KIRK KERKORIAN SCHOOL OF MEDICINE | UNLV

Statistical Transparency of Policing (STOP) Descriptive Analysis Report Using 2022 Data Per Nevada Senate Bill 236 (2021)

March 21, 2024

Kirk Kerkorian School of Medicine at UNLV
Traffic Safety Research
Department of Surgery
stopproject@medicine.unlv.edu

Funding statement *- Funding for this project was provided by the Nevada Department of Public Safety - Office of Traffic Safety, Grants #TS-2022-UNLV-00098, #TS-2023-UNLV-00010 and #TS-2024-UNLV-00056*

Project Team

Principal Investigator: Deborah A. Kuhls, M.D., F.A.C.S, Associate Dean for Research, Professor of Surgery, Kirk Kerkorian School of Medicine at UNLV

Co-Principal Investigator (1): Courtney Coughenour, Ph.D., Associate Professor, School of Public Health, University of Nevada, Las Vegas

Co-Principal Investigator (2): Maxim Gakh, JD, MPH, Associate Professor, School of Public Health, University of Nevada, Las Vegas

Project Manager: Bertille Mavegam Tango, M.D., Ph.D., Kirk Kerkorian School of Medicine at UNLV

Biomedical Statistician and Co-Investigator (1): Kavita Batra, BDS, MPH, Ph.D. FRSPH, Assistant Professor, Kirk Kerkorian School of Medicine at UNLV

Co-Investigator (2): William Sousa, Ph.D., Director Center for Crime and Justice Policy Professor, Greenspun College of Urban Affairs, University of Nevada, Las Vegas

Database Architect and Software Developer: William Porter, B.S, Center for Health Information Analysis, School of Public Health, University of Nevada, Las Vegas

Graduate Student Researchers: Merika Charupoom, B.S.; Darin Mains, B.S.; and Kacie Washburn, B.S., Graduate Student Researchers, University of Nevada, Las Vegas

Please direct any questions to: Deborah A. Kuhls, M.D., FACS, FCCM, Associate Dean for Research, Professor of Surgery, Kirk Kerkorian School of Medicine at UNLV, University of Nevada, Las Vegas, 1701 W Charleston Blvd, Suite 200, Las Vegas, NV 89102, email: stopproject@medicine.unlv.edu

Table of Contents

List of Tables

List of Figures

Executive Summary

The 2021 Nevada legislature adopted Senate Bill 236 (SB 236). This bill required the Nevada Department of Public Safety (NV-DPS) to develop a standardized method for use by all covered police agencies to record traffic stop information, such as race, ethnicity, age, sex, and police actions taken as a result of the stop. SB236 also permitted contracting with a third party to conduct a statistical analysis of the collected data for the purpose of "identifying patterns or practices of profiling" (S.B. 236, 81st Leg., Reg. Sess., (Nev. 2021)).

The Nevada Statistical Transparency of Policing (STOP) project assists with this analysis. It is led by an interdisciplinary collaboration among UNLV's Kirk Kerkorian School of Medicine, School of Public Health, and Department of Criminal Justice at the Greenspun College of Urban Affairs. The collaboration aims to examine and present Nevada's traffic stop data. This work aligns with similar efforts undertaken in other states to better understand disparities in traffic stops.

This report summarizes the traffic stop data collected from January to December 2022 from 41 law enforcement agencies in Nevada. In 2022, SB 236 required law enforcement officers to record traffic stop data for all traffic stops that resulted in citations issued via an electronic traffic citation system (e-citation). More expansive reporting requirements apply in later years. This report focuses on citations and warnings that result from stops reported through the e-citation system. This report does not present information about the reasons that drivers were stopped, the searches conducted, and the arrests made due to limitations in the data available to the research team.

The primary purpose of this year-one report is to provide basic demographic analyses. More comprehensive, multi-year analyses will be performed to examine the data in a more analytical manner once additional years of data are available. That larger dataset will include a number of individual, agency, and community level factors that can help understand the existence, nature, and extent of potential disparities in traffic stops. Therefore, while this report may help illuminate trends, it should not be used to draw conclusions about disparities in traffic stops. Only then, with a larger dataset, can a more thorough statistical analysis be reliably performed.

Highlights from this report

- A total of 271,765 traffic stops were analyzed in this report.
- Among the 271,765 drivers stopped, 77.54% were White, 74.53% were non-Hispanic, and 62.77% were male.
- Over 50% of the drivers from this dataset were between the ages of 21 and 45.
- The highest proportion of stops in this dataset were made by Nevada Highway Patrol (37.96%), followed by the Las Vegas Metropolitan Police Department (27.13%).
- A citation was the most common recorded outcome of a traffic stop in this dataset (87.94%) followed by warnings in nearly 11.90% of stops.
- Overall, the stop rate remained nearly consistent throughout the year for stops in this dataset, with slight drops during the months of June/July and September/October.
- For stops in this dataset, the traffic stop rate was lower on weekends followed by an increasing trend of stops starting on Mondays.
- The highest traffic stop rates for stops in this dataset were in morning hours (28.87%) followed by afternoons (26.37%).

Background

In its 2021 session, the Nevada legislature adopted Senate Bill 236 (SB 236). Part of Nevada SB 236 (2021) requires that some law enforcement officers collect specific traffic stop data when they have particular types of interactions with drivers. SB 236 charges the Nevada Department of Public Safety (DPS) with implementing these new requirements, including permitting DPS to enter into an agreement with a third party to analyze the traffic stop data. SB 236 also requires the analyzed data to be shared with various stakeholders through an annual report (S.B. 236, 81st Leg., Reg. Sess., (Nev. 2021)). Other states have adopted and implemented similar requirements.

This is the first annual report from the Nevada Statistical Transparency of Policing (STOP) Program, housed at the University of Nevada, Las Vegas, which works closely with DPS and other partners to examine, analyze, and interpret data collected by Nevada's law enforcement officers during traffic stops. The Program is led by an interdisciplinary collaboration among UNLV's Kirk Kerkorian School of Medicine, School of Public Health, and Department of Criminal Justice at the Greenspun College of Urban Affairs. The purpose of the Program is to analyze the data collected as a result of SB 236 and share findings – especially as they pertain to disparities in traffic enforcement – with Nevada's stakeholders, community members, and decision makers. This report aims to meet this purpose.

Nevada's SB 236 (2021) Requirements to Track and Analyze Traffic Stop Data

The traffic stop data used in this report stems from requirements of SB 236. SB 236 requires officers who make a traffic stop that results in a *citation issued through an electronic traffic citation system* between 2022 and 2025 to record specific information about the traffic stop. SB 236 further requires that in 2024 and 2025, officers who make a traffic stop for which they *issue a written citation or warning* record certain information related to traffic stops. SB 236 also requires law enforcement agencies to collect and then at least annually to report this information to DPS (S.B. 236, 81st Leg., Reg. Sess., (Nev. 2021), Sections 17 and 17.5).

SB 236 defines *traffic stop* as "any occasion when the driver of a motor vehicle is halted by a law enforcement officer for an alleged traffic violation or infraction" (S.B. 236, 81st Leg., Reg. Sess., (Nev. 2021), Section 16). The information that officers must collect are: (1) the stop's date, time, and location; (2) the officer's perception of the "race, ethnicity, age and sex of the person stopped"; (3) the nature of the stop and the statutory citation for the alleged violation that led to the stop; and (4) stop disposition information, including if the stop led to a warning, citation or summons, if a search was performed (and if so, the type of search and its results), and if the stop led to an arrest (S.B. 236, 81st Leg., Reg. Sess., (Nev. 2021), Sections 17 and 17.5). SB 236 also defines several key terms (S.B. 236, 81st Leg., Reg. Sess., (Nev. 2021), Sections 7-16).

In charging DPS with implementation, SB 236 requires DPS to create a standard method for officers to use to record traffic stop data for covered stops; establish related procedures and trainings; and update relevant forms to support data collection (S.B. 236, 81st Leg., Reg. Sess., (Nev. 2021), Sections 17 and 17.5).

SB 236 also allows DPS to contract with a third party in order to review and analyze the information collected by officers and agencies that results from the SB 236 requirements to facilitate "identifying patterns or practices of profiling" (S.B. 236, 81st Leg., Reg. Sess., (Nev.

2021), Section 18). "Profiling" is defined in SB 236 as "the targeting of a person by a law enforcement agency or a law enforcement officer, on suspicion of the person having violated a provision of law, based solely on the person's real or perceived age, race, ethnicity, color, national origin, language, sex, gender identity or sexual orientation, political affiliation, religion, homelessness or disability, unless the law enforcement agency or law enforcement officer is acting on a suspect description or information related to an identified or suspected violation of a provision of law" (S.B. 236, 81st Leg., Reg. Sess., (Nev. 2021), Section 14).

SB 236 states that if the third party analyzes this traffic stop data, it must create comprehensive reports of statistical findings to identify potential practices of profiling (S.B. 236, 81st Leg., Reg. Sess., (Nev. 2021), Section 18). DPS must review the reports and may provide technical assistance or advice to any law enforcement agency discussed in the reports (S.B. 236, 81st Leg., Reg. Sess., (Nev. 2021), Section 19). Finally, SB 236 requires DPS to record, track, and make publicly available the non-identifying information collected through this process (S.B. 236, 81st Leg., Reg. Sess., (Nev. 2021), Section 20).

Disparities in Traffic Enforcement

Nevada's SB 236 was adopted to assess and examine disparities in traffic enforcement, when and if they are identified. Recently, greater attention has been given to disparities in how police interactions vary for people based on their demographic characteristics, including race and ethnicity (NCSL, 2022). Some studies find that non-White drivers are stopped by law enforcement more frequently than their White counterparts. Researchers have found, for instance, that Black drivers are stopped more than their White counterparts, while Hispanic drivers are stopped at similar or lower rates than their non-Hispanic counterparts (The Stanford Open Policing Project, n.d.). As an example, in California, Black drivers were more likely to be stopped and more than twice as likely to be searched than White drivers, despite searches of Black drivers being less likely to yield contraband than searches of White drivers (Lofstrom et al., 2021). Factors potentially contributing to this trend include differences in driving behavior, inconsistent training among officers, and bias (The Stanford Open Policing Project, n.d.).

Similar Programs in Other States and their Findings

Other states across the U.S. have used a combination of strategies to detect and address disparities in traffic stops. These strategies include adopting policies to require collecting and analyzing data about those who are policed and prohibiting racial profiling in traffic enforcement. Similar to Nevada, many other states have implemented requirements for law enforcement agencies to collect specific data during a traffic stop, including demographic data of drivers, such as age, sex, race, and ethnicity. The data collected also often includes the time and location of the stop, as well as the reason the driver was pulled over. The collection of some of these data relies in part on the perception of law enforcement officers. These laws tend to be phased in over time to facilitate implementation. Many efforts in other states enlist a third party to analyze, summarize, and report on the data collected (Pryor et al., 2020).

Requirements similar to Nevada's SB 236 have been adopted in other states, including Connecticut, Illinois, California, and Oregon. Importantly, these states utilize multiple statistical analyses that consider various confounding variables to understand differences in who gets

stopped. Examples of statistical tests used in conducting these analyses include the: Chi-square analysis, which compares differences between variables such as race and ethnicity; benchmarking, which utilizes a baseline (such as Census data) to determine if the number of stops match the expected rate; threshold tests and stop level hit rate tests – more complex and complete forms of benchmarking; the veil of darkness test, also known as decision to stop, which utilizes seasonal variation of daylight to assess disparities, and a predicted disposition analysis, which uses propensity scores to examine disparities in matched groups.

Data from these states yield interesting findings. In some states and at certain points in time, statistical analyses of traffic stop data shows no difference in traffic stops based on race and ethnicity of those who are stopped. In other states, statistical analysis demonstrates differences based on race and ethnicity of who is stopped. For example, Connecticut used a series of statistical analyses to generate its findings. According to its most recent report, using the veil of darkness test, the odds of a Black or Hispanic driver being stopped during the daylight versus at night were 0.97 and 1.06, respectively. This means that the likelihood of a Black or Hispanic driver being stopped in Connecticut is the same from daylight to darkness (Barone et al., 2023). In contrast, data collected in Oregon suggests that some agencies stop minority drivers more frequently than non-minority drivers. In one Oregon agency, Black drivers had an almost 3-fold increased odds of being stopped during the day compared to White drivers. Another agency showed 2.3 increased odds for Hispanic drivers being stopped in daylight compared to White drivers (Oregon Criminal Justice Commission, 2021). Illinois data showed that 95% of agencies had higher stop-rate ratios for Black drivers and nearly 80% of these agencies also had higher stop-rate ratios for Hispanic drivers compared to White drivers (The Mountain-Whisper-Light: Statistics & Data Science and SC-B Consulting, Inc., 2021). Furthermore, a recent benchmarking analysis from California suggests that Black individuals were stopped more frequently (150% more than expected) compared to their White counterparts (Racial and Identity Profiling Advisory Board, 2022, p. 61).

2022 Traffic Stop Data and Descriptive Data Report

This inaugural report utilizes Nevada traffic stop data collected in 2022. Some SB 236 requirements are phased in over time. In 2022, SB 236 required "each law enforcement officer that makes a traffic stop for which a citation is issued through an electronic traffic citation system [...to] record for each stop" certain traffic stop data, including when and where the stop occurred; the officer's perception of the driver's "race, ethnicity, age and sex"; the alleged violation and the nature of the stop; the outcomes of the stop, including if it led to a warning or a citation/summons; information about any resulting search performed; and information about any resulting arrest (S.B. 236, 81st Leg., Reg. Sess., (Nev. 2021), Section 17). SB 236 also provides that if DPS contracts "to review all public information, including, without limitation, the prevalence and disposition of traffic stops reported by law enforcement agencies" under the SB 236 requirements, then the third party must "conduct a statistical analysis of the data [collected per the SB 236 requirements] for the purpose of identifying patterns or practices of profiling" (S.B. 236, 81st Leg., Reg. Sess., (Nev. 2021), Section 18).

Given the SB 236 requirements applicable in 2022, this report examines traffic stops that resulted in a warning, a citation, and/or an arrest issued through the electronic citation system. For such stops, the report is expected to focus on: where the stop occurred; the officer's perception of the driver's demographic characteristics; the alleged violation and nature of the stop; whether the

stop resulted in a warning or a citation; and information about any resulting searches and any resulting arrests.

However, this report is only able to examine data received by the research team. Multiple issues related to this data hamper the ability to report on several important variables related to traffic stops. First, due to limited data, this report does not examine the alleged violation and nature of the stop and does not examine stops that result in searches and arrests. Secondly, it is important to note that data about traffic stops that did not result in a warning or citation recorded through the electronic citation system (e.g., stops in which the driver was provided an informal, verbal warning by the officer that did not go through the electronic citation system) are not examined in this report because SB 236 did not require their comprehensive reporting in 2022.

In addition, and notably, this report uses a single year of data and provides descriptive statistics. Several other states utilize multiple years of data, which allows them to produce comprehensive analyses that are able to present not only descriptive data about potential disparities – like the data contained in this report – but also use various statistical analyses discussed above to help determine if the observed differences are actually meaningful. This kind of analysis will be conducted in Nevada in future years because additional data and variables are needed to complete such analyses. As a result, this 2022 report presents only descriptive data, which is a helpful starting point. However, only inferential statistical analysis – not contained in this report – can help better understand the existence, nature, and extent of disparities in police stops. This will be possible with multiple years of data in the future.

Methodological Approach

STOP Data Validation, Storage, and Data Dictionary

This report outlines findings from the descriptive analysis of traffic stop data collected in Nevada during calendar year 2022 (January-December). Data from 41 law enforcement agencies were submitted to the Nevada Department of Public Safety in 2022 for a total of 271,765 traffic stop records used in this descriptive analysis.

The dataset underwent rigorous validation protocols to align with quality assurance standards. These steps were performed periodically to ensure the quality of the data. As questions about certain data elements arose, discussions with the data collection agency occurred to ensure data accuracy. Next, the data was reformatted, stored, and optimized in a data warehouse where physical, network, and process security measures were applied. Additionally, through collaborative engagement with the data collection agency, a detailed and comprehensive data dictionary was developed containing the contents of the dataset, such as data type and format, and text descriptions to explain what each data element means.

Analytical Strategy

For this report, traffic stop records collected from January to December 2022 from 41 Nevada law enforcement agencies and reported through electronic traffic citation system were examined. First, data were cleaned and re-coded to run the analytical procedures. Univariate

analyses were conducted to explore the data quantitatively to get more insights about a single variable (including the missing data) and to summarize large quantities of data to reveal patterns. Since most data elements were categorical (i.e., fit into a set of mutually exclusive groups), frequencies and proportions were used to describe the data. Data were visualized using bar and line graphs. Monthly and diurnal patterns were also investigated. All analyses were conducted using SPSS (version 28).

Analytical Sample

The unit of descriptive analysis was traffic stops for which data were collected that resulted in a citation or warning reported through an electronic citation system. Details about the data elements are provided below (Table 1).

Data Elements

The data elements examined were:

Date and Time the Stop Occurred: The date (month/day/year), and time (HH:MM) (where H is hours reported in military time (24-hour period) and M is minutes) that the stop occurred. Stop time was converted into a 12-hour clock time. These data were categorized into days of the week and months. The stop outcomes (stop results) are defined below.

Stop Results: The final disposition or outcome for the traffic stop. The categories are: citation and warning, both issued through an electronic citation system.

- **Citation**: A citation issued by a law enforcement officer through an electronic citation system that states the nature of the offense and lists a court appearance date, if required. It includes instructions on how the driver must respond.

- **Warning**: A notice given by a law enforcement officer to a driver stopped for an alleged violation or infraction and entered into an electronic citation system. Unlike a citation, a warning does not carry any legal penalties, fines, or requirements to appear in court but it is recorded. (Note: warnings in this data may not represent all the warnings issued in 2022; reporting warnings was not required by SB 236 in 2022.)

Perceived Race of the Driver: The law enforcement officer's perception of the race of the driver stopped. The categories are: White, Black/African American, Asian, American Indian/ Native Alaskan, and Hawaiian/Pacific Islander.

Perceived Ethnicity of the Driver: The law enforcement officer's perception of the ethnicity of the driver stopped. The categories are: Not Hispanic and Hispanic.

Sex: The sex of the driver stopped as obtained from the driver's license. The categories in this report are male and female. The data included a third category "X." Starting in 2019, Nevada allowed people to select Male (M), Female (F), or X as the sex on their drivers' licenses instead of choosing only either M or F. Nevada drivers stopped in 2022 may have had licenses issued before or after 2019. Therefore, drivers who would have selected X before 2019 if given the opportunity (and would presumably identify as nonbinary) would still have an M or F on their licenses even though they may not identify as M or F. As a result, and for consistency, drivers who were listed as X for sex on their drivers' licenses (n=52) were excluded from analysis.

Age of the Driver: The age of the driver stopped, which is calculated as the integer portion of [Date of Stop] minus [Date of Birth] as obtained from the driver's license. This data was further categorized into age groups as defined by the U.S. National Highway Traffic Safety Administration (NHTSA) (Chang, 2008).

Agency: The agency for which the law enforcement officer works.

Agency Group: Agencies with a number of traffic stops below one percent were combined in the "other" category.

Table 1: Details of the data elements along with their types

Variable	Variable Type/Scale	Variable Source
Perceived Race	Categorical	Original form
Perceived Ethnicity of Driver	Categorical	Original form
Sex of Driver	Categorical	Original form
Age of Driver	Continuous	Original form
Age of Driver	Categorical	Derived form (Age Group)
Stop Results	Categorical	Original form
Agency Group	Categorical	Derived form

Note: Original refers to the form of the variable received from the data collection agency. Derived variables were created by re-coding the original variables using established standards. A categorical variable has a set number of groups, while a continuous variable is numerical in nature and can have an infinite number of possible values.

Findings: Characteristics of 2022 Traffic Stop Data

Traffic Stops by Demographic Characteristics of Drivers

A total of 271,765 traffic stops with a warning or a citation issued through the electronic citation system were analyzed. Among all these traffic stops, 77.54% of drivers were White, 74.53% of drivers were non-Hispanic, and 62.77% of drivers were male (Table 2, Figure 1-3). Over 50% of the drivers were between the ages of 21 and 45 years (Table 2, Figure 4).

Table 2: Counts and percentages of 2022 traffic stops with actions reported through the electronic citation system by demographic characteristics of drivers (N=271,765)

Categories	All Traffic Stops	
	Counts (n)	Percentage (%)
Race of the Driver		
White	210,289	77.54
Black/African American	41,551	15.32
Asian	13,887	5.12
American Indian/Native Alaskan	3,097	1.14
Hawaiian/ Pacific Islander	2,374	0.88
Ethnicity of the Driver		
Not Hispanic	201,778	74.53
Hispanic	68,942	25.47
Sex of the Driver		
Male	170,463	62.77
Female	101,110	37.23
Age Group of the Driver		
<16 years	439	0.20
16-20 years	23,326	8.60
21-25 years	38,492	14.20

26-30 years	38,712	14.20
31-35 years	35,659	13.10
36-40 years	30,066	11.10
41-45 years	25,098	9.20
46-50 years	20,365	7.50
51-55 years	18,234	6.70
56-60 years	14,935	5.50
61-65 years	11,122	4.10
Over 65 years	15,240	5.60

Please note that the percentages do not always equal 100% due to missing values or unknown values.

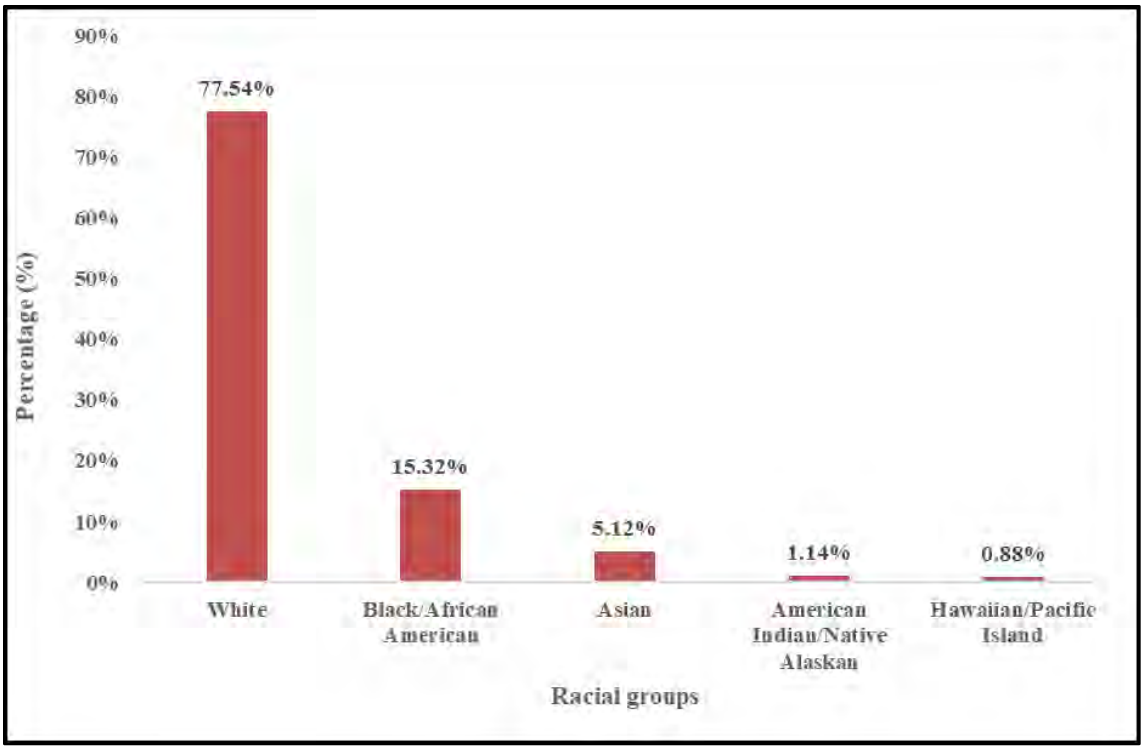


Figure 1. Bar chart displaying percentages of traffic stops with actions reported through the electronic citation system by racial groups of drivers (2022)

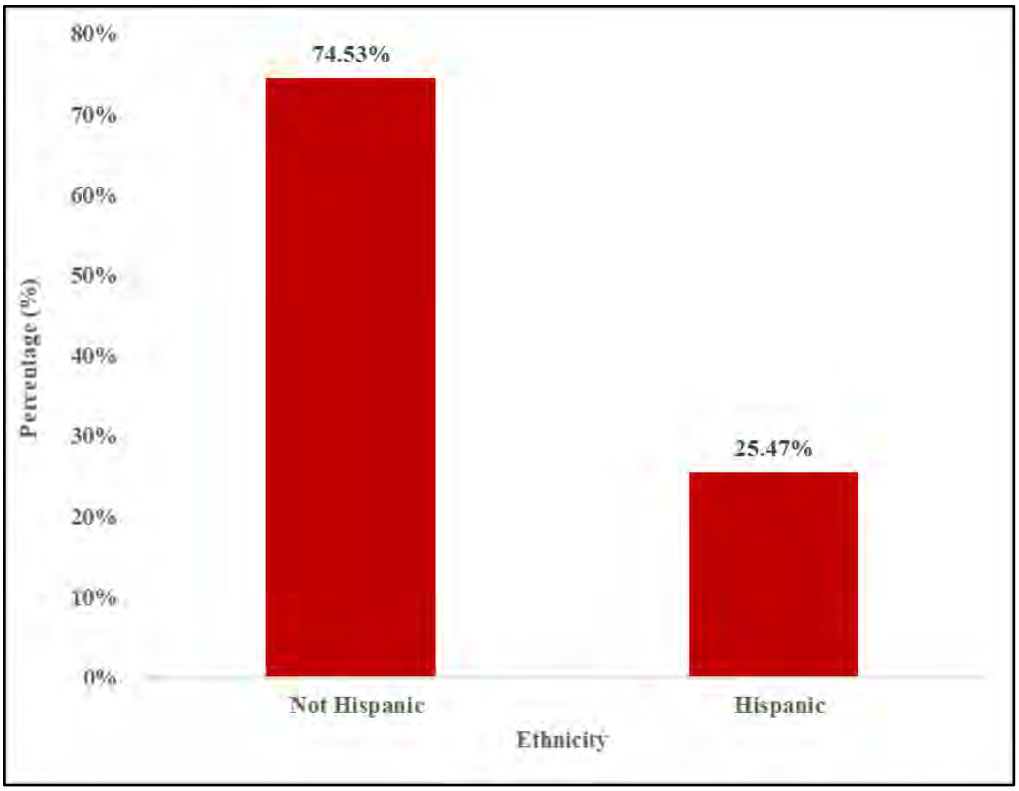


Figure 2. Bar chart displaying percentages of traffic stops with actions reported through the electronic citation system by ethnicity of drivers (2022)

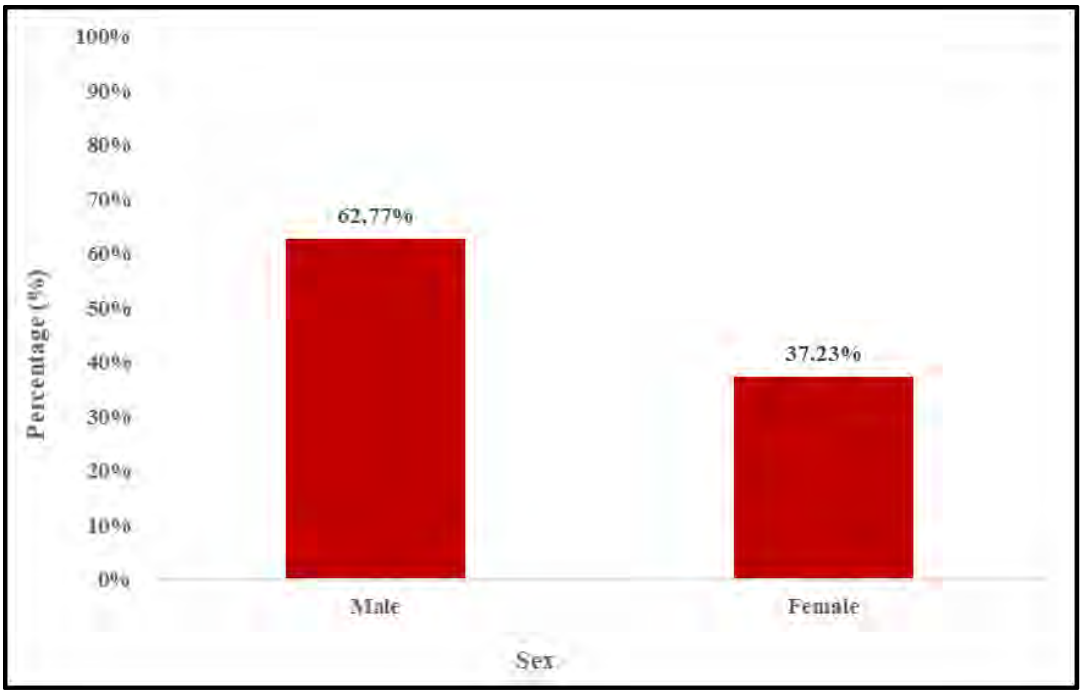


Figure 3. Bar chart displaying percentages of traffic stops with actions reported through the electronic citation system by the sex of drivers (2022)

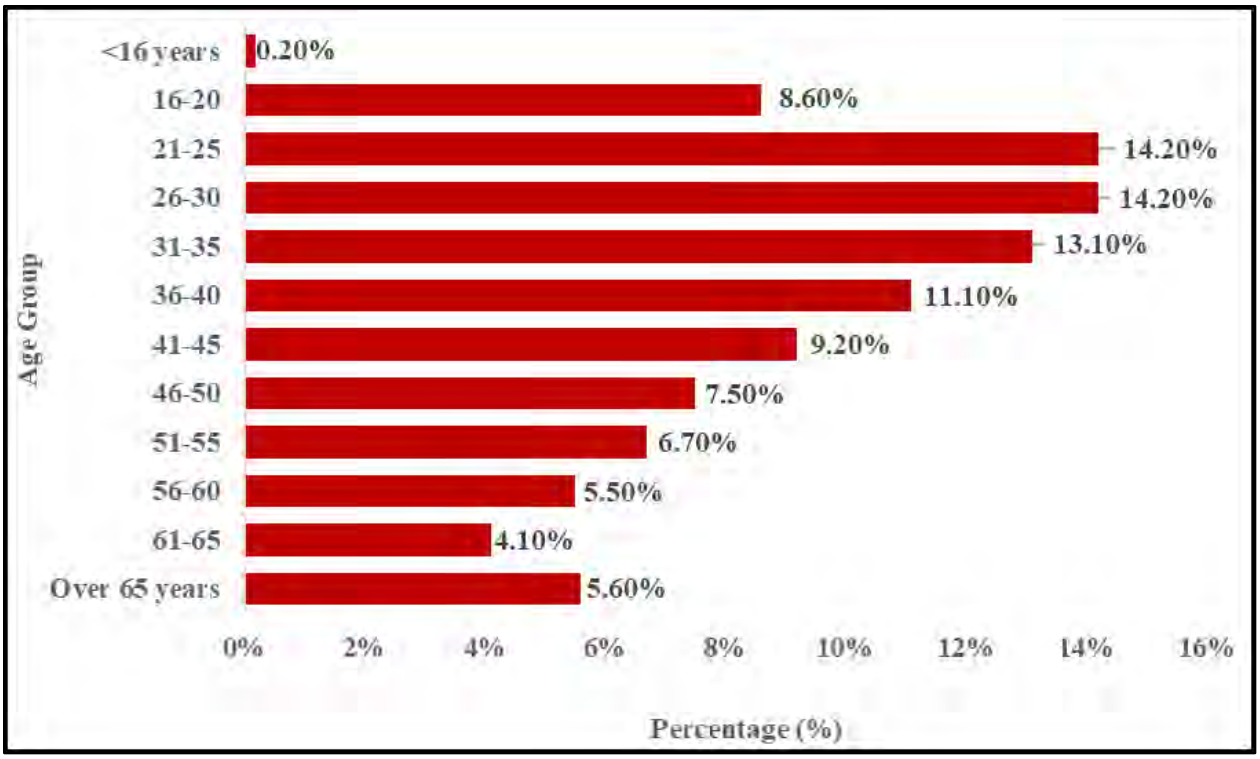


Figure 4. Bar chart displaying percentages of traffic stops with actions reported through the electronic citation system by age group of drivers (2022)

Traffic Stops by Agency

As shown in Table 3 and Figure 5, the highest proportion of traffic stops in the dataset were made by the Nevada Highway Patrol (37.96%) followed by Las Vegas Metropolitan Police Department (27.13%).

Table 3: Counts and percentages of traffic stops with actions reported through the electronic citation system by agency (2022) (N=271,765)

Agencies/Agency Group	Count	Percent
Nevada Highway Patrol	103,163	37.96
Las Vegas Metro PD	73,737	27.13
Henderson PD	19,721	7.26
North Las Vegas PD	12,691	4.67
Reno PD	10,213	3.76
Clark County SD PD	8,385	3.09
Carson City SO	6,026	2.22
Washoe County SO	5,878	2.16
Nye County SO	5,630	2.07
Sparks PD	5,006	1.84
Douglas County SO	2,807	1.03
Other Agencies	18,508	6.81
Total (N)	271,765	100.0

SO-Sheriff's Office; PD-Police Department; SD-School District
Thirty agencies, each reporting less than one percent of all reported traffic stops, were aggregated into the category "Other Agencies."

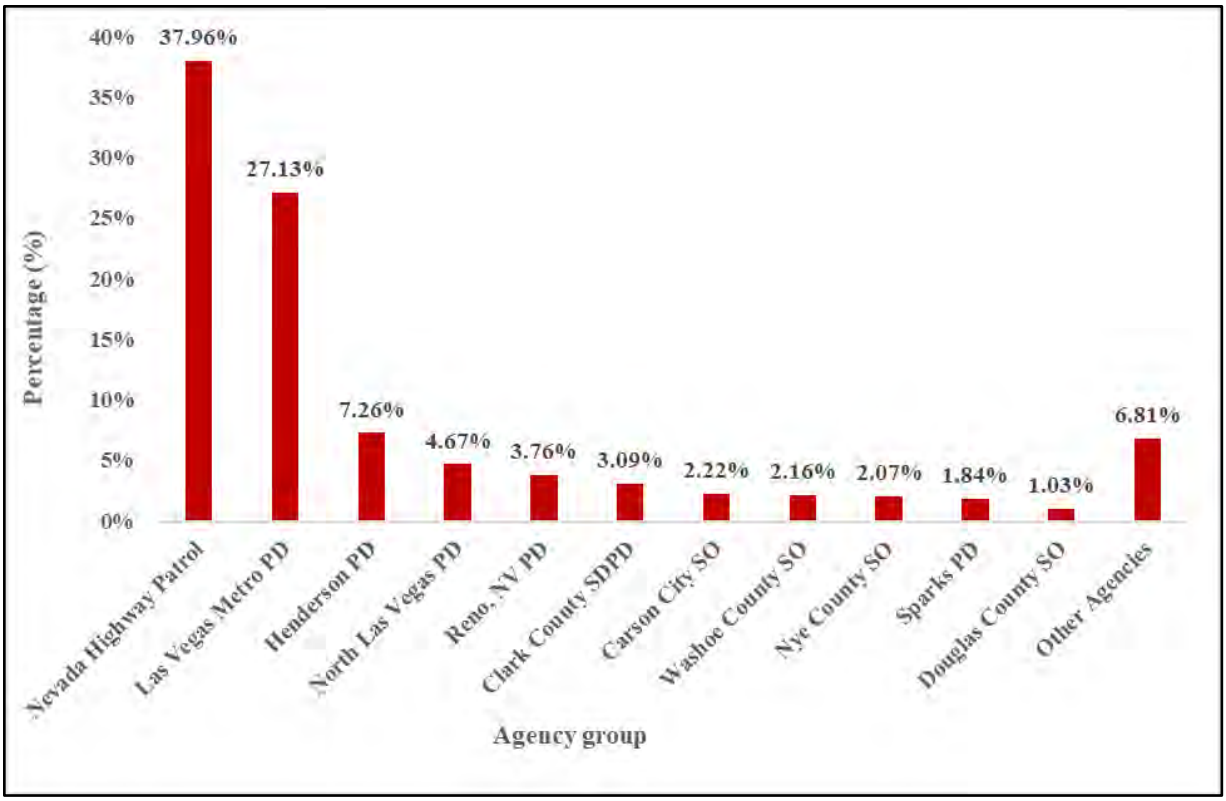


Figure 5. Bar chart displaying proportions of traffic stops with actions reported through the electronic citation system by agency (2022)

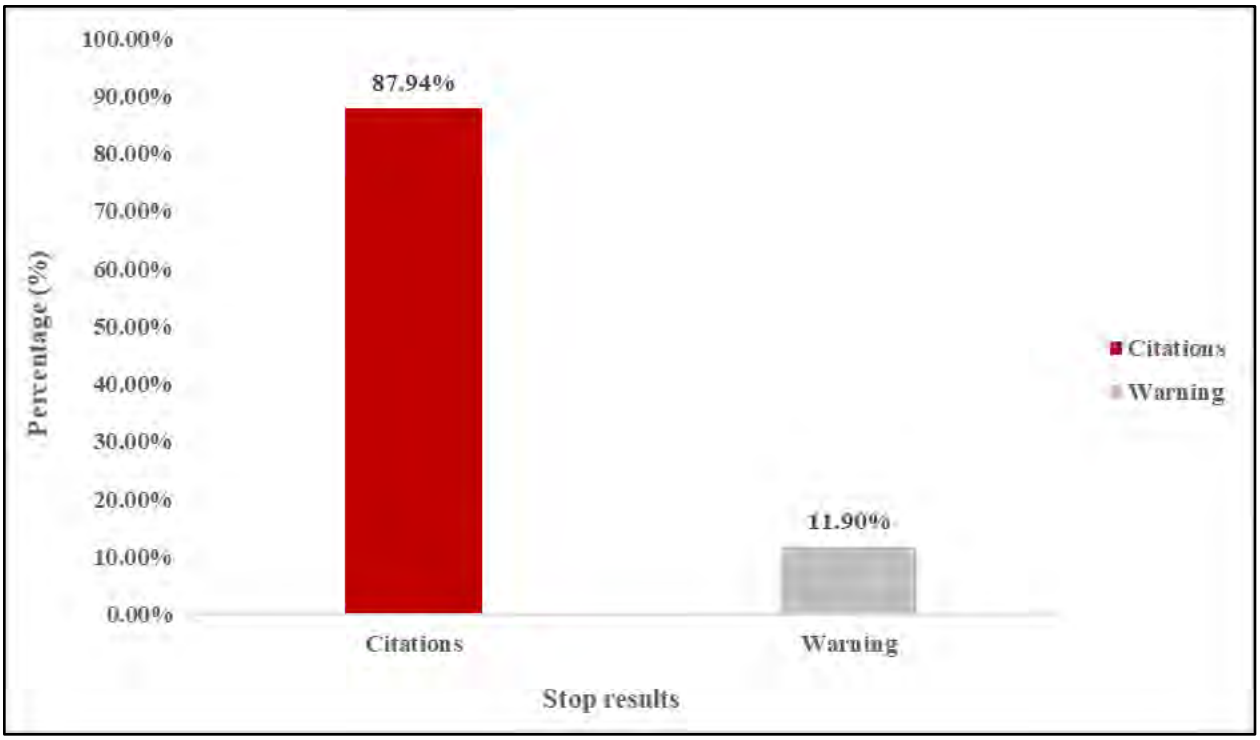
Outcomes of All Traffic Stops

As shown in Table 4 and Figure 6, a citation was the most common outcome of the traffic stops reported (87.94%) followed by warnings in over 11.90% of the reported traffic stops.

Table 4: Counts and percentages of traffic stops reported through an electronic citation system that resulted in citations or warnings

Traffic Stop Outcome	Count (n)	Percentages (%)
Citation	238,980	87.94
Warning	32,350	11.90

Please note that the percentages do not equal 100% because some traffic stops (0.16%) resulted in arrests. The background section explains why this report did not focus on arrests. Also, please note that warnings may not represent all the actual warnings issued in 2022 because SB 236 did not require reporting warnings in 2022.



Please note that the percentages do not equal 100% because some traffic stops (0.16%) resulted in arrests. The methodology section explains why this report was not focused on arrests.

Figure 6. Bar chart displaying percentages of stops that resulted in citations or warnings reported through an electronic citation system (2022)

Trends

Traffic Stops by Month

As shown in Table 5 and Figure 7, the traffic stop rate remained nearly consistent throughout the year for the data in the dataset, with a slight drop during the months of June/July and September/October.

Table 5: Monthly trends of traffic stops made by Nevada law enforcement agencies with actions reported through the electronic citation system (2022)

Month	Count (n)	Percentage (%)
January	24,973	9.19
February	23,312	8.58
March	26,108	9.61
April	23,158	8.52
May	23,208	8.54
June	21,484	7.91
July	21,567	7.94
August	24,043	8.84
September	19,559	7.20
October	19,367	7.12
November	22,123	8.14
December	22,863	8.41
Total (N)	271,765	100.0

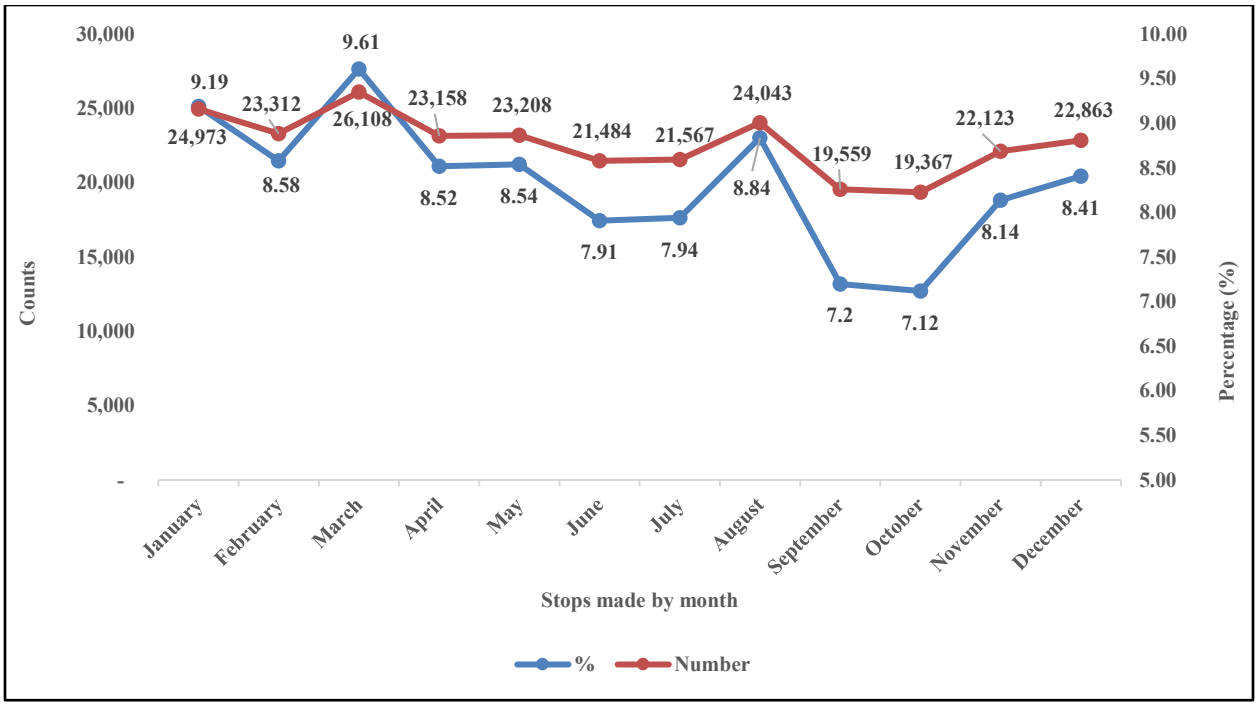


Figure 7. Line graph showing counts and percentages of traffic stops made by Nevada law enforcement agencies with actions reported through the electronic citation system by month (2022)

Traffic Stops by Day of the Week

As shown in Table 6 and Figure 8, the traffic stop rate using the dataset was relatively lower on Fridays and over weekends followed by increasing trends starting from Mondays.

Table 6: Trends by days of the week of traffic stops made by Nevada law enforcement agencies with actions reported through the electronic citation system (2022)

Day of a week	Count (n)	Percentage (%)
Monday	35,754	13.16
Tuesday	45,478	16.73
Wednesday	49,116	18.07
Thursday	47,779	17.58
Friday	39,669	14.60
Saturday	30,712	11.30
Sunday	23,257	8.56
Total (N)	271,765	100.0

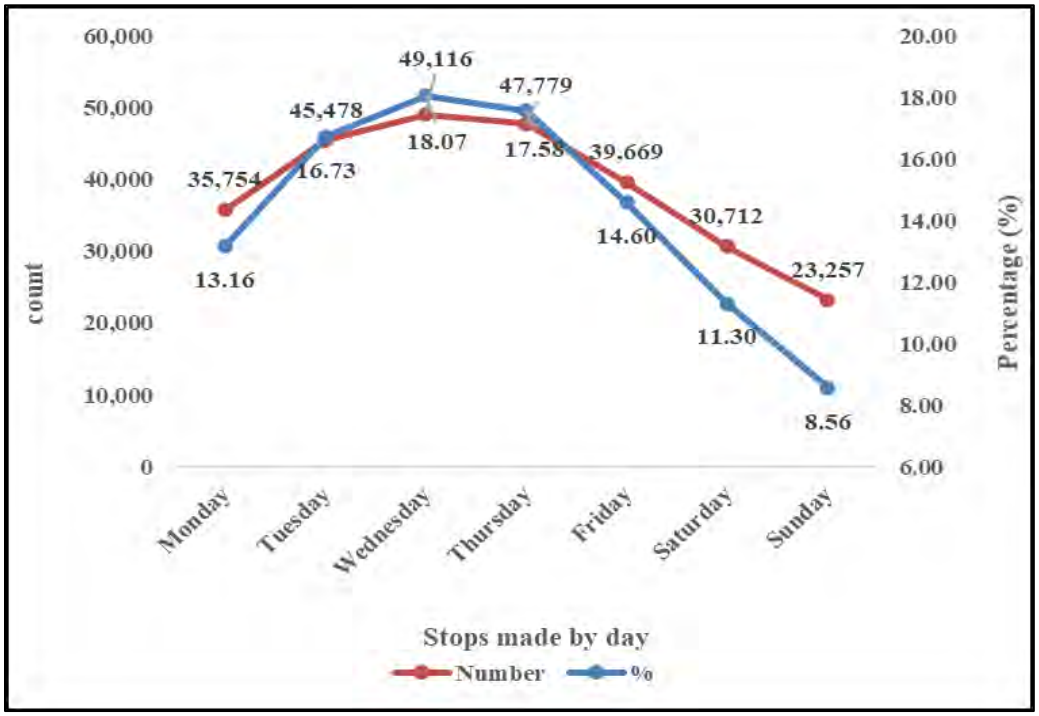


Figure 8. Line graph showing counts and percentages of the traffic stops made by Nevada law enforcement agencies with action reported through the electronic citation system by days of the week (2022)

Traffic Stops by Time Blocks in the Day

As indicated in Table 7 and Figure 9, the highest traffic stop rates in the dataset were in the morning hours of 8-11:59 am (28.87%) followed by the afternoon hours of noon - 3:59 pm (26.37%).

Table 7: Trends of traffic stops made by Nevada law enforcement agencies with actions reported through the electronic citation system during time blocks during the day

Time block	Count (n)	Percentage (%)
12:00am – 3:59am	10,863	3.99
4:00am – 7:59am	33,313	12.26
8:00am – 11:59am	78,452	28.87
12:00pm – 3:59pm	71,654	26.37
4:00pm – 7:59pm	50,067	18.42
8:00pm – 11:59pm	27,416	10.09
Total (N)	271,765	100.0

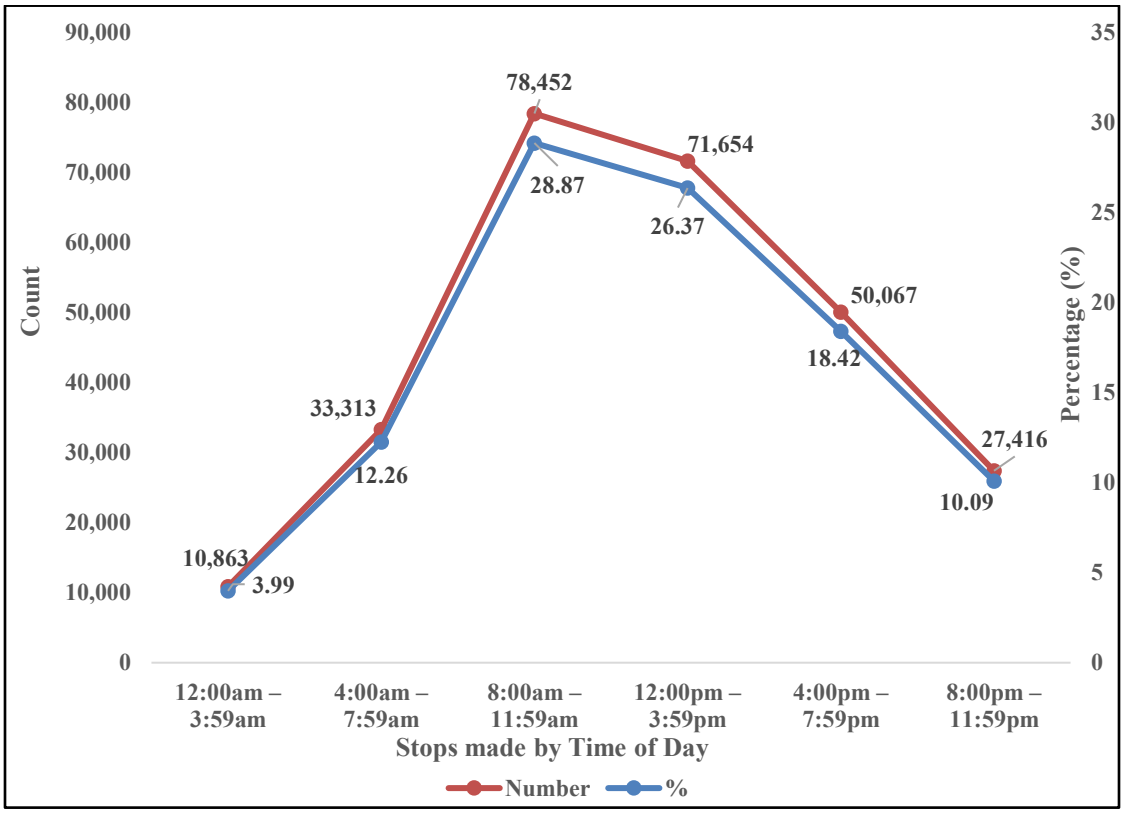


Figure 9. Line graphs showing traffic stops made by Nevada law enforcement agencies with actions reported through the electronic citation system by time-of-day blocks (2022)

Limitations and Data Collection Recommendations

This report provides a quantitative baseline to allow comparative analyses using data from subsequent years. However, there are limitations, which are important to acknowledge.

First, the scope of this report is exploratory because only a single year of data was analyzed. This report provides only descriptive statistics. Therefore, the intent is not to make any inferences, for which multiple years' data will be needed to perform advanced statistics, such as the Decision to Stop analysis, Prediction Disposition Analysis, and Hit rates, which investigators from other states have used. For executing the hit-rate analysis, for instance, reliable data on if a search was conducted and its outcomes will be necessary.

Next, data on traffic stops for which outcomes were searches and/or arrests were not fully assessed in this report due to the incompleteness of this data. To facilitate assessing searches and/or arrests, data collection agencies should explore the possibility of establishing linkages between citation systems and other systems that contain search and arrest data.

In addition, the warnings reported through the electronic citation system may not represent all warnings issued in 2022; reporting of warnings was not required by SB 236 in 2022 but is required in 2024 and 2025.

Data about the reason for the stop and the alleged violation by the driver was not collected and not available to the research team. These data would be necessary to accurately assess any potential disparities in reasons why drivers are being pulled over.

The location of a stop was not consistently identifiable within each record. Specifically, no ZIP code or county of the stop was provided. While most stops likely occur within the patrol area of the agency, law enforcement officers have statewide jurisdiction to issue citations. This highlights the need for more consistent data collection in terms of location of the stop.

Additionally, Section 17 of SB 236 requires officers to collect "The race, ethnicity, age and sex of the person stopped, based on the observations of the law enforcement officer responsible for reporting the stop" (S.B. 236, 81st Leg., Reg. Sess., (Nev. 2021)). However, the Driver's Age and Sex in this report are derived from the driver's license and thus are not the officers' perception. The available data was also not sufficient to consider stops by drivers who did not identify as either male or female (see discussion in Data Elements, above).

Table 8 below provides a summary of the data that must be reported under SB 236. It also explains what data were available to the research team to complete this report. In addition, Table 8 highlights (1) limitations based on the data available to the research team, (2) the impact of these limitations on this and future assessments of traffic stop data, and (3) some considerations and recommendations that could enhance the ability to analyze Nevada's traffic stop enforcement data to examine potential disparities in future years. These recommendations could be adopted and implemented in various ways. Furthermore, to better understand the mix of drivers stopped, it would also be helpful for officers to collect information about whether a driver is a Nevada resident (Yes/No).

Annual reports provide invaluable information. However, adding an interactive data dashboard to access, visualize, and help understand traffic stop data presents a critical opportunity to enhance public access and use of traffic stop data. Several other states with similar programs have successfully implemented both annual reports and data dashboards. Continuous and adequate funding is necessary to enable completing both the annual reports and launching and maintaining an interactive traffic stop data dashboard.

Table 8. Traffic stop data availability, limitations based on available data, and consideration/recommendations based on SB 236 requirements and practice from other states

Data to be collected per SB 236	Data available to research team	Limitations based on the available data	Impact of data limitations on this and future reports	Considerations/ Recommendations
Date of the stop	Stop date (month/day/year)	None	None	None
Time of the stop	Stop time reported in military time (24-hour period)	None	None	None
Location of the stop	• Primary street (Including Interstate and State Routes for Highway Patrol) • Cross block • Cross Street (Including Mile Markers Highway Patrol)	The location data was not always complete and not always unique enough to pinpoint the exact place of the stop	This makes it difficult to identify where exactly in Nevada stops occurred and assess traffic stops by proportion for counties and localities	More consistent collection and reporting of location of the stop (e.g., latitude, longitude)
Demographics: race and ethnicity of the driver, based on the observations of the law enforcement officer reporting the stop	The race and ethnicity of the driver based on the observations of the law enforcement officer reporting the stop	None	None	None
Demographics: age and sex of the driver based on the observations of the law enforcement officer reporting the stop	The age and sex of the driver as obtained from the driver's license	The data are actual rather than perceived.	This may confound analysis to identify potential disparities in stops based on perceived age and sex.	Determine if age and sex should be derived from driver license or from officer's perceptions of age and sex
The nature of, and the statutory citation for, the alleged violation that caused the stop to be made	Data element (alleged reason for the stop) was not collected and not available to the research team in the 2022 traffic stop data. However, the outcome of the stop was. available (see below).	It is not possible to assess potential disparities in reason for stops and associated stop outcomes without access to this data.	Data about the reason for the stop is not examined in this report.	• Data collection agencies (law enforcement agencies); citation system administrator (Tyler Technology), and citation system managers (DPS/OTS) should consider collecting the nature of the alleged violation that led to the stop (reason for the stop) and making this data available to the research team. • Having access to this data would aid in identifying potential disparities in reasons for stops and in stop outcomes.

Data to be collected per SB 236	Data available to research team	Limitations based on the available data	Impact of data limitations on this and future reports	Considerations/ Recommendations
Disposition of the stop – if a warning was issued	Warnings entered into the electronic citation system	The warnings reported through the electronic citation system may not represent all the warnings issued in 2022; reporting warnings in 2022 was not required by SB 236.	This limits the ability to identify potential disparities in disposition of stops that resulted in warnings.	• Data collection agencies (law enforcement agencies); citation system administrator (Tyler Technology), and citation system managers (DPS/OTS) should consider collecting whether any warning was issued (yes/no), and if a warning is issued, whether the warning was verbal or written. • Data collection agencies (law enforcement agencies); citation system administrator (Tyler Technology), and citation system managers (DPS/OTS) should consider requiring the collection of data about warnings (e.g., type of warning) consistently across agencies to facilitate meaningful analysis.
Disposition of the stop - if a citation or summons was issued	Citations/summons entered into the electronic citation system	The citations/summons entered into the citation system may not represent all citations/summons issued in the state for 2022	Limit the ability to conduct a more comprehensive analysis of data related to citation/summons.	• Ensure that all citations/summons are reported, regardless of how they are issued, as required by SB 236 in 2023-2025. • Access to all citations/summons, regardless of how they are issued, will enable a more comprehensive analysis of data related to citation/summons.
Disposition of the stop - if the stop led to an arrest	Arrests entered into the electronic citation system	The data on arrests were incomplete. Data related to traffic stops that resulted in formal warnings and/or citations are gathered in the "citation" system. Data concerning stops resulting in arrests are collected in specific law enforcement agency systems, separate from the "citation" system. While data concerning some stops that resulted in arrests are included in the citation system, an unknown number, and likely many, are not. The lack of integration between the "citation" system and the additional agency systems leads to incomplete data about stops culminating in arrests.	The incompleteness of data on arrests limits ability to identify potential disparities in arrests	• Data collection agencies (law enforcement agencies); citation system administrator (Tyler Technology), and citation system managers (DPS/OTS) should explore the possibility of establishing linkages between citation systems and other systems that contain search and arrest data. • Data collection agencies (law enforcement agencies); citation system administrator (Tyler Technology), and citation system managers (DPS/OTS) should consider adding whether an arrest was made (yes/no) to the electronic citation system. • This will provide a more complete picture of arrests and facilitate data analysis to identify potential disparities in arrests.

Data to be collected per SB 236	Data available to research team	Limitations based on the available data	Impact of data limitations on this and future reports	Considerations/ Recommendations
Disposition of the stop - if a search was performed (and if so, the type of search and whether anything was found as a result of the search)	• Person search conducted and reported through the electronic citation system • Vehicle search conducted and reported through the electronic citation system • Type of contraband code, if any was found, that was reported through the electronic citation system • Type of contraband description, if any was found, that was reported through the electronic citation system	The data on searches were incomplete. An unknown number and likely many searches of both vehicles and drivers are linked to arrests.	The incompleteness of data on searches limits the ability to identify potential disparities in searches and the results of searches (hit rate).	• Data collection agencies (law enforcement agencies); citation system administrator (Tyler Technology), and citation system managers (DPS/OTS) should explore the possibility of establishing linkages between citation systems and other systems that contain search and arrest data. • Access to complete search data will allow hit rate analysis, which calculates the probability of a stop resulting in a hit (finding contraband: yes/no) across different demographic groups to identify potential disparities.

References

Barone, K., Fazzalaro, J., Kalinowski, J., & Ross, M. B. (2021). Traffic stop data analysis and findings, 2019. http://trafficstops.ctdata.org/reports/pdfs/ctrp3-2019.pdf

Chang, D. (2008). *Comparison of crash fatalities by sex and age group* (No. HS-810 853).

Dong, Y., & Peng, C. Y. J. (2013). Principled missing data methods for researchers. *SpringerPlus*, *2*, 1-17.

Lofstrom, M., Hayes, J., Martin B. & Premkumar, D. (2021). Racial disparities in law enforcement stops. Public Policy Institute of California. https://www.ppic.org/publication/racial-disparities-in-law-enforcement-stops/

Madley-Dowd, P., Hughes, R., Tilling, K., & Heron, J. (2019). The proportion of missing data should not be used to guide decisions on multiple imputation. *Journal of clinical epidemiology*, *110*, 63-73.

The Mountain-Whisper-Light: Statistics & Data Science and SC-B Consulting, Inc. (2021). Illinois traffic and pedestrian stop study 2021: Annual report: Traffic stop analysis. https://idot.illinois.gov/Assets/uploads/files/Transportation-System/Reports/Safety/Traffic-Stop-Studies/2021/IL%202021Traffic%20Stop%20Study%20Part%20I%20-%20Executive%20Summary.pdf

National Conference of State Legislatures (NCSL). (2022). Racial and Ethnic Disparities in the Criminal Justice System. https://www.ncsl.org/civil-and-criminal-justice/racial-and-ethnic-disparities-in-the-criminal-justice-system

Oregon Criminal Justice Commission. (2021). Statistical Transparency of Policing report per House Bill 2355 (2017). https://www.oregon.gov/cjc/CJC%20Document%20Library/STOP_Report_2021_FINAL.pdf

Pryor, M., Atiba Goff, P., Heydari, F., & Friedman, B. (2020). Collecting, analyzing, and responding to stop data: A guidebook for law. https://policingequity.org/images/pdfs-doc/COPS-Guidebook22.pdf

Racial and Identity Profiling Advisory Board. (2022). 2022 Racial and Identity Profiling Advisory Board report. https://oag.ca.gov/system/files/media/ripa-board-report-2022.pdf

S.B. 236, 81st Leg., Reg. Sess., (Nev. 2021). https://www.leg.state.nv.us/App/NELIS/REL/81st2021/Bill/7752/Text#

The Stanford Open Policing Project. (2021). https://openpolicing.stanford.edu/