

# 2019 Annual Report

## *Missouri Vehicle Stops - Executive Summary*



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**MISSOURI ATTORNEY GENERAL**



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# Message from Attorney General Eric Schmitt



**A**s the chief lawyer for the State of Missouri, my job is to protect each and every one of our six million citizens from crime, abuse and fraud, a responsibility I take very seriously. Our government, the shared responsibility between the citizens of our state and the elected officials, must be a framework that preserves all citizens' rights to life, liberty and pursuit of happiness.

The office of the Missouri Attorney General is required, by law, to collect data on the demographics of the traffic stops made by law enforcement officers from across the state, and to report these findings to the Governor and the public. Importantly, this data can help government and law enforcement determine any issues with disparities related to stops and searches.

This report aggregates the traffic stops data from 571 law enforcement agencies across the state, breaking down the data as it relates to race, the number of stops, the search rate, contraband hit rate and arrest rates. In 2019, we identified several changes to questions that officers must answer when making a stop that we believe will make next year's report more informative. This includes questions relating to the officer's assignment, the residential zip code of the driver stopped and the reason for issuing a citation or warning. This data will provide more context for the data collected and be fully available in the 2021 report.

As we seek to balance the rights of all citizens of our state with the enforcement of the rule of law, and the brave men and women of law enforcement who put their lives on the line every day to protect us, we will continue to improve this report.

A handwritten signature in black ink that reads "Eric J. Schmitt". The signature is written in a cursive, flowing style.

**Eric Schmitt**  
Attorney General

# Background

Concerns by the citizens of Missouri and the Missouri legislature regarding allegations of bias in traffic enforcement prompted the passage of SB 1053 (2000). SB 1053 created section 590.650, RSMo. which became effective August 28, 2000. This statute created the Vehicle Stops Report and required that the Attorney General's Office collect and report on traffic stops conducted by law enforcement officers across the state of Missouri on an annual basis.

Under § 590.650, RSMo. all peace officers in the state must report specific information, including a driver's race, for each vehicle stop made in the state. Law enforcement agencies must provide their vehicle stops data to the Attorney General by March 1, and the Attorney General must compile the data and report to the Governor, General Assembly, and each law enforcement agency no later than June 1 of each year. The law allows the Governor to withhold state funds for any agency that does not submit its vehicle stops data to the Attorney General by the statutory deadline.

After reviewing analysis of the Vehicle Stops Report (VSR) and conferring with law enforcement leaders across the state in 2019, the Attorney General's Office (AGO) began implementing comprehensive changes to the VSR. These changes will improve the information collected for the report while allowing for a fundamental shift in the level of analysis possible through the VSR. Three new questions have been added to the report that collect information on officer assignment during the stop, the residential zip code of the stopped driver, and the cause of citations and/or warnings issued to the driver. In addition, other questions have been adjusted for clarity or to improve the value of the data they collect by adding new response options.

The most significant change to the VSR is its shift toward collecting disaggregated data from across the state. Currently, agencies only report the aggregate numbers of stops meeting the criteria for each question broken down only by race, for example 200 searches of Hispanic drivers over the course of the year. This reporting framework prevents multi-variate analysis with variables like driver age, driver sex, and time of stop that could significantly improve VSR analysis. To correct this, the AGO is moving to implement an optional data collection framework that collects all variables for each stop an agency made during the year. These changes became effective January 2020 and implementation efforts across the state are ongoing. The benefits of these changes will be fully realized by the 2021 report.

The summary of statewide vehicle stops data has been provided by Dr. Scott H. Decker, Foundation Professor Emeritus in the School of Criminology and Criminal Justice at Arizona State University; Dr. Richard Rosenfeld, Curators' Distinguished Professor Emeritus in the Department of Criminology and Criminal Justice at the University of Missouri-St. Louis; and Dr. Jeff Rojek, associate professor in the School of Criminal Justice and Director of the Center for Anti-Counterfeiting and Product Protection at Michigan State University.

## Statewide Metrics

This report summarizes traffic stop data from 571 law enforcement agencies in Missouri for calendar year 2019. An additional 29 agencies indicated they made no traffic stops during the year. These agencies often contract out traffic enforcement to another agency covering their jurisdiction and focus on other enforcement activities. In total, this report represents 96.3% of the 623 law enforcement agencies in the state.

The agencies filing reports recorded a total of 1,524,640 vehicle stops, resulting in 102,755 searches and 74,553 arrests. Table 1 breaks out the stops, searches and arrests by race and ethnic group. Four summary metrics are included in Table 1 that may be useful in assessing bias in traffic enforcement.

When assessing these four metrics and the auxiliary statistics alongside them, the concept of discretion is an important consideration. For bias to influence the decisions of law enforcement officers, they must have some discretion in the action they take. If officers only have one course of action in a given situation, there is little room for bias to influence their decisions without breaking from procedure or statute, therefore, caution should be used in attributing bias.

An example of this is when a driver who has been stopped has an outstanding warrant for his or her arrest. In this situation, an officer must arrest and then search that driver. If outstanding warrants become concentrated in a racial/ethnic group in an agency's jurisdiction, this may result in the appearance of a disparity in arrest rates when officers had no discretion in their actions, which therefore were not affected by bias. Analysis of the degree of discretion that officers have in various situations is vital for a complete understanding of this report.



# 2019 Statewide Summary of Results

Key indicators	Total	White	Black	Hispanic	Asian	Am. Indian	Other
16+ population	4,730,501	3,914,998	515,828	139,109	80,677	19,168	60,721
Stops	1,524,640	1,161,680	297,608	35,421	14,082	2,051	13,798
Searches	102,755	72,387	26,371	2,940	399	119	539
Arrests	74,553	52,873	18,472	2,244	329	96	539
2010 Statewide population %	100.00%	82.76	10.90	2.94	1.71	0.41	1.28
2010 Disparity index	---	.92	1.79	.79	.54	.33	.71
2018 Estimated statewide population %	---	80.42	10.98	3.38	2.03	.46	2.73
2018 Disparity index	---	.95	1.78	.69	.46	.29	.33
Search rate	6.74	6.23	8.86	8.30	2.83	5.80	3.91
Contraband hit rate	35.37	35.93	34.93	28.37	27.82	24.37	28.76
Arrest rate	4.89	4.55	6.21	6.34	2.34	4.68	3.91

**Notes:** 2010 Disparity index is based on population figures from the 2010 Census for persons 16 years of age and older who designated a single race. Hispanics may be of any race. Other includes persons of mixed or unknown race. The 2018 Disparity index is based on 2014-2018 average population estimates from the U.S. Census Bureau's American Community Survey (ACS). The ACS only provides race-specific Hispanic estimates for Whites, meaning non-White Hispanic residents are double-counted in the 2018 race percentages above. While the 2010 disparity index is the default metric, if a jurisdiction has a small non-White Hispanic population, the 2018 disparity index may provide more current information.

Disparity index = (proportion of stops / proportion of population). A value of 1 represents no disparity; values greater than 1 indicate over-representation; values less than 1 indicate under-representation.

Search rate = (searches / stops) x 100.

Contraband hit rate = (searches with contraband found / total searches) x 100.

Arrest rate = (arrest / stops) x 100.

## Disparity Index

The first summary metric is the “disparity index” and it relates each racial/ethnic group’s proportion of total traffic stops to its proportion of the driving-age (16+) population. A value of 1 indicates that a group’s proportion of vehicle stops equals its population proportion: it is neither “under-represented” nor “over-represented.” Values above 1 indicate over-representation, and those below 1 indicate under-representation in traffic stops.

There are several reasons that traffic stops may not be proportionate to the racial/ethnic composition of a jurisdiction. These reasons often overlap and identifying the magnitude of each reason’s effect or separating them from each other is beyond the capability of this report or its underlying data. The four major sources of disparity identified by scholars are: \*

- *Policing strategies and policies:* Law enforcement officials make strategic choices on where and when to police that may disproportionately impact various racial/ethnic groups. These strategies may be as simple as concentrating patrols in areas within a city with higher crime rates, but could lead to a disproportionate impact if that area has a higher concentration of a racial/ethnic group than the jurisdiction as a whole.
- *Differences in real rates of offending between racial/ethnic groups:* The correlation of dynamics such as economic or social disadvantage with race or ethnicity may lead to differences in rates of real offending. If there are real differences in offending rates, traffic stops should theoretically increase or decrease accordingly.

- *Implicit bias:* Subconscious or unconscious biases that can influence the decisions and perceptions of individuals. Implicit bias can be difficult to detect, even for the individual operating under its influence.
- *Explicit bias:* Overt, conscious bias toward a specific group.

In 2019, the 1,161,680 Whites who were stopped accounted for 76.2% of all vehicle stops. Whites comprise an estimated 82.8% of Missouri’s driving age population. Therefore, the value for Whites on the disparity index is .92 (.762/.828). Blacks represent 10.9% of Missouri’s driving-age population but 19.5% of all vehicle stops, for a disparity index of 1.79.

Hispanics (0.79), Asians (0.54), American Indians (0.33), and persons of mixed or unknown race (0.71) were stopped at rates well below an expectation based upon their portion of the driving-age population.

The values on the disparity index for the different groups can be compared directly to one another by dividing their values. For example, the likelihood that a Hispanic motorist was stopped is 1.46 times that of an Asian motorist (.79/.54).

### Limitations

The disparity index relies upon a benchmark to set the expected rate at which members of a racial/ethnic group should be stopped. The actual rate of stops is then compared against this benchmark to calculate the disparity index. The 2019 Vehicle Stops Report uses the racial/ethnic portions of the driving-age (16+) 2010 Census populations of each jurisdiction for its benchmarks. This is an imperfect benchmark as a person does not need to live in an area to drive through

\* Lum, C., and Wu, X. (2017). Basic Analysis of Traffic Citation Data for the Alexandria Police Department (2011-2015). Fairfax, VA: Center for Evidence-Based Crime Policy, George Mason University.

it and a person may not drive despite being old enough to legally do so. This dynamic can lead to the racial/ethnic makeup of drivers on a jurisdiction's roadways differing from that of its residential population. The extremely low disparity index value for American Indians, for example, could indicate that they are under-represented among the state's motorists. In addition, the benchmark population figures are nine years older than the vehicle stops data they are compared to. The age of these estimates may lead to some jurisdictions' population estimates differing significantly from their current values.

To minimize the distortion of the disparity index caused by the use of nine year-old population benchmarks, this year's report uses population estimates from the 5-year American Community Survey (ACS) covering 2014 – 2018. However, the 2010 Census populations are the "default" estimate as the breakdown in reporting of racial/ethnic groups in the ACS is more limited than the Census. To generate the typical Census-based disparity indexes, each group's benchmark population only includes non-Hispanic individuals and all Hispanic individuals are placed in the Hispanic category. However, the ACS only reports non-Hispanic population totals for Whites, meaning it is impossible to separate Hispanic individuals from non-White populations for the purposes of calculating the disparity index. This results in non-White Hispanic individuals being double counted in the 2018 ACS disparity index calculations, once in their racial group and once in the Hispanic group.

Analysis of the 2010 Census data found that 61% of Missouri's Hispanic population was White, while 34% would fall into the "Other" category of this report which consists of those reporting "Other" or two or more races. This means that the distortion in the benchmark population for non-White

racers is limited across the state, though it is possible calculations for jurisdictions with larger non-White Hispanic populations could be distorted to a greater degree. The 2018 ACS disparity indexes should be viewed as supplemental information for analyzing traffic stop disproportions.

Appendices to this report can provide useful analysis to partially alleviate these issues. Appendix A uses statewide rather than local racial/ethnic population portions to generate disparity index calculations, reducing the impact of the residency issue. Appendix C makes use of the residency question added to the Vehicle Stops Report form for the 2019 reporting cycle to only use traffic stops of residents of an agency's jurisdiction when generating the disparity index. This allows an analyst to control for driver residency when examining an agency's report.

## Search Rate

A second metric that can be used to assess traffic enforcement is the "search rate," or the number of searches divided by the number of stops (x 100). Searches include both searches of drivers and searches of the vehicle and property within.

The search rate for all motorists who were stopped in 2019 was 6.74%. Asians were searched at a rate well below the statewide average (2.83%), while Blacks (8.86%) and Hispanics (8.30%) were searched at rates above the average for all motorists who were stopped. Whites were searched at a rate below the state average at 6.23%. The search rate for racial/ethnic groups can also be directly compared with one another. Hispanic drivers were 2.93 times more likely to be searched than Asian drivers (8.30/2.83).

## Limitations

The reasons for conducting a search and the outcome of the search (i.e. discovery of contraband) should be considered when making comparisons across groups. Some searches are conducted with the consent of the driver, or because the officer observed suspected contraband in plain view, had reasonable suspicion that an individual may possess a weapon (Terry search), or other reasons. These searches may or may not result in an arrest.

Other searches are conducted incident to arrest—this means that there is no other reason given for the search other than arrest. As mentioned above, searches are almost always performed when there is an outstanding arrest warrant, whether or not contraband may be present.

It is notable that the search rate, along with the other post-stop metrics, are not subject to the benchmarking issues that affect the stop disparity index. The benchmarks for the post-stop metrics are the number of stops reported, so no estimation is involved in their calculation.

## Contraband Hit Rate

The third summary metric, the “contraband hit rate,” reflects the percentage of searches in which contraband is found. Contraband was found in 35.4% of all searches conducted in 2019. Little difference exists in the contraband hit rate for searches of White and Black drivers (35.9% vs. 34.9%). The contraband hit rate for other groups is somewhat lower. For example, searches of Hispanic drivers resulted in a contraband hit rate of 28.4%. This means that, on average, searches of White and Black drivers are more likely than searches of Hispanics to result in the discovery of contraband.

## Limitations

While the contraband hit rate is not subject to benchmark issues, the degree of discretion officers have in their searches should still be considered when examining contraband hit rates. The difference in contraband hit rates among racial/ethnic groups may result in part from the higher arrest rates for Blacks and Hispanics—if there is an arrest, there will be a search whether or not the arresting officer suspects the subject has contraband. This may deflate the contraband hit rate since searches are required by standard procedure rather than suspicion of contraband.

## Arrest Rate

The “arrest rate” is the fourth summary metric included in Table 1 that may be useful for assessing bias in traffic enforcement. Statewide, 4.89% of all traffic stops resulted in an arrest (74,553/1,524,640).

Approximately 6.21% of the stops of Blacks, 6.34% of the stops of Hispanics, and 4.68% of the stops of American Indians resulted in arrest, compared with about 4.55% of the stops of Whites. Asians (2.34%) and people of mixed or unknown race (3.91%) had lower arrest rates than Whites. The dynamic of Blacks and Hispanics being arrested at a higher rate likely impacts search and contraband hit rates as described above.

## Limitations

Like the other post-stop metrics, the arrest rate does not suffer from benchmark issues, however, limited officer discretion should still be considered as described above.

## Conclusion

Missouri is a vast and complex state at the crossroads of the country. Each of its communities is unique and presents many dynamics that must be comprehensively evaluated when assessing the possibility of bias in traffic enforcement. Each agency's report should be read in conjunction with its entries in each of the appendices, reports for prior years, and in the context of the dynamics of the community it serves. This report is subject to limitations as described above and simply aims to provide a starting point for local dialogue.

## Appendices

### **Appendix A: Local Vehicle Stops in Proportion to State Racial Composition**

Appendix A presents the traffic stop analysis using the statewide proportions of race and ethnicity, rather than the local proportions of each jurisdiction. This is valuable as it reduces the impact of the residency benchmark issue on the disparity index of each agency.

### **Appendix B: Disparity Indexes for 2000-2019 Compared**

Appendix B compares the 2019 disparity index to the disparity indexes for 2000 through 2018. For each agency, the disparity index for each race-ethnic group is presented for 2000-2019. For the state as a whole, the key metrics generally show small changes between 2016 and 2018.

### **Appendix C: Resident and Non-Resident Stops**

Appendix C displays the number and percentage of traffic stops of residents of the jurisdiction where the stop occurred separately from the total number of stops

(i.e., stops of residents + stops of nonresidents). Disparity Indexes for the different population groups are also shown.

Appendix C uses the addition of the driver residency question in the 2018 reporting cycle to provide a disparity index calculated using only traffic stops of drivers who reside in the agency's jurisdiction. Readers should acknowledge that a driver's residency may not accurately reflect where the driver spends the majority of their time. Many Missourians commute from one community to another for work and leisure, so the demographics of drivers on the road may not reflect those living in the community. By restricting the calculation to only those drivers who reside in a community, the calculation may include drivers who spend the majority of their time in another jurisdiction while excluding those who commute into the jurisdiction for the majority of the day.

**Table 2. Agencies that did not submit reports by March 1, 2020 as required by state law**

Atchison County Sheriff's Department	Auxvasse Police Department	Bel-Nor Police Department*	Berger Police Department
Bunker Police Department	Cardwell Police Department	Carrollton Police Department	Conway Police Department
Edina Police Department	Eminence Police Department	Everton Police Department	Fayette Police Department*
Frankford Police Department	Green Ridge Police Department	Greenwood Police Department*	Hayti Police Department
King City Police Department	Ladonia Police Department	Lowry City Police Department	Marston Police Department
Martinsburg Police Department*	Rutledge Police Department	Schuyler County Sheriff's Department*	Senath Police Department
Silex Police Department	St. Charles County Parks & Recreation	St. Mary Police Department	Sturgeon Police Department*
Winona Police Department			

\*Agency did not submit data by the statutory deadline, but did provide data for inclusion in the report.

**Table 3. Agencies that reported no stops  
(many contract out vehicle stops to other agencies)**

Altenburg Police Department	Armstrong Police Department	Bellflower Police Department	Birch Tree Police Department
Bunceton Police Department	Canalou Police Department	Centerview Police Department	Charlack Police Department
Chilhowee Police Department	Clarkson Valley Police Department	Dudley Police Department	Emma Police Department
Forest City Police Department	Freeman Police Department	Jackson County Drug Task Force	Jefferson College Police Department
Marquand Police Department	Maysville Police Department	Mineral Area College DPS	Miramiguoia Police Department
Missouri Department of Revenue	Parma Police Department	Risco Police Department	St. Louis Community College Police Dept.
St. Louis Park Rangers	St. Peters Ranger Enforcement Div.	Vanduser Police Department	Walker Police Department
Wardell Police Department			





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