating high overrepresentation (DI of 2.0 or higher), moderate overrepresentation (DI of 1.1 to 1.9), or no overrepresentation (DI of 1.0 or less) for minority drivers stopped when compared to the minority resident driving-age population.

Figure 9: Percent of City/County Agencies with High, Moderate, or No Overrepresentation in Stops by Driver Race/Ethnicity



The percentages seen in Figure 9 show that, across all 150 agencies:

- 32.7% of city and county agencies had high overrepresentation in stops of Black drivers, 21.3% of agencies had the same for Hispanic drivers, 13.3% of agencies had the same for American Indian drivers, and 11.3% had the same for Asian drivers. Less than 1% of agencies had high overrepresentation for White drivers.
- 47.3% of city and county agencies had moderate overrepresentation in stops of Black drivers, and 42.0% of agencies had the same for Hispanic drivers. 6.7% had the same for American Indian drivers and 18.0% of agencies had the same for Asian drivers. 13.3% of agencies had the same for White drivers.
- Only 20.0% of city and county agencies had no overrepresentation in stops of Black drivers, and only 36.7% of agencies had the same for Hispanic drivers. 80.0% of agencies had the same for American

Indian drivers, and 70.7% of agencies had the same for Asian drivers. On the other hand, 86.0% of agencies had no overrepresentation for White drivers.

City and county agencies with zero stops, and therefore DIs of zero, are included in Figure 9 under the "No Overrepresentation" category. 0.7% of city and county agencies (1) reported no stops involving White drivers, 2.0% agencies (3) reported none involving Black drivers, 8.0% of agencies (12) reported none involving Hispanic drivers, 42.6% of agencies (64) reported none involving American Indian drivers, and 17.3% (26) reported no stops involving Asian drivers.

Analysis of Events Following Traffic Stops for City and County Agencies

Once a stop was made, a DI could be calculated to examine racial/ethnic driver overrepresentation for searches and arrests made following the stop. These are discussed below.

Searches Conducted

Figure 10 shows the percentages of the 150 LEAs with driver search DIs indicating high overrepresentation (DI of 2.0 or higher), moderate overrepresentation (DI of 1.1 to 1.9), or no overrepresentation (DI of 1.0 or less) for minority drivers where a search occurred when compared to the number of minority drivers stopped.

Figure 10: Percent of City/County Agencies with High, Moderate, or No Overrepresentation in Searches by Driver Race/Ethnicity, Virginia Statewide

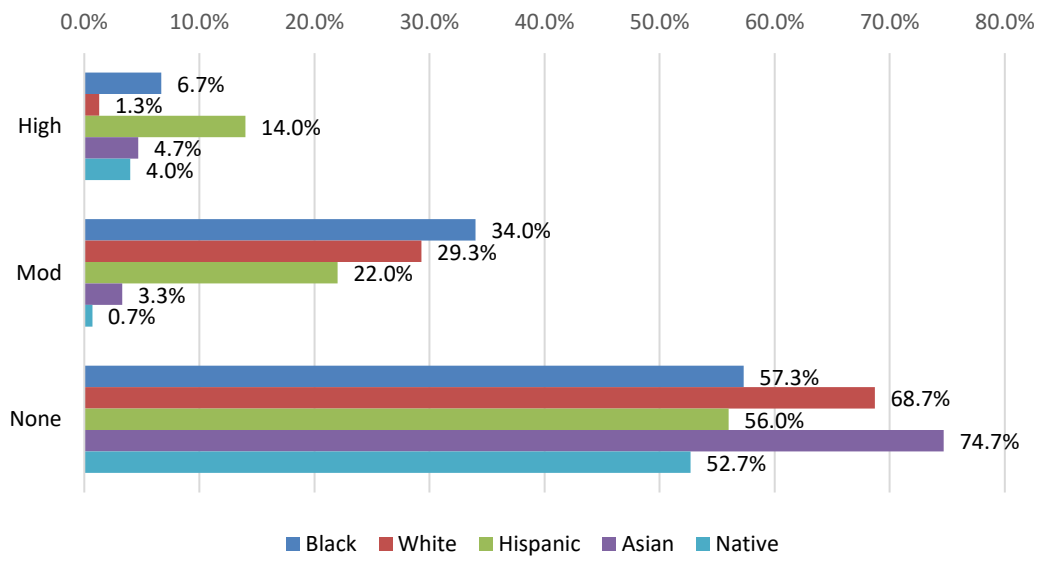


Figure 10 shows the following:

- Black and Hispanic drivers predominated when there was high or moderate overrepresentation for searches, and White and Asian drivers predominated when there was no overrepresentation for searches. Black and Hispanic drivers had consistently higher search DIs than White drivers.
  - 6.7% of city and county agencies had high overrepresentation for searches involving Black drivers, 14.0% of agencies had the same for Hispanic drivers, 4.0% of agencies had the same for

American Indian drivers, and 4.7% had the same for Asian drivers. 1.3% of agencies had the same for White drivers.

- 34.0% of city and county agencies had moderate overrepresentation for searches involving Black drivers, and 22.0% of agencies had the same for Hispanic drivers. Less than 1% of agencies had the same for American Indian drivers, and 3.3% of agencies had the same for Asian drivers. 29.3% of agencies the same for White drivers.
- 57.3% of city and county agencies had no overrepresentation for searches involving Black drivers, 56.0% of agencies had the same for Hispanic drivers, 52.7% of agencies had the same for American Indian drivers, and 74.7% of agencies had the same for Asian drivers. By comparison, 68.7% of agencies had the same for White drivers.

City and county agencies with zero stops among a given racial/ethnic group are not shown in Figure 10 above for that group. 0.7% of city and county agencies (1) reported no stops involving White drivers, 2.0% agencies (3) reported none involving Black drivers, 8.0% of agencies (12) reported none involving Hispanic drivers, 42.6% of agencies (64) reported none involving American Indian drivers, and 17.3% (26) reported no stops involving Asian drivers. Groups with at least one stopped driver but no searches for that group are included in Figure 10 under the "No Overrepresentation" category.

Driver Arrests

Figure 11 shows the percentages of the 150 LEAs with driver arrest DIs indicating high overrepresentation (DI of 2.0 or higher), moderate overrepresentation (DI of 1.1 to 1.9), or no overrepresentation (DI of 1.0 or less) for minority drivers arrested when compared to the number of minority drivers stopped.

Figure 11: Percent of City/County Agencies with High, Moderate, or No Overrepresentation in Arrests by Driver Race/Ethnicity, Virginia Statewide

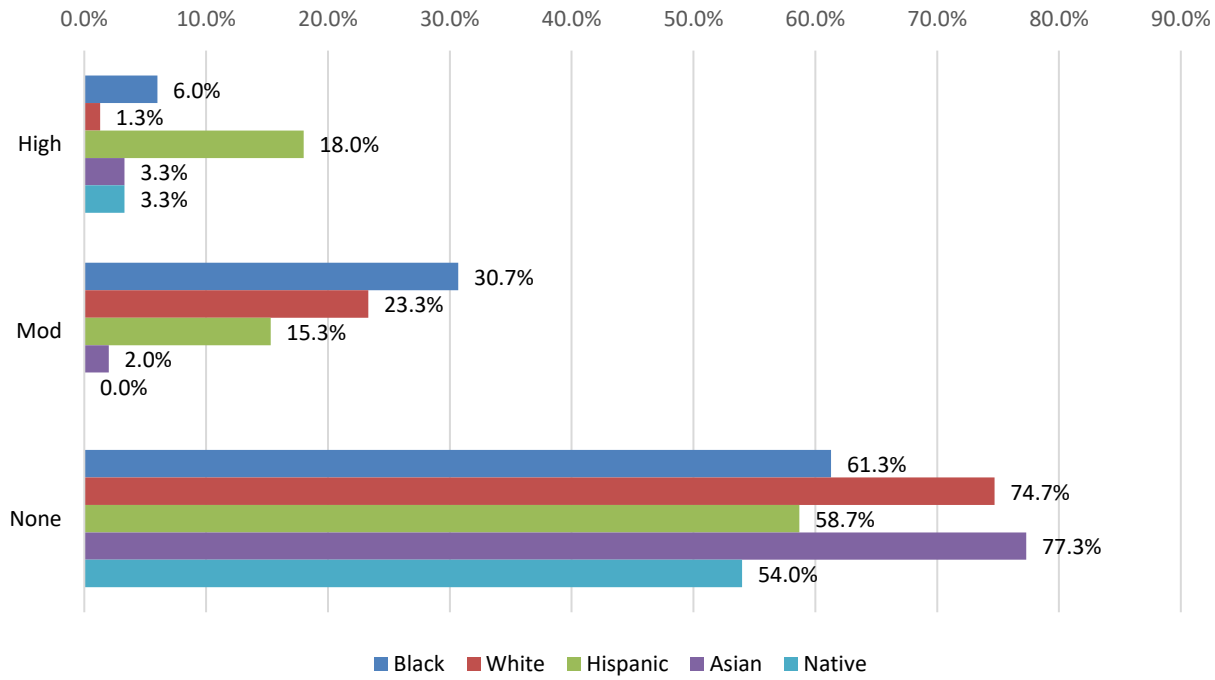


Figure 11 shows the following:

- As was the case for searches, Black and Hispanic drivers predominated when there was high or moderate overrepresentation for arrests and White and Asian drivers predominated when there was no overrepresentation for arrests. Black and Hispanic drivers had consistently higher arrest DIs than White drivers.
  - 18.0% of county and city agencies had high overrepresentation of Hispanic drivers arrested, 6.0% of agencies had the same for Black drivers, 3.3% of agencies had the same for American Indian drivers, and 3.3% of agencies had the same for Asian drivers. 1.3% of agencies had high overrepresentation for White drivers arrested.
  - 30.7% of county and city agencies had moderate overrepresentation of Black drivers arrested, 15.3% of agencies had the same for Hispanic drivers, no agencies had the same for American Indian drivers, and 2.0% of agencies had the same for Asian drivers. 23.3% of agencies had the same for White drivers.
  - 61.3% of county and city agencies had no overrepresentation of Black drivers arrested, 58.7% of agencies had the same for Hispanic drivers, 54.0% of agencies had the same for American Indian drivers, and 77.3% of agencies had the same for Asian drivers. 74.7% of agencies had the same for White drivers.

City and county agencies with zero stops among a given racial/ethnic group are not shown in Figure 11 above for that group. 0.7% of city and county agencies (1) reported no stops involving White drivers, 2.0% agencies (3) reported none involving Black drivers, 8.0% of agencies (12) reported none involving Hispanic drivers, 42.6% of agencies (64) reported none involving American Indian drivers, and 17.3% (26) reported no stops involving Asian drivers. Groups with at least one stopped driver but no arrests for that group are included in Figure 11 under the "No Overrepresentation" category.

DIs for individual agencies serving cities and counties are shown in Appendix C.

Town Agencies Traffic Stop Analysis

These 110 local PDs serve towns. Racial/ethnic data for the resident population age 15+ was not available for these agencies.

Driver Racial/Ethnicity Analysis of Traffic Stops for Town Agencies

Because driving-age population data for each racial/ethnic group was not available for the towns served by these PDs, a driver stop DI could not be calculated for these PDs. It was possible to examine the percentage of drivers in each racial/ethnic group among stops made by these PDs and these percentages were compared to the percentages of each group stopped statewide.

The percentages of Black and Hispanic drivers stopped by town agencies were lower than the percentages of stops for these drivers statewide. While 30.8% of drivers stopped statewide were Black, 21.8% of drivers stopped by town agencies were Black. Hispanic drivers were 9.5% of those stopped statewide and were 9.3% of drivers stopped by town agencies. The percentage of White drivers stopped by town agencies, 66.2%, was higher than the percentage of White drivers stopped statewide, 57.0%.

DCJS has identified an American Community Survey (ACS)-based data source, the Integrated Public Use Microdata Series (IPUMS) National Historical Geographic Information System (NHGIS), which releases town-level demographic estimates broken out by age, race and ethnicity. Their release based on the ACS

2015–2020 data was delayed due to COVID-related issues and is not available at the time of writing this report, but in future years DCJS can use the IPUMS NHGIS to construct Town Agency benchmarks and DIs.

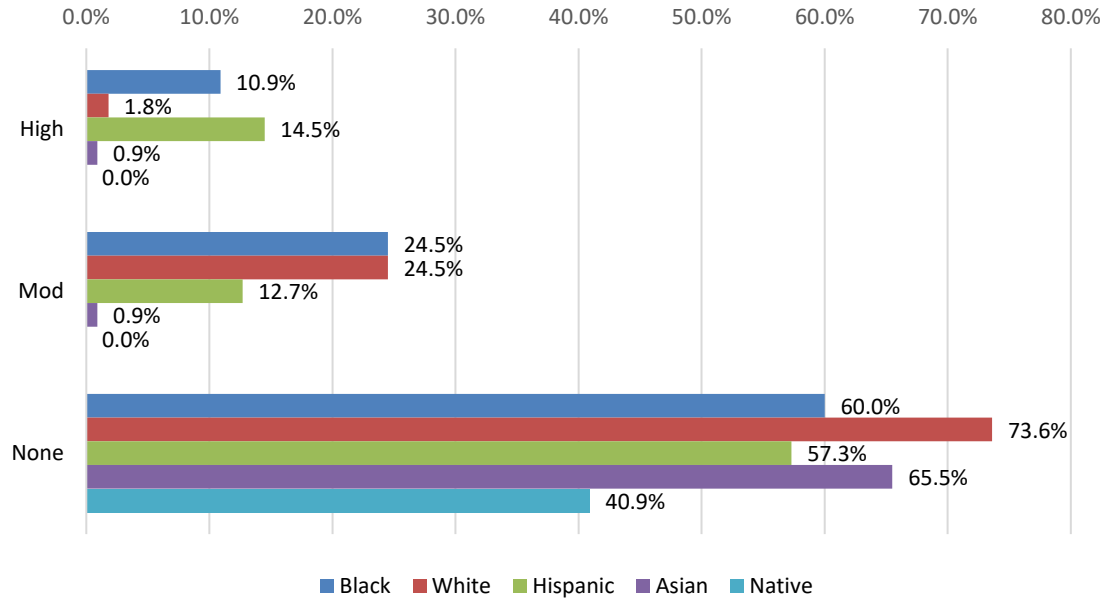
Analysis of Events Following Traffic Stops for Town Agencies

Once a stop was made, a DI could be calculated to examine racial/ethnic driver overrepresentation for searches and arrests made following the stop by a town agency. These are discussed below.

Searches Conducted

Figure 12 shows the percentages of the 110 LEAs with driver search DIs indicating high overrepresentation (DI of 2.0 or higher), moderate overrepresentation (DI of 1.1 to 1.9), or no overrepresentation (DI of 1.0 or less) for minority drivers where a search occurred compared to each group of minority drivers stopped.

Figure 12: Percent of Town Agencies with High, Moderate, or No Overrepresentation in Searches by Driver Race/Ethnicity



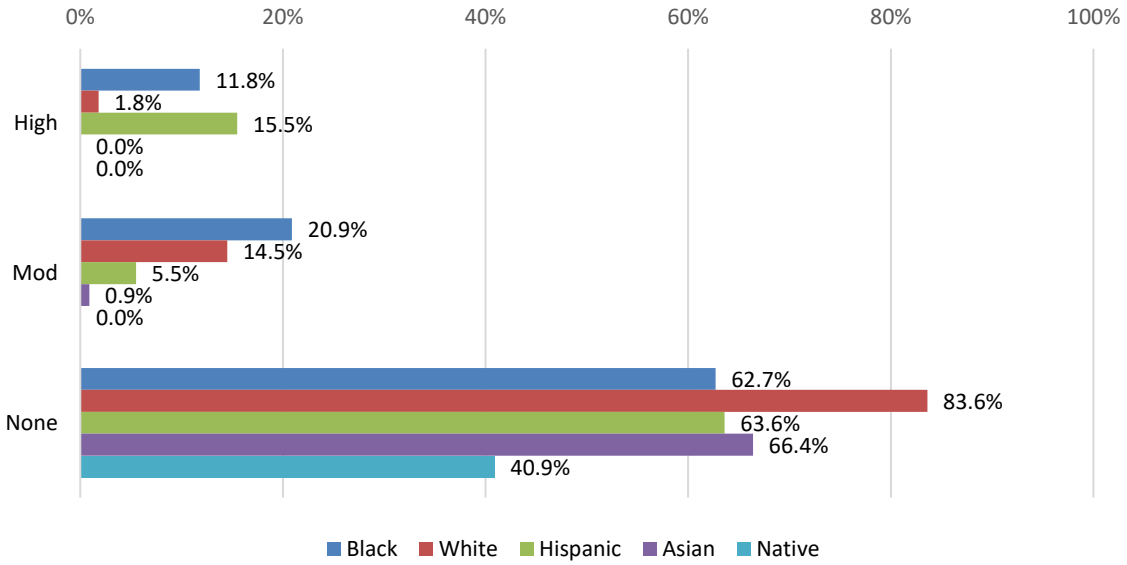
- Black and Hispanic drivers again tended to have higher search DIs than other drivers.
  - 10.9% of town agencies had a high overrepresentation for searches involving Black drivers and 14.5% of agencies had the same for searches involving Hispanic drivers. 1.8% of agencies had the same for searches involving White drivers, and 0.9% had high overrepresentation for Asian drivers.
  - 24.5% of town agencies had a moderate overrepresentation both for searches involving Black drivers and for White drivers. 12.7% of agencies had the same for searches involving Hispanic drivers. 0.9% of agencies had the same for searches involving Asian drivers.
  - 60.0% of town agencies had no overrepresentation for searches involving Black drivers and 57.3% of agencies had the same for searches involving Hispanic drivers. By comparison, 73.6% of agencies had the same for searches involving White drivers, 65.5% for Asian drivers, and 40.9% for American Indian drivers.

Town agencies with zero stops among a given racial/ethnic group are not shown in Figure 12 above for that group. No town agencies reported no stops involving White drivers, 4.5% of agencies (5) reported none involving Black drivers, 15.5% of agencies (17) reported none involving Hispanic drivers, 59.1% of agencies (65) reported none involving American Indian drivers, and 32.7% (36) reported no stops involving Asian drivers. Groups with at least one stopped driver but no searches for that group are included in Figure 12 under the "No Overrepresentation" category.

Driver Arrests

Figure 13 shows the percentages of the 44 LEAs with driver arrest DIs indicating high overrepresentation (DI of 2.0 or higher), moderate overrepresentation (DI of 1.1 to 1.9), or no overrepresentation (DI of 1.0 or less) for minority drivers where an arrest occurred, when compared to each group of minority drivers stopped.

Figure 13: Percent of Town Agencies with High, Moderate, or No Overrepresentation in Arrests by Driver Race/Ethnicity



- Black and Hispanic drivers again tended to have consistently higher arrest DIs than other drivers.
  - 11.8% of town agencies had a high overrepresentation for Black drivers arrested and 15.5% of agencies had the same for Hispanic drivers. 1.8% of town agencies had the same for White drivers.
  - 20.9% of town agencies had a moderate overrepresentation for Black drivers arrested and 5.5% of agencies had the same for Hispanic drivers. 14.5% of agencies had the same for White drivers, and 0.9% for Asian drivers.
  - 62.7% of town agencies had no overrepresentation for Black drivers arrested and 63.6% of agencies had the same for Hispanic drivers. 83.6% of agencies had the same for White drivers, 66.4% for Asian drivers, and 40.9% for American Indian drivers.
  - There was no high or moderate overrepresentation in arrests of American Indian drivers.

Town agencies with zero stops among a given racial/ethnic group are not shown in Figure 11 above for that group. No town agencies reported no stops involving White drivers, 4.5% of agencies (5) reported

none involving Black drivers, 15.5% of agencies (17) reported none involving Hispanic drivers, 59.1% of agencies (65) reported none involving American Indian drivers, and 32.7% (36) reported no stops involving Asian drivers. Groups with at least one stopped driver but no arrests for that group are included in Figure 13 under the "No Overrepresentation" category.

DIs for individual agencies serving towns are shown in Appendix D.

Geographic Presentation of Stop, Search, and Arrest DIs for City, County, and Town Agencies

The maps in Figures 14–16 illustrate which local areas of Virginia had high, moderate, or no overrepresentation for driver stops, searches, and driver arrests, respectively, for each driver racial/ethnic group. The local area boundaries shown on the maps are city and county boundaries. Town boundaries are not shown, but their stop data is included in the DI calculated for their surrounding county. This means that the county DIs used for the maps were calculated differently from the county LEA DIs shown earlier in this report. The county DIs shown previously were based on only stops reported by each LEA that serves the county, whereas the county DIs used for the following maps include stops reported by all agencies that serve the county, as well as stops reported by agencies that serve any town located within the county. The same applies for DIs calculated for searches and arrests (for more details on how the DIs were calculated for the maps, see Appendix I).

Note that no Town or County agency stops were included in the dataset for Charles City County or Northumberland County. These localities are blank in all maps for Figures 14–16 because they have no CPA data.

Figure 14
Local Area Maps for Driver Stops by Driver Race/Ethnicity

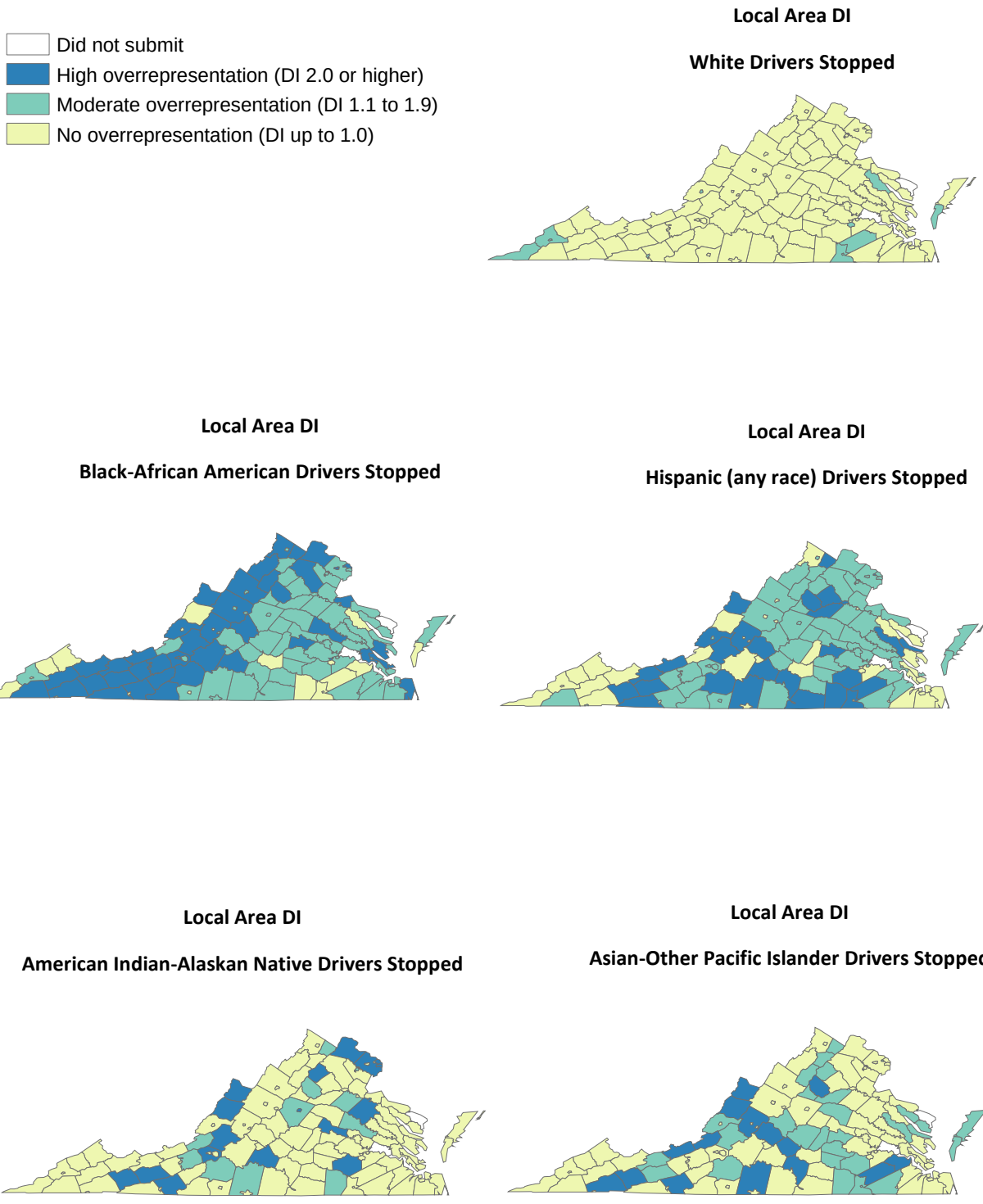
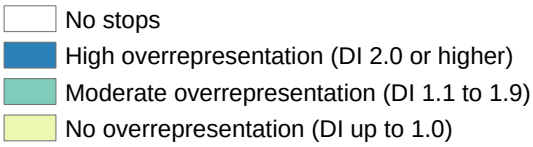


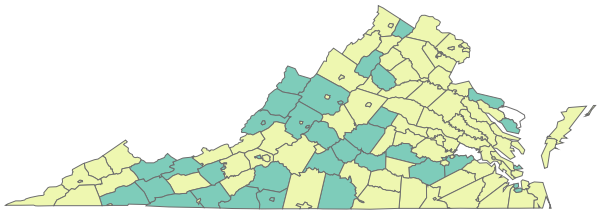
Figure 15
Local Area Maps for Searches by Driver Race/Ethnicity

A search may have been conducted of the driver only, of the vehicle only, or both driver and vehicle. Since only the driver race/ethnicity was reported, a search is defined here with respect to the driver's race/ethnicity. In the case of vehicle searches, it does not necessarily mean that the driver was searched.



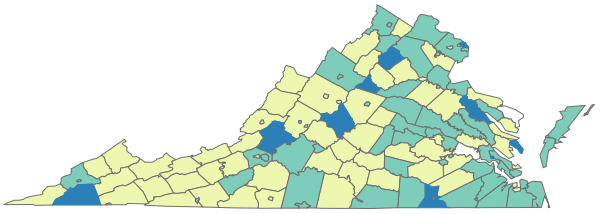
Local Area DI

Searches with White Drivers



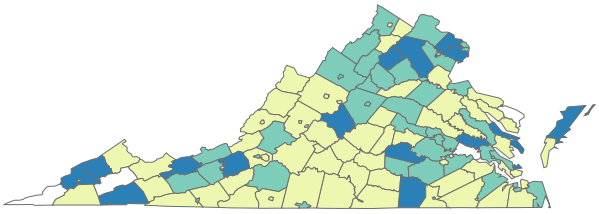
Local Area DI

Searches with Black-African American Drivers



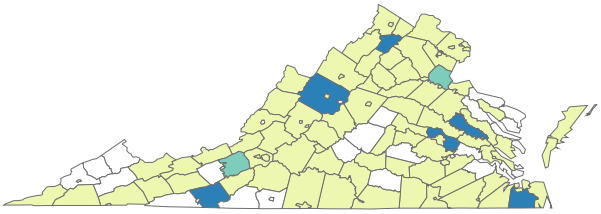
Local Area DI

Searches with Hispanic (any race) Drivers



Local Area DI

Searches with American Indian-Alaskan Native Drivers



Local Area DI

Searches with Asian-Other Pacific Islander Drivers

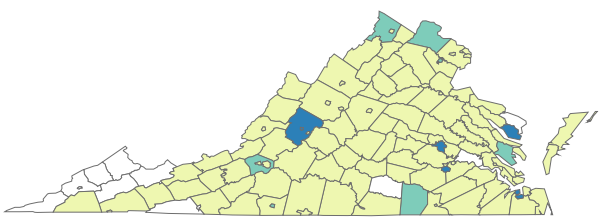
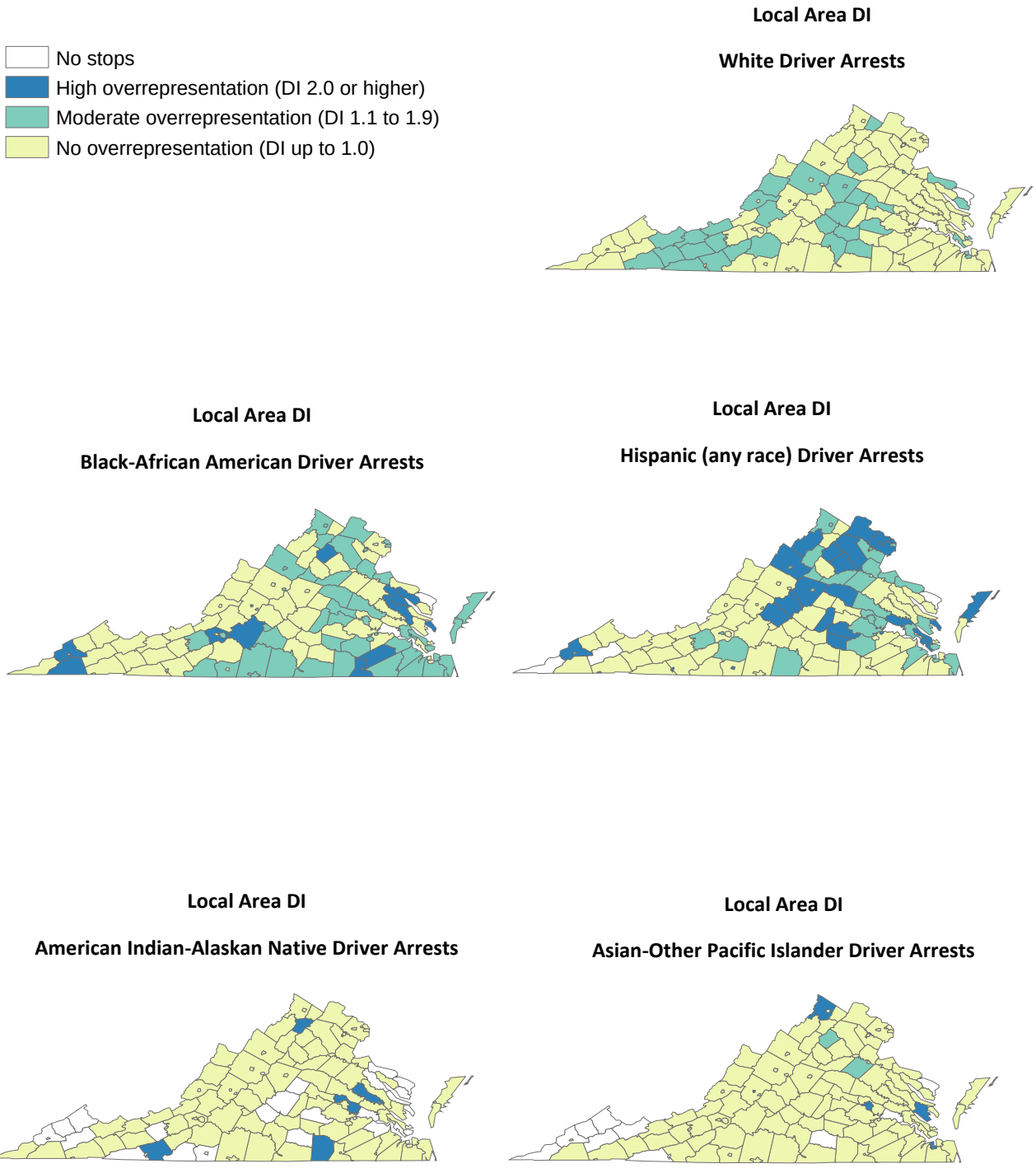


Figure 16
Local Area Maps for Arrests by Driver Race/Ethnicity



Other Agencies Traffic Stop Analysis

There were 44 “Other” state, local and private agencies serving locations that have no defined, stable population. Typically these were agencies that serve larger college/university campuses with public roads or locations such as state parks, airports, railroads, or other commercial locations.

Traffic Stops for Other Agencies

Because driving-age population data for each racial/ethnic group was not available for the areas served by these agencies, a driver stop DI could not be calculated for these agencies. It was possible to examine the percentage of drivers in each racial/ethnic group among stops made by these agencies and these percentages were compared to those for each group stopped statewide.

The percentages of White and Black drivers stopped by other agencies was similar to the percentages stopped statewide. 53.2% of drivers stopped by other agencies were White, compared with 57.0% of stops statewide, and 30.7% of drivers stopped by other agencies were Black, while 30.8% of all stops statewide were of Black drivers. The percentage of Hispanic drivers stopped by other agencies, 11.1%, was higher than the percentage stopped statewide, 9.5%

For future annual reports, DCJS will continue to examine whether there are any measures available that would permit a more meaningful assessment of racial/ethnic disparities in the traffic stops for these other agencies.

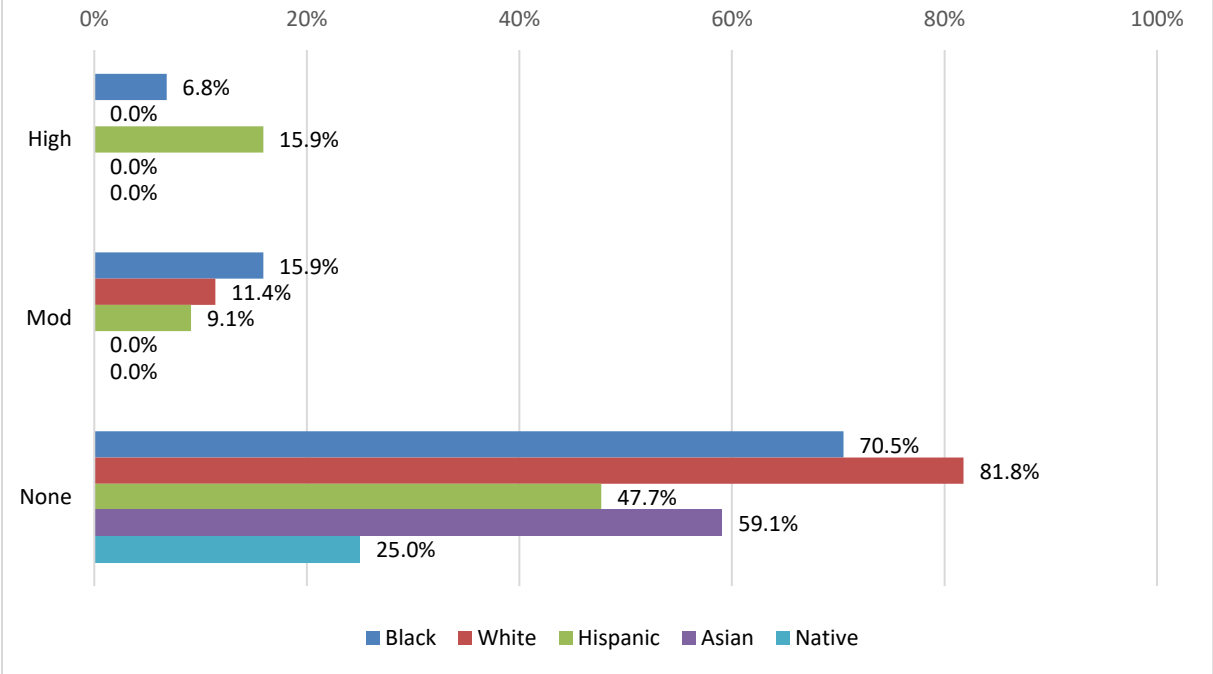
Analysis of Events Following Traffic Stops for Other Agencies

Once a stop was made, a DI could be calculated to examine racial/ethnic driver overrepresentation for searches and arrests made following the stop. These are discussed below.

Searches Conducted

Figure 17 shows the percentages of the 44 Other LEAs with search DIs indicating high overrepresentation (DI of 2.0 or higher), moderate overrepresentation (DI of 1.1 to 1.9), or no overrepresentation (DI of 1.0 or less) for minority drivers where a search occurred when compared to each group of minority drivers stopped.

Figure 17: Percent of Other Agencies with High, Moderate, or No Overrepresentation in Searches by Driver Race/Ethnicity



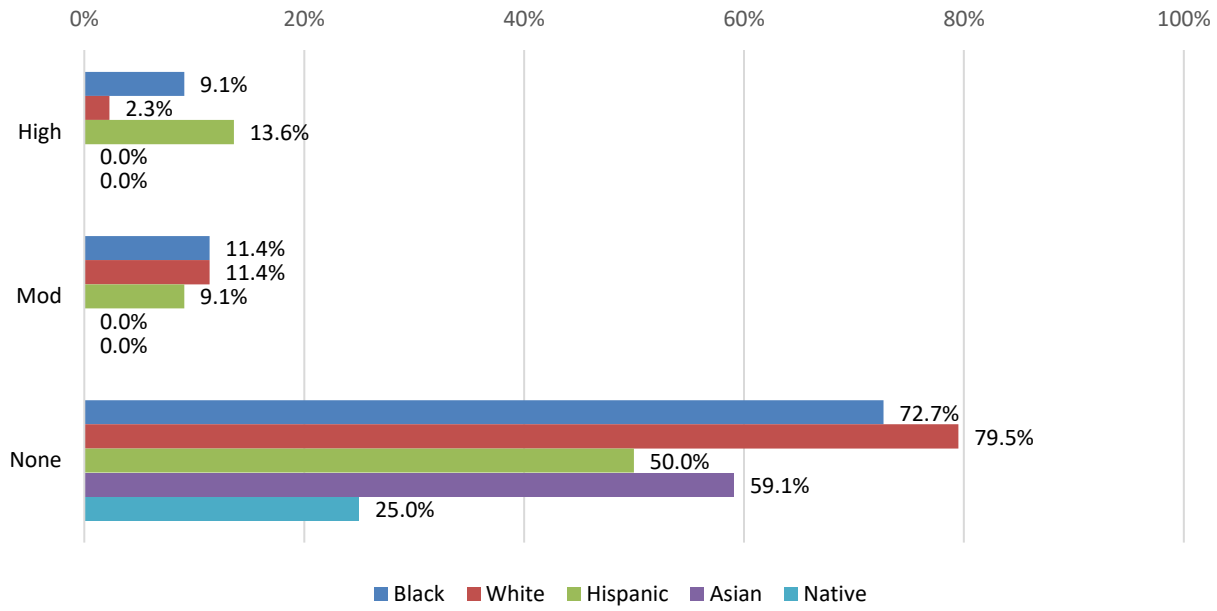
- Black and Hispanic drivers again tended to be searched at a higher rate than other driver groups, with mostly higher search DIs than other drivers.
  - 6.8% of other agencies had a high overrepresentation for searches involving Black drivers and 15.9% of agencies had the same for Hispanic drivers. No agencies had the same for White, American Indian, or Asian drivers.
  - 15.9% of other agencies had a moderate overrepresentation for searches involving Black drivers and 9.1% of agencies had the same for Hispanic drivers. 11.4% of agencies had the same for White drivers. No agencies had the same for American Indian or Asian drivers.
  - 70.5% of other agencies had no overrepresentation for searches involving Black drivers, while 47.7% of agencies had the same for Hispanic drivers. By comparison, 81.8% of agencies had the same for White drivers, 59.1% for Asian drivers, and 25.0% for American Indian drivers.

Other agencies with zero stops among a given racial/ethnic group are not shown in Figure 17 above for that group. 6.8% of agencies (3) reported no stops involving White drivers, 6.8% of agencies (3) reported none involving Black drivers, 27.3% of agencies (12) reported none involving Hispanic drivers, 75.0% of agencies (33) reported none involving American Indian drivers, and 40.9% (18) reported no stops involving Asian drivers. Groups with at least one stopped driver but no searches for that group are included in Figure 17 under the "No Overrepresentation" category.

Driver Arrests

Figure 18 shows the percentages of the 44 Other LEAs with driver arrest DIs indicating high overrepresentation (DI of 2.0 or higher), moderate overrepresentation (DI of 1.1 to 1.9), or no overrepresentation (DI of 1.0 or less) for minority drivers arrested, when compared to each group of minority drivers stopped.

Figure 18: Percent of Other Agencies with High, Moderate, or No Overrepresentation in Arrests by Driver Race/Ethnicity



- DIs for arrests of Black and Hispanic drivers by other are agencies generally higher compared to those for other drivers.
  - 9.1% of other agencies had a high overrepresentation for Black drivers, 2.3% of agencies had the same for White drivers and 13.6% of agencies had the same for Hispanic drivers.
  - 11.4% of other agencies had a moderate overrepresentation for Black and White drivers arrested. 9.1% of agencies had the same for Hispanic drivers.
  - 72.7% of other agencies had no overrepresentation for Black drivers arrested and 50.0% of agencies had the same for Hispanic drivers. 79.5% of agencies had the same for White drivers, 59.1% for Asian drivers, and 25.0% for American Indian drivers.
  - No other agencies had either high or moderate overrepresentation for Asian or American Indian drivers.

Other agencies with zero stops among a given racial/ethnic group are not shown in Figure 18 above for that group. 6.8% of agencies (3) reported no stops involving White drivers, 6.8% of agencies (3) reported none involving Black drivers, 27.3% of agencies (12) reported none involving Hispanic drivers, 75.0% of agencies (33) reported none involving American Indian drivers, and 40.9% (18) reported no stops involving Asian drivers. Groups with at least one stopped driver but no arrests for that group are included in Figure 18 under the "No Overrepresentation" category.

DIs for individual "Other" agencies are shown in Appendix D.

Interpretation of Findings

The overall finding of this analysis is that, statewide, Black and Hispanic drivers in Virginia were disproportionately stopped by law enforcement when compared to White drivers based on the number of drivers stopped relative to their numbers in Virginia's driving-age population. This type of disparity was seen among traffic stops made by most of the individual law enforcement agencies for which disparity measures could be calculated.

The finding that minority drivers are more likely to be stopped by law enforcement is consistent with traffic stop research conducted in other states. Two recent large-scale studies, one using data from 20 million and another using data from nearly 100 million traffic stops, illustrate this.

In 2018, Baumgartner, Epp, and Shoub published *Suspect Citizens: What 20 Million Traffic Stops Tell Us About Policing and Race.* Their research reviewed statewide traffic stop data from North Carolina and included virtual every locality in the state over the 14-year period 2002–2016. They concluded:

> "We conduct [sic] the most comprehensive analysis to date of traffic stops in a single state, North Carolina…. [P]owerful disparities exist in how police interact with drivers depending on their outward identities: race, gender and age, in particular…. First, there are stark differences. Second, young men of color are clearly targeted for more aggressive treatment. Third, these differences are not fully justified by differences in criminality." (p. 2).

In 2020, Pierson et. al. published *A Large Scale Analysis of Racial Disparities in Police Stops Across the United States.* Their research was based on nearly 100 million traffic stops carried out by 21 state patrol agencies and 35 municipal police departments over nearly a decade. They concluded:

> "Relative to their share of the residential population, we found that Black drivers were, on average, stopped more often than white drivers…. Among stopped drivers, we found that Black and Hispanic individuals were, on average, searched more often than White individuals…. Our analysis provides evidence that decisions about whom to stop and, subsequently whom to search are biased against Black and Hispanic drivers." (pgs. 5–16).

Although this preliminary Virginia traffic stop analysis identified disparities in traffic stop rates related to race/ethnicity, it does not allow us to determine or measure specific reasons for these disparities, nor does it allow us to parse out what may be disparities due to bias-based profiling from other possible factors.

Previous research has identified various factors that could contribute to why members of a racial/ethnic group may be stopped at a higher or lower rate than their presence in the population, including:

- Bias (explicit or implicit) by law enforcement officers towards a racial/ethnic group.
- Different driving rates or patterns by different racial/ethnic groups (perhaps linked to differences in housing or employment locations, in use of public transportation, etc.).
- Different rates of policing in different areas (i.e., minorities may be more likely to drive in or through higher crime areas, which are policed more than other areas).
- Different agency practices (i.e., some LEAs differ on how much discretion they give officers in deciding when to make a stop).

The Virginia Department of Criminal Justice Services did not attempt to make a judgement about what Disparity Index (DI) values constitute a "good" or a "bad" degree of overrepresentation. The DI is a way of showing that a disparity existed and, to some extent, the relative degrees of disparity that existed between different LEAs. DCJS also did not attempt to determine what DI values constitute statistically significant values. A DI of 2.5 indicates a greater degree of disparity than a DI of 1.5, but at this preliminary stage in the data collection, reporting and analysis, this is a descriptive difference, not a statistically significant difference.

The Community Policing Act directed DCJS to obtain driver traffic stop data "*for the purposes of analyzing the data to determine the existence and prevalence of the practice of bias-based profiling and the prevalence of complaints alleging the use of excessive force."*

Although the analysis showed that Black and Hispanic drivers were stopped at higher rates than White drivers, and tended to have more negative outcomes once stopped, the current analysis does not tell us *why* these disparities exist. This is not unique to Virginia. A review of research done by other states and by academics shows that identifying the reasons for these disparities is difficult.

The overriding challenge to empirically determining to what extent bias-based profiling may be contributing to these disparities is what is referred to as the "benchmark problem." To help determine if bias is a factor in driver stops, one would need to be able to compare the proportion of stops made for each racial/ethnic group to the appropriate benchmark: the number of drivers in each racial/ethnic group who are actually driving on the road and subject to being stopped. No one has yet found an accurate way to do this.

This analysis, and analyses conducted in other states, used each racial/ethnic group's proportion of the resident population as a benchmark for measuring traffic stop disparities. However, resident population provides, at best, a crude measure of exposure to traffic stops. A given racial/ethnic group's proportion of the resident population age 15+ in a locality is not the same as that group's proportion of the *driving* population in that locality. The driving population for a group is what is exposed to potential traffic stops, not the entire age 15+ residential population. Some residents do not drive at all. They may be incapable of driving, not have a driver's license or a motor vehicle, or simply choose not to drive. Not all residents of a locality drive. Others may drive, but rarely. In some localities, some racial/ethnic groups may be more likely than others to use public transportation rather than drive.

Transient drivers also complicate comparisons of stopped drivers with the demographics of the resident driver-age population. A locality may have a small number of Black residents, but a large number of Black drivers from other localities that regularly drive through or into that locality (for example, someone living in one locality but driving daily into another locality where they work). Therefore, a much higher number of Black drivers could be subject to traffic stops than there are in the Black resident population to which these drivers are compared. This could drastically inflate the calculated disparity rate for the agency serving this locality.

Virginia is not alone in its search for better approaches to using traffic stop data to look for indicators of bias-based profiling. Previous research examining traffic stop data has highlighted that racial/ethnic disparities exist, and found indications that bias-based profiling plays a role in these disparities. The problem is finding a method of determining how much of this disparity may be due to bias and how much may be due to other factors:

> "Our inability to devise a universally acceptable method for measuring racial and ethnic proportions within an ever-changing driving population remains one of the most controversial methodological challenges in racial profiling research…. Racial profiling studies based on poorly constructed benchmarks cause political and public relations problems and sometimes result in ill-fated legislation." (Withrow and Williams, 2015, p.1).

> "Most of the analyses reported show that police traffic stops are not proportional to the racial distribution of that jurisdiction's resident population, but most studies do not conclude that the police are engaged in racial profiling." (McMahon et. al., 2002, p. 1)

The U.S. General Accounting Office reviewed available data on bias in traffic stops from Florida, Maryland, New Jersey, and Pennsylvania, and concluded:

> "The quantity and quality of information that these analyses provided varied, and the findings are inconclusive for determining whether racial profiling occurred. Although inconclusive, the cumulative results of the analyses indicate that in relation to the populations to which they were compared, African Americans in particular, and minorities in general, may have been more likely to be stopped on the roadways studied…. These limitations notwithstanding, we believe that in order to account for the disproportion in the reported levels at which minorities and Whites are stopped on the roadways, (1) police officers would have to be substantially more likely to record the race of a driver during motorist stops if the driver was a minority than if the driver was White, and (2) the rate and/or severity of traffic violations committed by minorities would have to be substantially greater than those committed by Whites. We have no reason to expect that either of these circumstances is the case (U.S. General Accounting Office, 2000, pgs. 4, 9).

Some researchers have identified methods that allow for a better understanding of the factors that can confound measures of traffic stop disparities, and these include:

- Comparing the percentages of traffic stops made for each driver racial/ethnic group during daylight hours to those of drivers stopped during nighttime hours.
- Comparing the percentage of traffic stops made for drivers in each racial/ethnic group to the percentage of these drivers involved in traffic accidents.
- Comparing how often contraband is found when searches are made involving stopped drivers in each racial/ethnic group.
- Comparing data on the how many drivers in each racial/ethnic group are residents or non-residents of the locality in which the traffic stop was made.
- Identifying traffic stops in which the role of bias-based profiling may be minimal or nonexistent.

Virginia could use the methods above to improve its traffic stop data collection, reporting and analysis. How this could be done is discussed in the following Conclusions and Recommendations section.

Conclusions and Recommendations

The overall finding of this analysis is that, statewide, Black and Hispanic drivers in Virginia were disproportionately stopped by law enforcement when compared to other drivers, based on the number of drivers stopped relative to their numbers in Virginia's population. This type of disparity was seen among traffic stops made by many individual law enforcement agencies for which disparity measures could be calculated. Stops of Black and Hispanic drivers were also more likely to result in a search or an arrest. This finding is consistent with traffic stop research conducted in other states.

Although this preliminary Virginia traffic stop analysis identified disparities in traffic stop rates related to race/ethnicity, it does not allow us to determine or measure specific reasons for these disparities. Most importantly for this study, it does not allow us to determine the extent to which these disparities may be due to bias-based profiling or due to other factors that can vary depending on race or ethnicity.

New Recommendations for 2022

The following recommendations are new to this year's report:

RECOMMENDATION 12: *The General Assembly should consider providing more specific definition on the types of investigatory detentions which require CPA data collection. The VSP Instructions and Technical Specifications Version 5.2 (effective July 1, 2022)[10] includes a section providing clarification on investigatory detentions; however, the addition of pedestrian stops to the collection mandate has introduced many nuanced detention scenarios which are ultimately left up to the interpretive judgement of individual LEAs on whether to report them as Community Policing Act data.*

Code of Virginia § 52-30.2(C) currently states that officers must collect Community Policing Act data

> "Each time a law-enforcement officer or State Police officer stops a driver of a motor vehicle, stops and frisks a person based on reasonable suspicion, or temporarily detains a person during any other investigatory stop."

This broad definition includes many situations which are not relevant to the analysis of discretionary profiling in police encounters. To narrow down situations in which either criminal suspicion or officer discretion are not involved, DCJS proposes that the General Assembly amend this section to read(or with substantially similar language):

> "Each time a law-enforcement officer or State Police officer stops a driver of a motor vehicle, stops and frisks a person based on reasonable suspicion, or temporarily detains a person ***on the basis of criminal suspicion during any other investigatory stop not in service of a warrant or other court orders***."

This change would ensure that Community Policing Act data collection is focused on stops which are relevant to the intent of the CPA, and would reduce the data collection required by law enforcement officers.

[10] Available at: https://vsp.virginia.gov/wp-content/uploads/2022/01/CommunityPolicingDataInstructionsTechnicalSpecificationsv5.2.pdf

RECOMMENDATION 13: *Consider amending Community Policing Act legislation to change the report deadline to November 1.*

Because this report is due to the General Assembly on July 1 of each year per § 9.1-192(B) of the *Code of Virginia,* the date range of Community Policing Act data used for analysis cannot span the full fiscal year at hand. With an additional three months to process and analyze more recent data, the report could cover the full twelve months of each preceding fiscal year, including any seasonal trends from April through June currently missing from the report's data.

RECOMMENDATION 14: DCJS should continue to research additional sources of information and analytic approaches to help determine whether any observed disparities between different racial/ethnic groups in traffic stops are due to bias-based policing or they are due to other factors that could lead to disproportionate numbers of stops for minority drivers. One such factor that DCJS should attempt to examine is whether there are differences in the proportion of successful legal challenges made to traffic stops, searches and arrests for minority and non-minority drivers.

Appendices (available online)

Appendix A: City and County Agency Driver Stop Disparity Indices
https://www.dcjs.virginia.gov/sites/dcjs.virginia.gov/files/publications/research/cpad-appendices/2022/Appendix-A.pdf

Appendix B: Traffic Stop Table for Virginia State Police
https://www.dcjs.virginia.gov/sites/dcjs.virginia.gov/files/publications/research/cpad-appendices/2022/Appendix-B.pdf

Appendix C: Traffic Stop Tables for Law Enforcement Agencies Serving Cities and Counties
https://www.dcjs.virginia.gov/sites/dcjs.virginia.gov/files/publications/research/cpad-appendices/2022/Appendix-C.pdf

Appendix D: Traffic Stop Tables for Law Enforcement Agencies Serving Towns
https://www.dcjs.virginia.gov/sites/dcjs.virginia.gov/files/publications/research/cpad-appendices/2022/Appendix-D.pdf

Appendix E: Traffic Stop Tables for Other Law Enforcement Agencies
https://www.dcjs.virginia.gov/sites/dcjs.virginia.gov/files/publications/research/cpad-appendices/2022/Appendix-E.pdf

Appendix F: Law Enforcement Agencies Not Reporting Traffic Stop Data
https://www.dcjs.virginia.gov/sites/dcjs.virginia.gov/files/publications/research/cpad-appendices/2022/Appendix-F.pdf

Appendix G: Bias-Based Profiling Legislation (SB 5030) Effective July 1, 2021
https://www.dcjs.virginia.gov/sites/dcjs.virginia.gov/files/publications/research/cpad-appendices/2022/Appendix-G.pdf

Appendix H: VSP Community Policing Data Collection Instructions and Tech. Specifications (V.4)
https://www.dcjs.virginia.gov/sites/dcjs.virginia.gov/files/publications/research/cpad-appendices/2022/Appendix-H.pdf

Appendix I: Notes on Disparity Index (DI) Calculation Methodology
https://www.dcjs.virginia.gov/sites/dcjs.virginia.gov/files/publications/research/cpad-appendices/2022/Appendix-I.pdf

Appendix J: Use of Force Data
https://www.dcjs.virginia.gov/sites/dcjs.virginia.gov/files/publications/research/cpad-appendices/2022/Appendix-J.pdf

Appendix K: References
https://www.dcjs.virginia.gov/sites/dcjs.virginia.gov/files/publications/research/cpad-appendices/2022/Appendix-K.pdf