Traffic enforcement in San Diego, California

An analysis of SDPD vehicle stops in 2014 and 2015

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TABLE OF CONTENTS

CHAPTERS

APPENDICES

EXECUTIVE SUMMARY

This Report presents the results of an independent analysis of records generated following 259,569 traffic stops initiated by San Diego Police Department (SDPD) officers between January 1, 2014 and December 31, 2015. This review focused on the extent to which these data reveal Department- and division-level racial/ethnic disparities in (1) the decision to initiate a traffic stop; (2) the decision to issue a citation; (3) the decision to conduct a field interview; (4) the decision to initiate a search; (5) the discovery of contraband; and (6) the decision to make an arrest. Our findings can be summarized as follows:

- Citywide, disparities between Black and White drivers were evident in vehicle stop data from 2014, but not 2015 or the combined 2014/2015 dataset, while no such disparities were found between Whites and either Hispanic or Asian/Pacific Islander (API) drivers in 2014 or 2015;
- Data from both 2014 and 2015 revealed distinct and divergent stop patterns by driver race/ethnicity in police divisions located above and below Interstate 8;
- Citywide and across 2014 and 2015, Black and Hispanic drivers were more likely than White drivers to be searched following a traffic stop, and despite facing higher search rates, were less likely to be found with contraband;
- Black, Hispanic, and API drivers were subject to field interviews at greater rates than White drivers;
- No meaningful difference existed in the rate at which drivers from each racial/ethnic group were arrested;
- Black drivers were less likely to receive a citation than White drivers stopped under similar circumstances, while matched Hispanic, White, and API drivers were cited at similar rates;
- Records of traffic stops conducted in 2014 and 2015 were often incomplete, raising questions as to whether data generated by the SDPD's traffic stop data card system are a reliable measure of actual traffic stops conducted; and
- City residents who participated in our focus groups and SDPD officers who participated in an electronic survey and follow-up interviews recognized a tension between the Department and minority community members.

The remainder of this executive summary provides an overview of the data and analytic methods used to examine traffic stops and post-stop outcomes, a more detailed review of our findings, and a brief description of our recommendations to the SDPD to address the identified racial/ethnic disparities.

<u>Traffic stops</u>

To examine the effect that driver race/ethnicity has on the likelihood that an individual will be stopped by the police, we draw on what has become known as the 'veil of darkness' technique. This approach is premised on the assumption that if officers are relying on driver race/ethnicity to guide stop decisions, then such bias will be more apparent in daylight stops, when a motorist's race/ethnicity is more likely to be visible, than stops conducted after dark, when physical appearance is harder to detect.

The veil of darkness technique, which thus far has been used by police scholars to study traffic stops in six other U.S. locations, allows researchers to avoid the difficulty of identifying and applying a benchmark against which to compare traffic stop data. This is the central challenge in the analysis of traffic stops, as the driving population in a given area may look quite different from the residential population.

To account for the possibility that the composition of daytime drivers may differ from those on the road at night, we limited the analysis to what is known as the 'inter-twilight period,' or the time period between the earliest end of civil twilight (approximately 5:09 pm on Nov. 27) and the latest (approximately 8:29 pm on Jun. 27). Focusing on this period allowed us to capitalize on a natural experiment produced by seasonal changes. Because the sun goes down much earlier in San Diego during winter months than it does in the summer, people on the road at 6:00 pm in January would experience darkness, but in July the same drive would occur in broad daylight. Thus, we are able to compare the likelihood that drivers on the road during this 3-hour and 20-minute window were stopped in daylight versus darkness, and to be confident that any differences found are due to race/ethnicity rather than other factors.

We omitted from the analysis stops that occurred as a result of a suspect description, code enforcement effort, or other type of call for service. By limiting our sample to only those stops that involve an equipment (e.g., a broken tail light) or moving violation (e.g., an illegal left turn), we are able to focus on discretionary decisions, where an officer's use of race/ethnicity may indicate disparate treatment.

Our analysis produced a series of mixed results. In 2014, Black drivers were more likely to be stopped during daylight hours than after dark, compared to White drivers. We found no such disparity in 2015 or in the combined 2014/2015 dataset.

Our review of citywide stops involving Hispanic and API drivers revealed no disparities in the day-night stop patterns of either group compared to White drivers in 2014, 2015, or the combined total. Put another way, the odds of an Hispanic or API driver being stopped during

daylight hours are statistically similar to the odds of a stop involving an Hispanic or API driver occurring after dark, compared to the day-night stop patterns of White drivers.

To complement our citywide analysis, we also examined division-level stop patterns in 2014 and 2015. Our review of aggregate data from the five divisions located above Interstate 8 revealed no statistically significant disparities in the day-night stop patterns of either Black, Hispanic, or API drivers as compared to White drivers. Narrowing the focus to the division level, we found evidence of disparities in the day-night stop patterns of both Black and Hispanic drivers stopped in the Northeastern division, as compared to Whites. No such disparities were found between API and White drivers, or in any of the other four divisions located above I-8.

Data on stops conducted below Interstate 8 in 2014 and 2015 revealed a much different set of results. We find evidence to suggest that in the aggregate, Black and Hispanic drivers were *less* likely be stopped during daylight hours than they were after dark, as compared White drivers. In other words, when officers on patrol below I-8 were able to see a driver's race, they were more likely to stop a White driver than either a Black or Hispanic (but not API) driver. At the division level, this type of disparity was evident in stops occurring in the Central division and exclusively among Hispanic drivers stopped in the Mid-City division.

Post-stop outcomes
The Report also includes a detailed analysis of the extent to which key post-stop outcomes vary by driver race. In an effort to eliminate other possible explanations for racial/ethnic disparities in the decision to initiate a search, issue a citation, conduct a field interview, or effectuate an arrest, we matched API, Black, and Hispanic drivers with White drivers across a set of demographic and stop-based characteristics using a statistical technique known as propensity score matching. Analysis of the post-stop outcomes between matched pairs shows distinct and sizable differences in the experiences of Black and Hispanic drivers and their matched White counterparts. No statistically significant differences were evident in our analysis of the API-White pairing.

Specifically, the data show that SDPD officers were more likely to search Black and Hispanic drivers than White drivers stopped under similar circumstances. These results were largely consistent across all search types, including high discretion searches, like consent searches, and low discretion searches, like inventory searches. Across 2014 and 2015, White drivers were searched at a greater rate than API drivers.

Analysis of 'hit rates,' or the percentage of searches that led to the discovery of illegal contraband, revealed Black and Hispanic drivers were either less likely to be found with

contraband or found with contraband at similar rates than matched White drivers, depending on the nature of the search. We found no meaningful differences in the hit rates of matched API and White drivers.

We also used the propensity score matching technique to evaluate how driver race/ethnicity influenced arrest and field interview rates, as well as the decision to issue a citation. Our analysis showed no statistical difference in the arrest rates of matched Black and White drivers, while Hispanic drivers were arrested slightly more often than matched Whites. Matched API drivers were arrested less frequently than their matched White counterparts.

Black drivers were subjected to field interviews more than twice as often as their matched White peers, while there was a much smaller though statistically significant difference between both Hispanic and API drivers as compared to matched White drivers. Finally, we found that Black drivers received citations less often than matched Whites, while matched Hispanic, API, and White drivers were all cited at nearly identical rates.

Recommendations

Analysis of the 2014 and 2015 traffic stop card data, as well as the contextual insights we gained from several focus groups with San Diego community members, interviews with dozens of SDPD officers, and an electronic survey of SDPD officers suggest three broad, thematic results. First, data on the SDPD's stop and post-stop enforcement patterns show meaningful differences in the treatment of Black and Hispanic drivers, as compared to Whites. Second, these disparities, which match the perceptions of some members of San Diego's minority communities, contribute to a recognized tension between these communities and the SDPD. Third, SDPD's existing system for collecting and managing traffic stop data is fundamentally flawed.

Our recommendations to the Department are designed to address these broad findings.

Systemic disparities
1. Acknowledge the existence of racial/ethnic disparities and make combatting such disparities a priority;
2. Continue to enhance training and supervision around issues of racial/ethnic disparities;
3. Make traffic stop practices more transparent; and
4. Make traffic stop practices more systematic and data-driven.

Police-community relations
5. Make community engagement a core departmental value; and

6. Work to improve communication and transparency regarding police practices.

Data collection and management
7. Revise the current data collection system;
8. Coordinate existing data collection efforts;
9. Collect additional data;
10. Strengthen accountability and oversight of data collection and management.

We submit this Report during a challenging time for police departments and individual officers across the country. Public scrutiny of the role of police in our society and tension between law enforcement and communities of color has seldom been more acute than it is today. Analysis of 2014 and 2015 traffic stop data shows that perceptions of differential treatment are supported by data, and highlight several substantive issues that, in our view, should be given the Department's full attention. Insights from both community members and SDPD officers suggest that these are not insurmountable challenges. Rather, the goal of a fair and transparent police force defined by a strong bond with City residents is one that all involved care deeply about.

ACKNOWLEDGEMENTS

LIST OF FIGURES

CHAPTER 1: INTRODUCTION

In February 2015 the City of San Diego contracted with the San Diego State University School of Public Affairs to analyze the San Diego Police Department's (SDPD) enforcement of local traffic law. This Report encompasses our analysis of the 259,569 traffic stops conducted between January 1, 2014 and December 31, 2015.[1] Four questions drove our inquiry:

1. To what extent is there a department-level pattern of racial/ethnic disparity in the initiation of traffic stops?
2. To what extent are racial/ethnic disparities in the initiation of traffic stops evident at the patrol division level?
3. To what extent is there a department-level pattern of racial/ethnic disparity in the outcome of traffic stops?
4. How does the SDPD's traffic enforcement regime affect police-community relations in San Diego?

The Report is organized as follows. In Chapter 2 we contextualize our analysis by discussing policing in San Diego. We begin by describing the organization and operation of the Department and summarizing citywide crime trends. We then review the Department's recent history, which has included efforts to address allegations of officer misconduct and tension with communities of color.[2] Finally, we discuss in some detail findings from a previous independent analysis of SDPD traffic stop data conducted in 2000 and 2001.[3]

In Chapter 3 we describe the data used to complete our analysis. We review the mechanism for recording information about traffic stops, the 'vehicle stop card,' and discuss observable patterns in the volume and quality of the dataset. We also describe the process of gathering contextual information about traffic stops through conducting focus groups with San Diego community members and surveying and interviewing SDPD officers.

In Chapter 4 we examine traffic stop patterns at the Department level, at the individual patrol division level, and compare stop patterns above Interstate 8 with those occurring below I-8. After discussing the analytical challenges presented by this issue, we describe in detail the statistical method used to address the extent to which racial/ethnic disparities exist. The 'veil of

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[1] The raw data files we received from the SDPD contained a total of 259,586 records. 17 records were corrupted and thus dropped from the analysis.

[2] Police Executive Research Forum (PERF). (2015). *Critical response technical assessment review: Police accountability - findings and national implications of an assessment of the San Diego Police department.* Washington, DC: Office of Community Oriented Policing Services, U.S. Department of Justice.

[3] Cordner, G., Williams, B., & Zuniga, M. (2001). *San Diego Police Department vehicle stop study: Year-end report.* San Diego, CA.

darkness' technique, our chosen approach, allows the researcher to isolate the effect of race/ethnicity from other factors by comparing the distribution of stops made during daylight hours, when the race/ethnicity of the driver is more apparent, to those made after sundown, when driver race/ethnicity is obscured by darkness. We complete the Chapter by comparing day-night stop patterns experienced by Asian/Pacific Islander (API), Black, Hispanic, and White drivers.

In Chapter 5 we present our analysis of post-stop outcomes, with a focus on examining how race/ethnicity affects the likelihood that a driver will have their person or vehicle searched and whether that search will lead to the discovery of contraband. We also examine how driver race/ethnicity influences the odds that a stopped driver receives a citation or is given a warning, is subject to a field interview, and whether the driver is ultimately arrested. The Chapter begins with a detailed discussion of the analytical approach driving our analysis. Propensity score matching is a technique that allows the researcher to match drivers based on a set of demographic and stop-related characteristics so as to isolate the effect of race. From there we present a detailed analysis of data on several post-stop outcomes, including searches, 'hit rates,' or the percentage of searches that lead to the discovery of illegal contraband, arrests, field interviews, and the issuance of citations and warnings.

We conclude the Report in Chapter 6 with a brief summary of our findings and a series of recommendations.

CHAPTER 2: POLICING IN SAN DIEGO

Introduction

San Diego, California is the eighth largest city in the United States and one of the country's most diverse places to live.[4] It is also one of the safest. As Figures 2.1 and 2.2 indicate, both violent and property crime in San Diego are relatively rare occurrences, compared to California's other major cities. Further, in 2014, the City of San Diego had the second lowest violent crime rate (3.81 per 1,000 residents) and property crime rate (19.59 per 1,000 residents) among the country's 32 cities with populations greater than 500,000.[5] Even with slight increases in 2015, the rates of both violent crime (up 5.3 percent from 2014) and property crime (up 7.0 percent) in San Diego remain at historically low levels.[6]

Despite these optimal circumstances, the recent history of the San Diego Police Department (SDPD) has been challenged by hiring and retention difficulties, allegations of misconduct, and public criticism.[7] In this Chapter, we discuss the context of policing in San Diego and briefly review the issues that precipitated this Report.

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[4] United States Census Bureau. (2015, May). Annual estimates of the resident population for incorporated places of 50,000 or more, ranked by July 1, 2014 population: April 1, 2010 to July 1, 2014. Retrieved Aug. 24, 2016, from http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk; Cima, R. (2015, August 11). The most and least diverse cities in America. Retrieved Aug. 24, 2016, from http://priceonomics.com/the-most-and-least-diverse-cities-in-america/.

[5] Burke, C. (2016, Apr.). Thirty-six years of crime in the San Diego region: 1980-2015. SANDAG, Criminal Justice Research Division. Retrieved Jul. 19, 2016, from http://www.sandag.org/uploads/publicationid/publicationid_2020_20533.pdf.

[6] Burke, C. (2016, Apr.). Thirty-six years of crime in the San Diego region: 1980-2015. SANDAG, Criminal Justice Research Division. Retrieved Jul. 19, 2016, from http://www.sandag.org/uploads/publicationid/publicationid_2020_20533.pdf.

[7] e.g., Dillon, L. (2014, Dec. 23). Misconduct issues will follow SDPD into 2015. *Voice of San Diego*. Retrieved Aug. 22, 2016, from http://www.voiceofsandiego.org/topics/government/misconduct-issues-will-follow-sdpd-into-2015/; Garske, M., & Stickney, R. (2014, Sept. 24). $5.9M paid to settle ex-cop Anthony Arevalos civil lawsuit. *NBC & San Diego*. Retrieved Nov. 8, 2016, from http://www.nbcsandiego.com/news/local/Anthony-Arevalos-Jane-Doe-Settlement-Details-SDPD-Sex-Crimes-277069491.html ; Kucher, K., Davis, K., & Repard, P. (2015, Mar. 17). Audit: SDPD flaws led to misconduct. *The San Diego Union Tribune*. Retrieved, Nov. 8, 2016, from http://www.sandiegouniontribune.com/sdut-police-misconduct-review-justice-2015mar17-htmlstory.html.

Figure 2.1.
Comparing violent crime rates across five major California cities
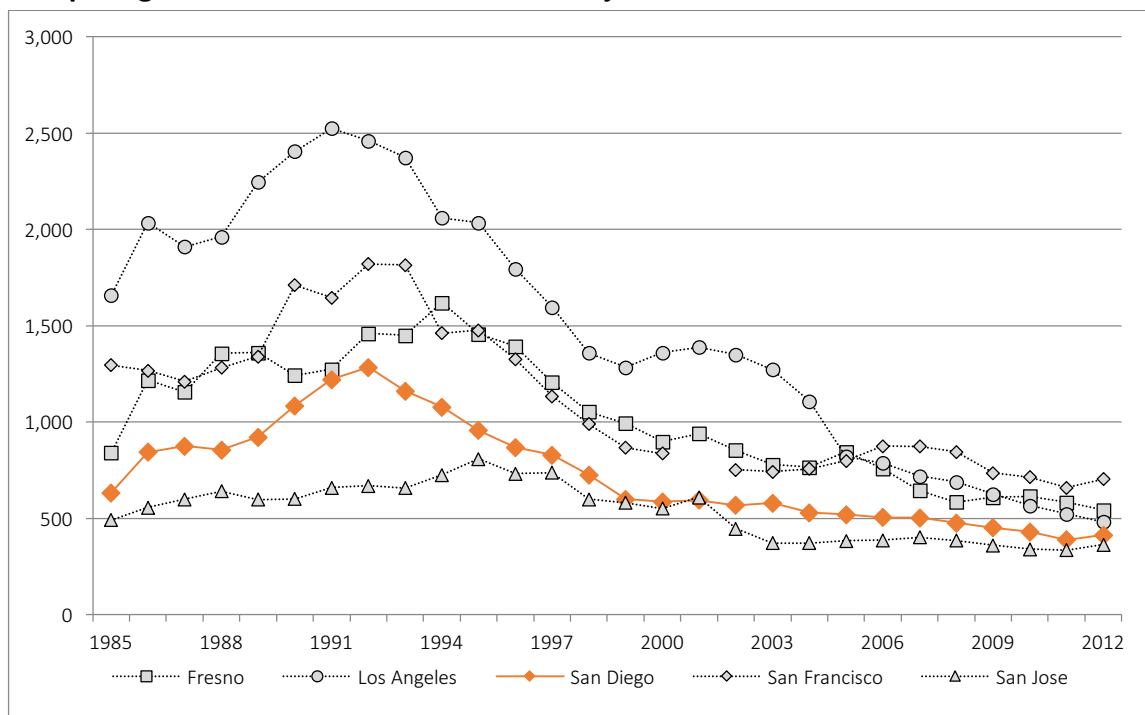
Source: Federal Bureau of Investigation (2012)

Figure 2.2.
Comparing property crime rates across five major California cities
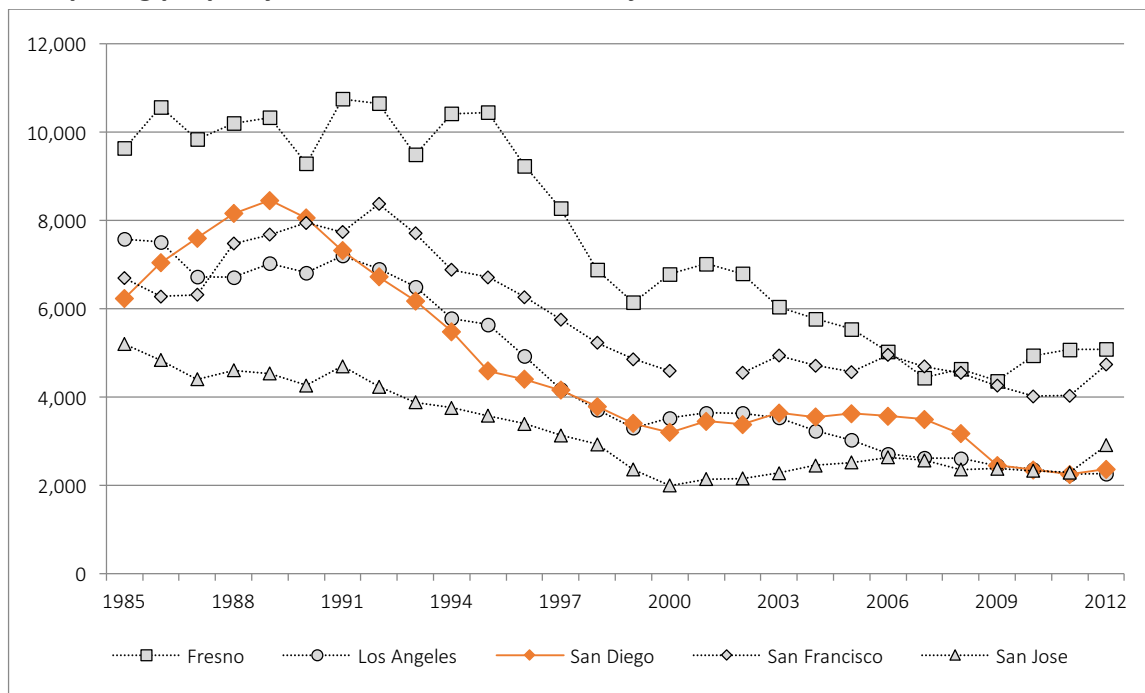
Source: Federal Bureau of Investigation (2012)

The San Diego Police Department

As of October 3, 2016, the San Diego Police Department (SDPD) employs 1,869 sworn officers, or about 1.4 sworn officers per 1,000 residents.[8] This ratio is notably lower than the average rate of police departments in other similarly sized American cities.[9] The department's ongoing struggle to hire and retain qualified officers has been well-publicized,[10] as have been the corresponding public safety and departmental morale concerns.[11]

Table 2.1.

Demographic profile of sworn SDPD officers, by race/ethnicity, gender, and year

Officer Race	Male	Female	Total	Citywide demographic profile
2014				
Asian/Pacific Islander	145 (7.7%)	23 (1.2%)	168 (9.0%)	20.2%
Black	108 (5.8)	10 (0.5)	118 (6.3)	5.5
Hispanic	319 (17.0)	65 (3.5)	384 (20.5)	27.0
White	1,011 (54.0)	193 (10.3)	1,204 (64.2)	47.2
2014 Total	*1,583 (84.5)*	*291 (15.5)*	*1,874 (100.0)*	*100.0*
2015				
Asian/Pacific Islander	142 (7.6%)	28 (1.5%)	170 (9.1%)	20.2%
Black	105 (5.6)	12 (0.6)	117 (6.3)	5.5
Hispanic	325 (17.4)	70 (3.7)	395 (21.2)	27.0
White	997 (53.4)	188 (10.1)	1,185 (63.5)	47.2
2015 Total	*1,569 (84.0)*	*298 (16.0)*	*1,867 (100.0)*	*100.0*

Note: Native American and 'Other' drivers included in the Asian/Pacific Islander category. Discrepancies in the percentage totals are owed to rounding error.

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[8] City of San Diego, Report to the City Council, Public Safety & Livable Neighborhoods Committee. (2016, October 26). San Diego Police Department Sworn, Civilian and Communication Staffing Update. Retrieved Oct. 30, 2016, from http://docs.sandiego.gov/councilcomm_agendas_attach/2016/psln_161026_2.pdf.

[9] Reaves, B. (2015, May). Local police departments, 2013: Personnel, policies, and practices. *U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics*. Retrieved Aug. 24, 2016, from http://www.bjs.gov/content/pub/pdf/lpd13ppp.pdf.

[10] e.g., Keats, A. (2016, Apr. 4). SD police hoping to rehire retirees — and it could save the chief's job too. *Voice of San Diego*. Retrieved Jul. 19, 2016, from http://www.voiceofsandiego.org/topics/government/sd-police-hoping-to-rehire-retirees-save-the-chiefs-job-too/; Repard, P. (2016, Mar. 11). More SDPD officers leaving despite better pay. *The San Diego Union-Tribune*. Retrieved Jul. 19, 2016, from http://www.sandiegouniontribune.com/news/2016/mar/11/sdpd-police-retention-hiring/

[11] e.g., Monroy, M. (2014, Sept. 20). SDPD's staffing problems are 'hazardous to your health.' *Voice of San Diego*. Retrieved Jul. 19, 2016, from http://www.voiceofsandiego.org/2014/09/20/sdpds-staffing-problems-are-hazardous-to-your-health/.

Per Table 2.1, despite efforts to diversify the force,[12] the demographic profile of the SDPD's sworn officers is disproportionately male and less racially and ethnically diverse than the citywide population.[13] The SDPD is not unique in its relative homogeneity. In fact, according to a recent *New York Times* analysis of 2007 FBI data, the "race/ethnicity gap" between the police and residents in other major cities, including Los Angeles, San Francisco, and many others, is far greater than in San Diego.[14] We also note that as of this writing SDPD's force is comprised of 16 percent female officers, slightly below the 17 percent average among departments serving cities with populations of 250,000 or more.[15]

Figure 2.3.
San Diego Police Department neighborhood divisions

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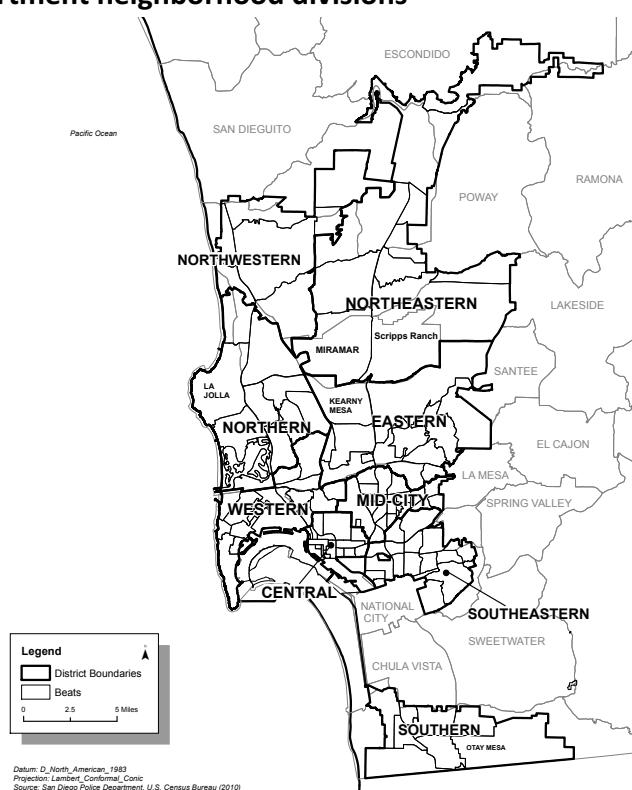
[12] Tragaser, C. (2015, Aug. 21). San Diego Police Department academy class sees increased diversity. KPBS.org. Retrieved July 28, 2016, from http://www.kpbs.org/news/2015/aug/21/san-diego-police-department-academy-class-sees-inc/.

[13] United States Census Bureau. (2015, August 12). State & County QuickFacts, San Diego (city), California. Retrieved Aug. 24, 2016, from http://quickfacts.census.gov/qfd/states/06/0666000.html.

[14] Ashkenas, J., & Park, H. (2015, April 8). The race gap in America's police departments. *The New York Times*. Retrieved from Aug. 11, 2016, from http://www.nytimes.com/interactive/2014/09/03/us/the-race-gap-in-americas-police-departments.html?_r=0.

[15] Reaves, B. (2015, May). Local police departments, 2013: Personnel, policies, and practices. U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. Retrieved Aug., 24, 2016, from http://www.bjs.gov/content/pub/pdf/lpd13ppp.pdf.

The Department divides patrol activities across nine geographic divisions, visible in Figure 2.3. These divisions vary greatly across several relevant categories, including residents' racial and ethnic composition, their socio-economic status, as well as the presence of both crime and police.

Table 2.2.

Racial/ethnic composition of SDPD patrol division residents, ages 15 and above

	Asian/PI	Black	Hispanic	White	Total
Above Interstate 8					
Northern	37,473 (19.0%)	3,440 (1.7%)	25,673 (13.0%)	130,299 (66.2%)	196,885 (100.0%)
Northeastern	63,499 (35.6)	5,184 (2.9)	18,239 (10.2)	91,654 (51.3)	178,576 (100.0)
Eastern	17,685 (14.9)	6,162 (5.2)	18,201 (15.3)	76,539 (64.5)	118,587 (100.0)
Western	13,232 (11.5)	4,136 (3.6)	20,014 (17.4)	77,629 (67.5)	115,011 (100.0)
Northwestern	15,380 (27.1)	510 (0.9)	3,908 (6.9)	36,889 (65.1)	56,687 (100.0)
Sub-total	*147,269 (22.1)*	*19,432 (2.9)*	*86,035 (12.9)*	*413,010 (62.0)*	*665,746 (100.0)*
Below Interstate 8					
Central	6,605 (8.2%)	6,213 (7.7%)	32,844 (40.9%)	34,728 (43.2%)	80,390 (100.0%)
Southeastern	32,904 (25.8)	22,024 (17.3)	59,397 (46.5)	13,344 (10.5)	127,669 (100.0)
Southern	10,524 (13.0)	2,999 (3.7)	58,859 (72.6)	8,701 (10.7)	81,083 (100.0)
Mid-City	20,364 (15.5)	12,751 (9.7)	51,516 (39.2)	46,800 (35.6)	131,431 (100.0)
Sub-total	*70,397 (16.7)*	*43,987 (10.5)*	*202,616 (48.2)*	*103,573 (24.6)*	*420,573 (100.0)*
Citywide total	217,666 (20.0)	63,419 (5.8)	288,651 (26.6)	516,583 (47.6)	1,086,319 (100.0)

Source: The City of San Diego.[16] Note: Percentage discrepancies reflect rounding error.

Table 2.2 displays the racial and ethnic breakdown of the Department's nine police divisions. The highest concentrations of Black residents are found in the Southeastern and Mid-City divisions, where White and Asian/PI populations are among their lowest. Similarly, Hispanic residents tend to reside in the Southern, Southeastern, and Mid-City divisions. Poverty is also concentrated in these neighborhoods. In fact, census tracts in these divisions are home to many of the San Diego's poorest residents.[17] Conversely, neighborhoods located above Interstate 8,[18]

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[16] The City of San Diego, Public Safety & Livable Neighborhoods Committee (2015, Feb. 13). Report to the City Council (Report No.15-016). Vehicle Stop Data Cards: January through December 2014. Retrieved Aug. 27, 2016, from http://docs.sandiego.gov/councilcomm_agendas_attach/2015/psln_150225_3.pdf.

[17] Kyle, K. (2012, August 6). Where San Diego's poorest live: Map. *The Voice of San Diego*. Retrieved Aug. 24, 2016, from http://www.voiceofsandiego.org/community/where-san-diegos-poorest-live-map/.

including those in the Northern, Northeastern, Northwestern, Eastern, and Western divisions, where income levels tend to be higher, are also home to greater percentages of White and API residents.

Figure 2.4.

Violent and property crime rate, by SDPD neighborhood division
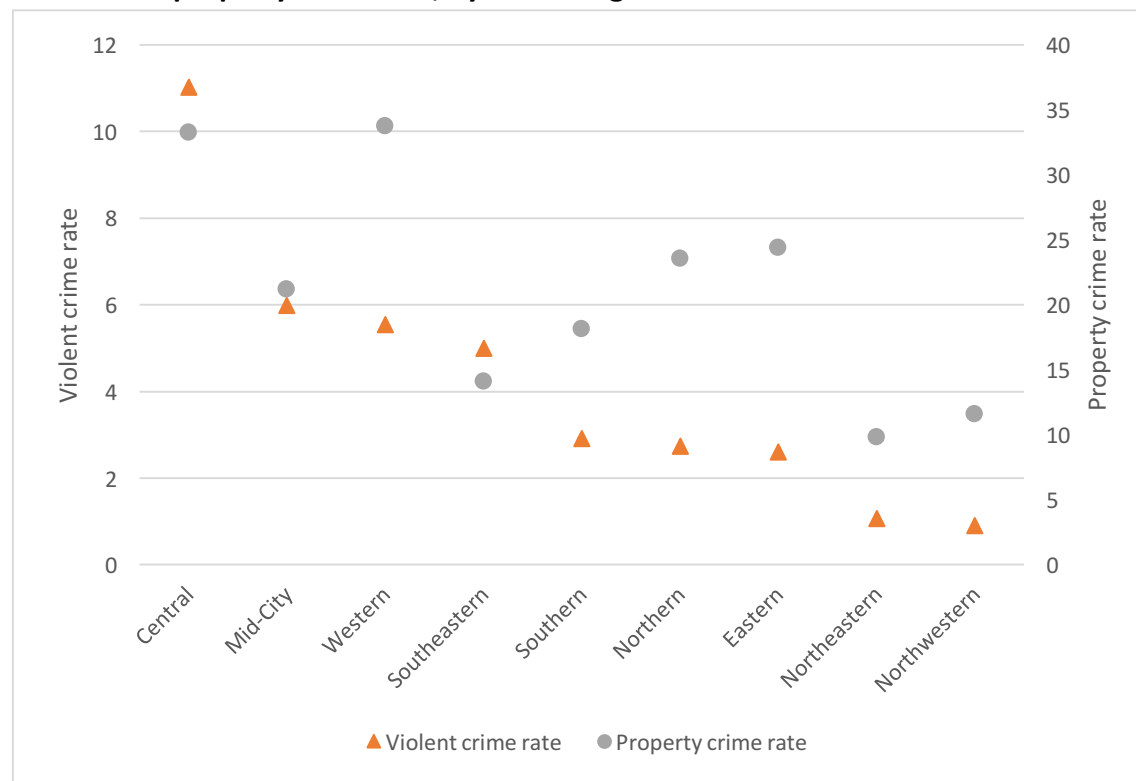
Source: The City of San Diego.[19]

Note: Crime rates are calculated per 1,000 patrol division residents and reflect data from 2014 and 2015.

Figure 2.4 highlights the relationship between property crime and violent crime across the nine divisions.[20] In 2014 and 2015, the highest rate of violent crime occurred in the Central division (11.0 incidents per 1,000 residents),[21] followed by the Mid-City (6.0) and Western (5.6)

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[18] We use Interstate 8 here and throughout the remainder of the Report as a rough point of demarcation for divisions and neighborhoods in the northern portion of the City and those in the southern portion of the City. The distinction between locations 'Above Interstate 8' and 'Below Interstate 8' is not exact, as two patrol divisions that we consider 'Above I-8' include small parcels of land located below I-8.

[19] See The City of San Diego, Actual Crimes by Neighborhood, 2014 and 2015, *Crime Statistics and Maps: Automated Regional Justice Information System (ARJIS)*. Retrieved Oct. 14, 2016, from https://www.sandiego.gov/police/services/statistics.

[20] See Appendix 1 for a detailed description of property and violent crime across the SDPD's nine patrol divisions in 2014 and 2015.

[21] According to the he SDPD, "Crime rates per 1,000 population are commonly used to compare crime in different areas, and work well for areas that have a significant residential population. Caution is advised when comparing

divisions. The highest rate of property crime occurred in the Western (33.7 per 1,000 residents), Central (33.2), and Eastern divisions (24.4).[22] On average, in 2014 and 2015, violent crime was more likely to occur below Interstate 8 (6.2 incidents per 1,000 people) than in divisions to the north of the highway (2.6), while the property crime rates were similar in each location (21.6 below Interstate 8 compared to 20.6 above Interstate 8).

Figure 2.5 shows the relationship between a division's crime rate and the allocation of non-traffic patrol officers.[23]

Figure 2.5
The relationship between division crime rates and the allocation of SDPD patrol officers
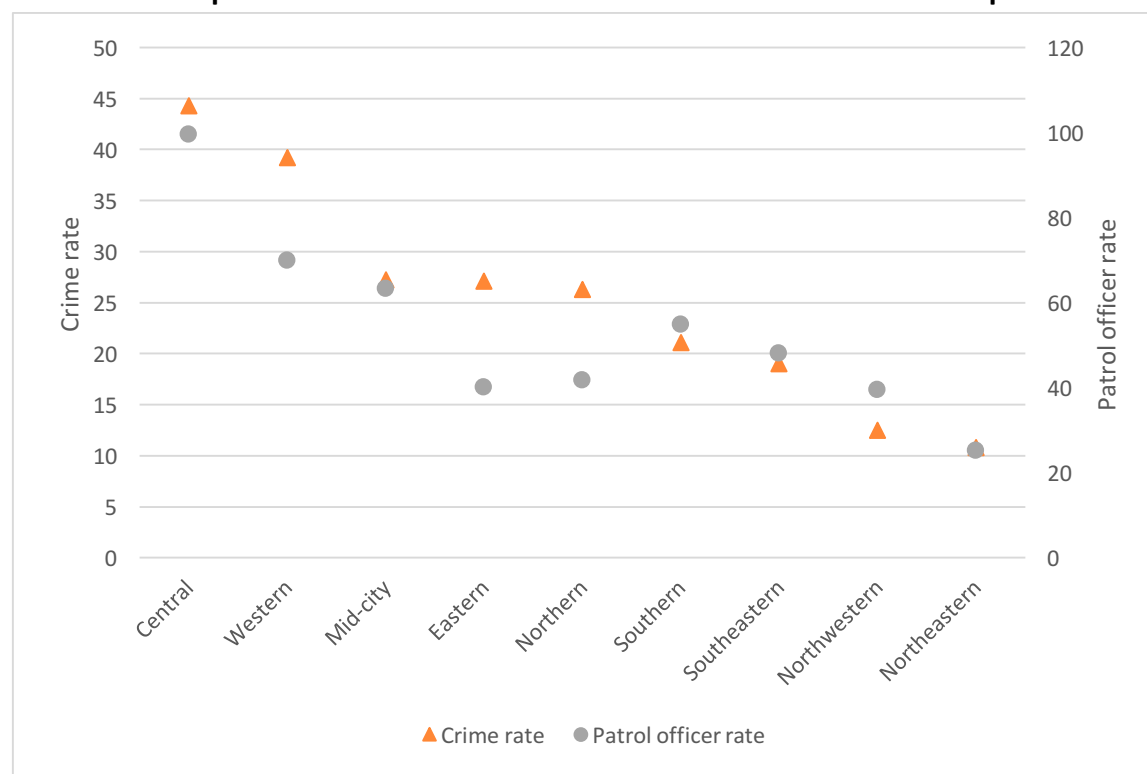
Source: San Diego Police Department, City of San Diego.
Note: Crime data reflect averages from 2014 and 2015 per 1,000 residents. Officer rates, which also reflect the average between 2014 and 2015, are listed per 100,000 residents.

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crime rates in areas with few residents, especially areas with significant daytime population due to large recreational and/or commercial areas, since crime rates use residential population figures. Higher crime rates can be expected in areas such as downtown, where the large daytime working population and nighttime entertainment district crowds are not included in the area's residential population."
[22] The correlation coefficient (Pearson's r) between violent and property crime is 0.719, indicating a moderately positive relationship between violent and property crime.
[23] The two variables are strongly correlated (Pearson's r = 0.8725), which means that high crime rates are associated with high patrol officer presence.

The highest concentration of non-traffic patrol officers occurs in those divisions with the highest crime rates, including the Central (99.5 officers per 100,000 residents), Western (69.8), and Mid-City (63.3) divisions. (A full documentation of officer allocation by division is found in Appendix 1.) The SDPD did not provide us with data on the geographic allocation of traffic-specific officers, who are not assigned to a particular division and thus may patrol anywhere in the City's jurisdiction.

To summarize, Black and Hispanic San Diego city residents tend to live in different neighborhoods than their White and Asian/PI counterparts. Neighborhoods south of Interstate 8, including those in the Central, Mid-City, Southern, and Southeastern Divisions, are more racially and ethnically diverse than those located north of Interstate 8, and some – but not all – of these divisions tend to face higher than average crime rates. Police presence is also higher in those predominantly non-White Divisions.

Police-Community Relations
In this section, we review the recent history of the Department with the hope of providing context for our analysis of the 2014 and 2015 traffic stop data.

In early 2014, following several high profile incidents of officer misconduct, former SDPD Chief William Lansdowne sought assistance from the U.S. Department of Justice's (DOJ) Office of Community Oriented Policing Services (COPS Office) in reviewing the Department's management of officer misconduct cases, their approach to recruitment and background screening, and the operation of the SDPD internal affairs unit. The COPS Office hired the Police Executive Research Forum (PERF) to conduct the assessment.

The 2015 PERF Report,[24] which detailed the findings of the yearlong audit, identified a series of organizational, policy, and personnel weaknesses that contributed to the Department's misconduct problems. The report set a comprehensive reform agenda designed to strengthen the SDPD's ability to prevent misconduct and respond effectively to incidents that do occur. PERF also made clear that the misconduct scandals had undermined the Department in the eyes of San Diego City residents, particularly among communities of color. The authors repeatedly underscored the importance of Department attention to issues of racial/ethnic bias, at one point noting that,

> the most common suggestions heard from community members regarding how to

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[24] Police Executive Research Forum (PERF). (2015). *Critical response technical assessment review: Police accountability - findings and national implications of an assessment of the San Diego Police department.* Washington, DC: Office of Community Oriented Policing Services, U.S. Department of Justice.

improve policing in San Diego were to increase police-community engagement through proactive and positive interactions and to address issues of perceived bias, especially racial bias.[25]

This was not the first time the Department had been accused of racial/ethnic bias. In fact, in 2000, a very similar set of issues motivated SDPD leadership to request an independent review of traffic stop data nearly identical to the one we have undertaken here.

Revisiting the 2000 and 2001 data

In January 2000, in response to "concern… expressed by some community members about whether they [were] being treated fairly in contacts with law enforcement,"[26] SDPD officers began capturing information about every traffic stop conducted in San Diego. Dr. Gary Cordner, a criminologist at Eastern Kentucky University at the time, analyzed these data in an effort to address the extent to which officer stop and post-stop decision-making reflected race-based disparities.

Table 2.3.
SDPD traffic stop card data from 2000 and 2001

	2000	2001
Vehicle Stops	168,901	121,013
Citation rate (%)	66.1	68.8
Search rate (%)	6.4	7.1
Hit rate (%)	8.9	8.4
Arrest rate (%)	1.9	1.9

High-level descriptive data from traffic stop cards gathered in 2000 and 2001 are shown in Table 2.3. Officers completed significantly fewer stop cards in 2001 than in 2000, yet remained fairly consistent from year to year in terms of post-stop activity, including the rate at which stopped drivers were given citations, searched, and arrested.

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[25] Police Executive Research Forum (PERF). (2015). *Critical response technical assessment review: Police accountability - findings and national implications of an assessment of the San Diego Police department.* Washington, DC: Office of Community Oriented Policing Services, U.S. Department of Justice, p. 22

[26] Cordner, G., Williams, B., & Zuniga, M. (2001). *San Diego Police Department vehicle stop study: Year end report.* San Diego, CA, p. ii.

The 28.4 percent decline from 2000 to 2001 led Cordner and his colleagues to openly question the accuracy of the 2001 data. The authors argued that the "very substantial decrease raises serious questions about the validity of the vehicle stop data. One question is whether officers always filled out the vehicle stop forms – the answer to this is clearly no."[27] They went on to assert that the officers' non-compliance in completing traffic stop cards "was a bigger problem in more ethnically-diverse and less-affluent divisions, possibly skewing the data."[28] The researchers were unable to interpret how the missing data may have affected the rate of post-stop activity, or draw conclusions about whether unrecorded post-stop activity may have disproportionately affected certain racial/ethnic groups. As such, they urge caution in the interpretation of data gathered in 2001.

Table 2.4.
SDPD search rates in 2000 and 2001, by driver race/ethnicity

	2000	2001
Asian/Pacific Islander	3.2%	3.3%
Black	10.1	11.1
Hispanic	11.4	12.7
White	3.2	4.1

Source: Cordner et al. (2001; 2002)
Note: These data reflect what Cordner et al. term "chances of being searched" and are based on a raw comparison of search rates across all stop and search types.

As will be discussed in detail in Chapter 4, isolating the influence of driver race/ethnicity on an officer's decision to stop a driver is a complicated task. The central challenge, noted by the Cordner-led team and many others,[29] is identifying the appropriate benchmark against which to compare race-based stop patterns. After acknowledging the absence of a "reliable method of determining the actual ethnic composition of the driving population," the Cordner et al. study proceeded to compare the racial/ethnic composition of drivers stopped to the City's demographic profile according to the U.S. Census. In 2000, "Hispanics represent 20.2% of the city's driving-age population but 29.0% of vehicle stops; the comparable numbers for African

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[27] Cordner, G., Williams, B., & Velasco, A. (2002). *San Diego Police Department vehicle stops in San Diego: 2001*. San Diego, CA, p. 1.

[28] Cordner, G., Williams, B., & Velasco, A. (2002). *San Diego Police Department vehicle stops in San Diego: 2001*. San Diego, CA, p. 2

[29] Engel, R.S., & Calnon, J.M. (2004). Comparing benchmark methodologies for police-citizen contacts: Traffic stop data collection for the Pennsylvania State Police. *Police Quarterly*, *7*(1), 97-125; Fridell, L.A. (2004). *By the numbers: A guide for analyzing race data from Vehicle Stops*. Washington, D.C.: Police Executive Research Forum; Ridgeway, G. & MacDonald, J. (2010). Methods for assessing racially biased policing. In S.K. Rice & M.D. White (Eds.) *Race, ethnicity, and policing: New and essential readings* (pp. 180-204). New York: New York University Press.

Americans are 8.0% and 11.7%, respectively."[30] The 2001 data showed similar disparities for both Black and Hispanic drivers.[31]

Cordner and colleagues also examined the influence of driver race/ethnicity on officers' decision to conduct a search of the driver, passenger, or vehicle. Unlike with traffic stop data, researchers are not reliant upon benchmarks to assess the influence of race/ethnicity on post-stop outcomes, like citation and search rates. As Table 2.4 shows, in 2000 and 2001, Black and Hispanic drivers were searched at higher rates than either White or Asian/PI drivers.

Table 2.5.
Hit rates in 2000 and 2001, by driver race/ethnicity

	2000	2001
Asian/Pacific Islander	9.2%	10.1%
Black	13.9	12.4
Hispanic	5.1	5.0
White	13.1	11.7

Note: These data reflect a raw comparison of hit rates across all stop and search types.

Table 2.5 shows the 'hit rate,' or the percentage of searches that led to the discovery of contraband, achieved by SDPD officers in 2000 and 2001. Hit rates varied considerably by driver race/ethnicity while remaining fairly consistent from year to year. Black drivers were most likely to be found with contraband, followed closely by Whites. Hispanic drivers were more likely to be searched than any other racial/ethnic group, yet searches involving Hispanic drivers were substantially less likely to uncover possession of contraband.

For several reasons, most saliently the low quality of the 2001 data, we agree with Dr. Cordner's recommended cautious interpretation of these results. With that said, Cordner's analysis of data from stop cards completed in 2000 and 2001 appear to show race-based disparities in SDPD officers' decision to initiate a traffic stop and various post-stop actions, including the decision to search. However, without evidence to show that post-stop outcomes were the result of race-based decisions, we cannot assume this causal link. As we discuss in Chapter 4, this is why the veil of darkness technique is so important as it controls for factors other than race/ethnicity in the decision to make a stop.

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[30] Cordner, G., Williams, B., & Zuniga, M. (2001). *San Diego Police Department vehicle stop study: Year end report*. San Diego, CA, p. vii.
[31] Cordner, G., Williams, B., & Velasco, A. (2002). *San Diego Police Department vehicle stops in San Diego: 2001*. San Diego, CA.

CHAPTER 3: DESCRIPTION OF THE DATA

In Chapter 3, we describe the data used for this Report, beginning with the administrative records generated by the SDPD following traffic stops conducted between January 1, 2014 and December 31, 2015. From there we go on to detail the process used to gather the perspectives of SDPD staff and members of the community.

Traffic Stop Data

When an SDPD officer completes a traffic stop, they are required under Department policy to submit what is known as a 'vehicle stop card' (see Appendix 2 for a copy of the card). Officers use the stop card to record basic demographic information about the driver, including their race, gender, age, and San Diego City residency, along with the date, time, location (at the division level), and reason for the stop. There are also fields for tracking what we term 'post-stop outcomes,' including whether the interaction resulted in:

- the issuance of a citation or a warning;
- the initiation of a field interview;
- a search of the driver, passenger(s), and/or vehicle;
- the seizure of property;
- discovery of contraband; and/or
- an arrest.

Lastly, the stop card gives officers space to provide a qualitative description of the encounter. When included, these data tend to explain why a particular action was taken or to describe the type of search conducted or contraband discovered.

Compared to other cities,[32] the vehicle stop card is a solid tool for tracking officer activity and for identifying trends in the enforcement of existing traffic law. As we will discuss in Chapter 6, however, there is substantial room to improve the SDPD's current data collection efforts. Regardless of what this system looks like, the Department should consider including several data points recommended by the U.S. Department of Justice.[33] The most important potential additions include:

- race/ethnicity and gender of the officer involved;
- specific geo-location of the stop/search;

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[32] See, for example, Engel, R.S., Tillyer, R., Cherkauskas, J.C., & Frank, J. (2001, Nov. 1). *Traffic Stop Data Analysis Study: Year 1 Final Report*. Cincinnati, OH: University of Cincinnati Policing Institute. Retrieved Sept. 5, 2016, from http://www.azdps.gov/about/reports/docs/Traffic_Stop_Data_Report_2007.pdf.

[33] McMahon, J., & Kraus, A. (2005). *A suggested approach to analyzing racial profiling: Sample templates for analyzing car-stop data*. Washington, DC: Office of Community Oriented Policing Services, U.S. Department of Justice. Retrieved Aug. 12, 2016 from http://ric-zai-inc.com/Publications/cops-p071-pub.pdf.

- make, model, and vehicle condition; and
- driver/passenger demeanor.

While our analysis was limited by the absence of this information, the incomplete and inconsistent quality of the data, which we discuss in the following section, was a more substantial challenge.

Missing and inconsistent data

Of the several challenges we faced in converting the raw files we received from the SDPD into a reliable dataset, missing data was the most significant: 19.0 percent of the combined 259,569 stop records submitted in 2014 and 2015 were missing at least one piece of information. As Table 3.1 shows, the data were comprehensive on driver race/ethnicity and gender, as well as the date, time, location, and reason for the stop, but were less so in documenting the driver's age and residency status.

Several post-stop variables also contained high levels of missing data, including information on whether a citation was issued (10.6 percent), and whether the driver was subject to a field interview (7.9 percent) or a search (4.4 percent). There was also an exceedingly high number – 93 percent – of missing cases associated with the discovery of contraband and the seizure of property, raising questions about the reliability of these data. This may be reflective of the database management rather than either officer carelessness or non-compliance. For example, an officer simply may not have filled out a response for contraband, which would have been irrelevant if a search did not occur during a stop.

Table 3.1.

Information missing from the 2014 and 2015 datasets

Stop Feature	2014	2015
Demographic/stop description		
Driver race	222 (0.2%)	2 (<0.1%)
Driver age	8,655 (6.0)	0 (0.0)
Driver gender	213 (0.2)	232 (0.2)
Residency status	4,622 (3.2)	11,372 (9.9)
Stop location	3,160 (2.3)	3,315 (2.9)
Reason for stop	212 (0.2)	0 (0.0)
Stop time	482 (0.3)	408 (0.4)
Stop date	0 (0.0)	0 (0.0)
Post-stop outcomes		
Citation issued	11,126 (7.7)	16,352 (14.2)
Field interview conducted	4,045 (2.8)	16,352 (14.2)
Search conducted	2,044 (1.4)	9,447 (8.2)
Contraband discovery	132,782 (92.1)	109,420 (94.8)
Property seized	132,806 (92.1)	109,459 (94.8)
Arrest	1,872 (1.3)	8,845 (7.7)

2014: N = 144,164; 2015: N = 115,405

Analyzing patterns of missing data can help explain how and why the omissions occurred and provide some insight into what they mean for the reliability of the dataset and its effect on the broader analysis.

Figure 3.1 tracks changes in the volume of missing demographic and post-stop data over time. Of all stop cards submitted in 2014, 17.4 percent were missing at least one piece of information.[34] Nine percent were missing demographic data, 6.1 percent were missing only post-stop data, and 2.3 percent were missing some of both.

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[34] This figure does not include data from either the 'contraband discovery' or 'property seized' variables.

Figure 3.1.

Tracking missing data, by month
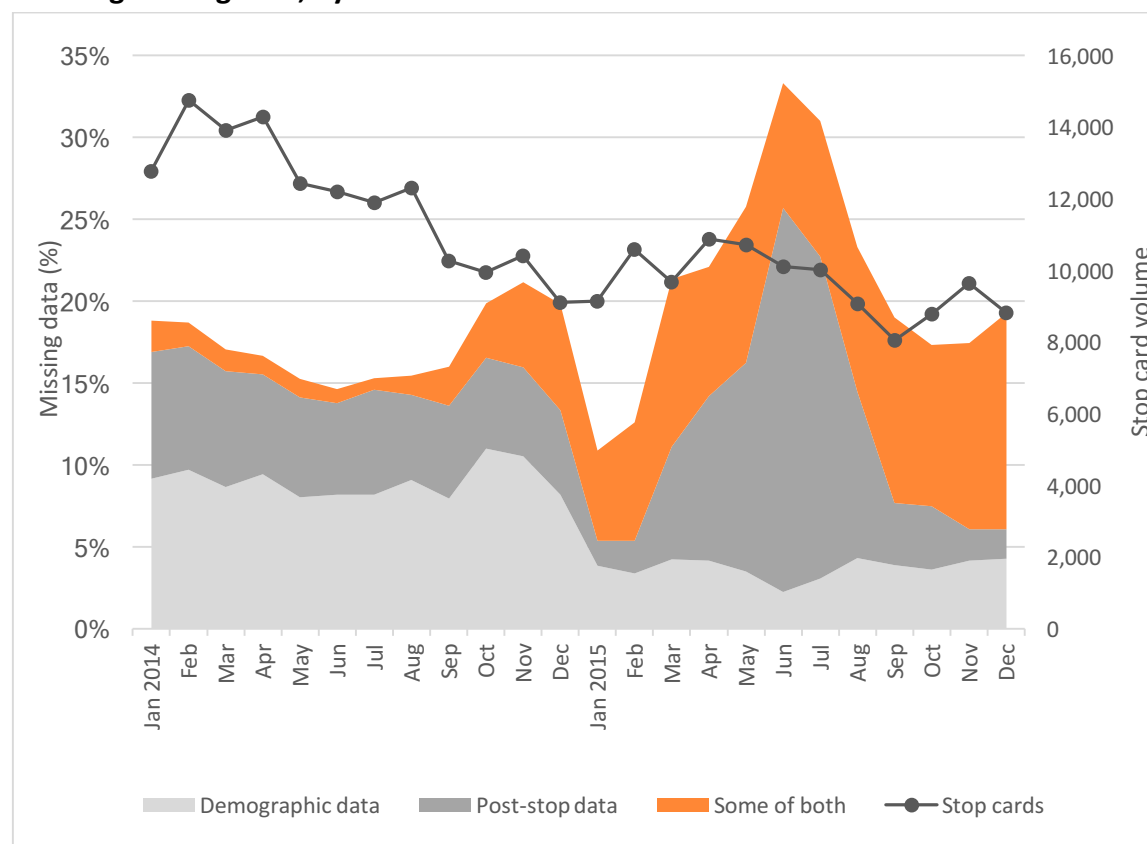
Note: Figure 3.1 does not include figures for data missing from either the 'contraband discovered' or 'property seized' variables.

In 2015, 21.1 percent of stop cards were missing at least one piece of information, with nearly half of those missing both demographic and post-stop information. A significant spike of stop cards missing both field interview and citation data occurred between March and August of that year, raising questions about the quality of these data during that period. We also note that the volume of missing data increased as monthly stop totals reached their lowest levels. In other words, the quality of the stop card data declined across the year along with the number of both recorded stops and searches.

Table 3.2 lists missing data by patrol division. The highest percentage of incomplete stop cards were filed in the Southeastern division (24.1 percent), followed by the Central (21.1 percent) and Southern divisions (20.0 percent). These findings, together with the data shown in Table 3.3, which lists missing records by driver race, suggest that this dataset does not provide the full picture of traffic stops in San Diego, particularly of those involving minority drivers and drivers stopped in divisions located below Interstate 8. As we noted previously, this is the exact pattern

that prompted Gary Cordner and his colleagues to question the validity and reliability of the 2000 and 2001 data.[35]

Table 3.2.

Incomplete stop cards submitted in 2014 and 2015, by police division

	Stop cards submitted	Missing demographic data	Missing post-stop data	Missing both types of data	Total incomplete
Above Interstate 8					
Northern	37,203	1,872 (5.0%)	3,567 (9.6%)	965 (2.6%)	17.2%
Eastern	31,788	1,505 (4.7)	2,217 (7.0)	1,467 (4.6)	16.3
Northwestern	16,306	903 (5.5)	802 (4.9)	784 (4.8)	15.3
Western	30,078	1,247 (4.1)	2,242 (7.5)	784 (2.6)	14.2
Northeastern	31,692	950 (3.0)	1,242 (3.9)	1,020 (3.2)	10.1
Sub-total	*147,067*	*6,477 (4.4)*	*10,070 (6.8)*	*5,020 (3.4)*	*14.7*
Below Interstate 8					
Southeastern	19,292	1,773 (9.2%)	1,866 (9.7%)	1,002 (5.2%)	24.1%
Central	29,692	1,429 (4.8)	3,070 (10.3)	1,756 (5.9)	21.1
Southern	29,351	705 (2.4)	1,362 (4.6)	3,791 (12.9)	20.0
Mid-City	27,692	1,309 (4.7)	2,304 (8.3)	1,034 (3.7)	16.8
Sub-total	*106,027*	*5,216 (4.9)*	*8,602 (8.1)*	*7,583 (7.2)*	*20.2*
City-wide total	*253,094*	*11,693 (4.6)*	*18,672 (7.4)*	*12,603 (5.0)*	*17.0*

Note 1: Missing data do not include variables indicating the discovery of contraband or property seizure.
Note 2: Table 3.2 does not include the 6,475 stop records submitted without stop location information, which explains the discrepancy between the city-wide totals listed here and those refrenced elsewhere in the Report.

The frequent incidence of missing data reduced the quality of our analysis and raises concerns over whether the stop card records provide a complete picture of traffic stops in San Diego. These concerns are compounded by the unexplained changes in monthly traffic stop volume during the time period we analyzed.

Many of the questions raised about the quality of the data used in the 2000 and 2001 analysis were driven by a substantial decrease – 28.4 percent – in the number of data cards submitted between the first and second year of the Cordner team's analysis. We find a similar pattern in

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[35] Cordner, G., Williams, B., & Velasco, A. (2002). *San Diego Police Department vehicle stops in San Diego: 2001*. San Diego, CA.

the 2014 and 2015 data, as is shown in Figure 3.2. In 2015, SDPD officers completed 115,405 stop cards, nearly 20 percent fewer than the 144,164 completed in 2014.

Table 3.3.

Incomplete stop cards submitted in 2014 and 2015, by driver race/ethnicity

	Stop cards submitted	Missing demographic data	Missing post-stop data	Missing both types of data	Total incomplete
Asian/Pacific Islander	41,021	2,625 (6.4%)	2,429 (6.4%)	1,922 (4.7%)	17.5%
Black	28,535	2,136 (7.5)	2,577 (7.5)	1,302 (4.6)	19.6
Hispanic	77,934	5,258 (6.7)	5,584 (6.7)	5,563 (7.1)	20.0
White	111,855	7,051 (6.3)	8,082 (6.3)	4,690 (4.2)	17.7
Total	259,345	17,070 (6.6)	18,672 (7.2)	13,477 (5.2)	19.0

Note: These data do not include the 224 stop records submitted without driver race/ethnicity.

Data from 2000 and 2014, the first years of each study, show steep declines over the course of the year, while the volume in 2001 and 2015 is substantially lower, and comparatively flat from month to month. In January 2000, SDPD officers recorded 20,487 stops, nearly twice the annual low of 11,094, from December of that year. In 2014, there was a 39 percent drop from 14,745 stops recorded in February, that year's busiest month, to the 8,988 submitted in December, the slowest. Contrast that with 2001 and 2015, where the high-to-low monthly differences were 28.0 percent and 18.9 percent, respectively.

Figure 3.3 indicates that despite changes in the volume of stop cards and in the rate of missing data reported, the proportion of stops by race/ethnicity remained relatively stable. These figures help to address some concerns that the decline in stops recorded, and the overall quality of the data produced, may have disproportionately affected one or more groups of drivers, or that the downward trends indicate overt race-driven data manipulation.

In sum, the volume of stop cards submitted by SDPD officers has steadily declined between January 2014 and December 2015. Over that same period, the number of incomplete cards increased, with a disproportionate number involving traffic stops occurring in higher-minority divisions located below Interstate 8. We do not know whether these trends reflect a change in SDPD policy and/or leadership, a natural seasonal shift in driving patterns, or some other factor.

Finally, we note what appears to be substantial under-reporting of traffic stops. On August 9, 2016, we received complete judicial records of citations issued in San Diego between January 1, 2014 and December 31, 2015. These records are drawn from the physical citations issued by

SDPD officers and are wholly distinct from the vehicle stop card records that form the basis of our broader analysis. And because traffic citations are subject to judicial oversight, they are a more accurate reflection of officer activity than are the stop card records, which are not subject to external verification.

Figure 3.2.

Comparing monthly traffic stop volume, by year
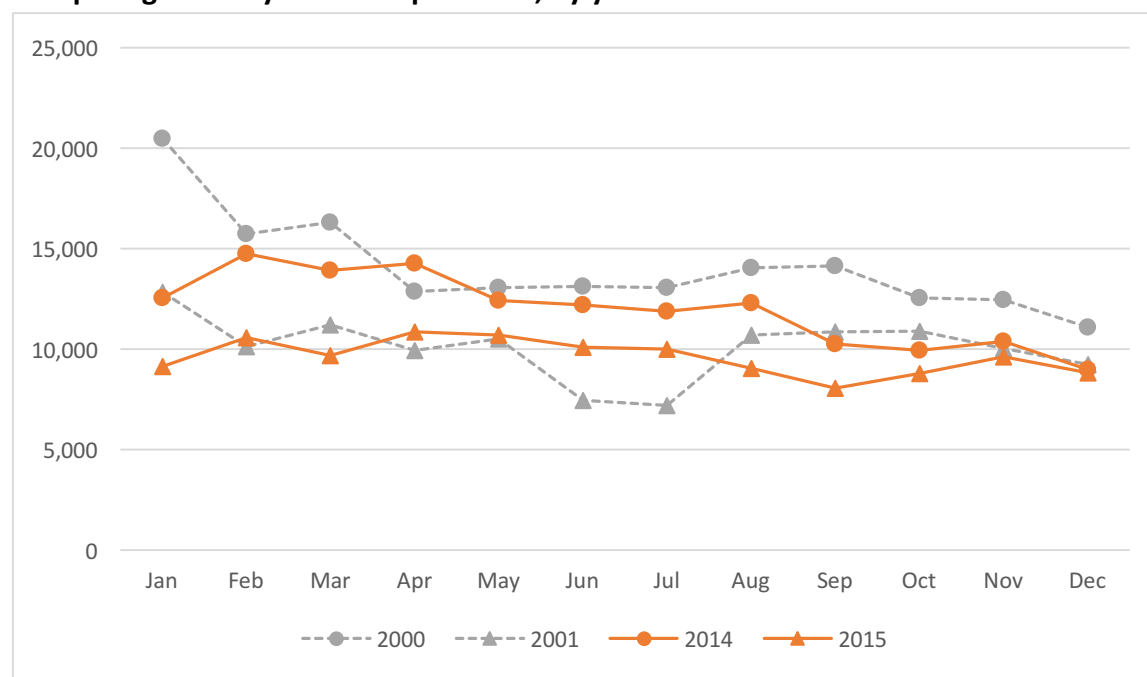
According to these data, the SDPD issued 183,402 citations over this two-year period, a sum 26.1 percent greater than the 145,490 citations logged by officers via the traffic stop data card. As is shown in Table 3.4, we used stop card citation rates for each racial/ethnic group to generate rough estimates of unreported traffic stops. All told, we estimate that the SDPD conducted somewhere between 60,000 and 70,000 traffic stops for which no stop card information was submitted.[36] We do note that the racial/ethnic composition of the stop card citation records largely reflects the composition of the actual citations issued, which suggests that the under-reporting was not race-determinative.

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[36] These calculations reflect at least one major assumption. We are forced to assume that the SDPD underreported citation stops at the same rate as non-citation stops. Because we do not have records of warnings given, there is no way to confirm this one way or another. We also highlight the possibility that the discrepancy between stop card records of citations issued and judicial records of citations issued may reflect missing data. In fact, 27,478 stop cards issued in 2014 and 2015 were missing information about the issuance of a citation.

Figure 3.3.

Monthly traffic stop percentages, by driver race/ethnicity
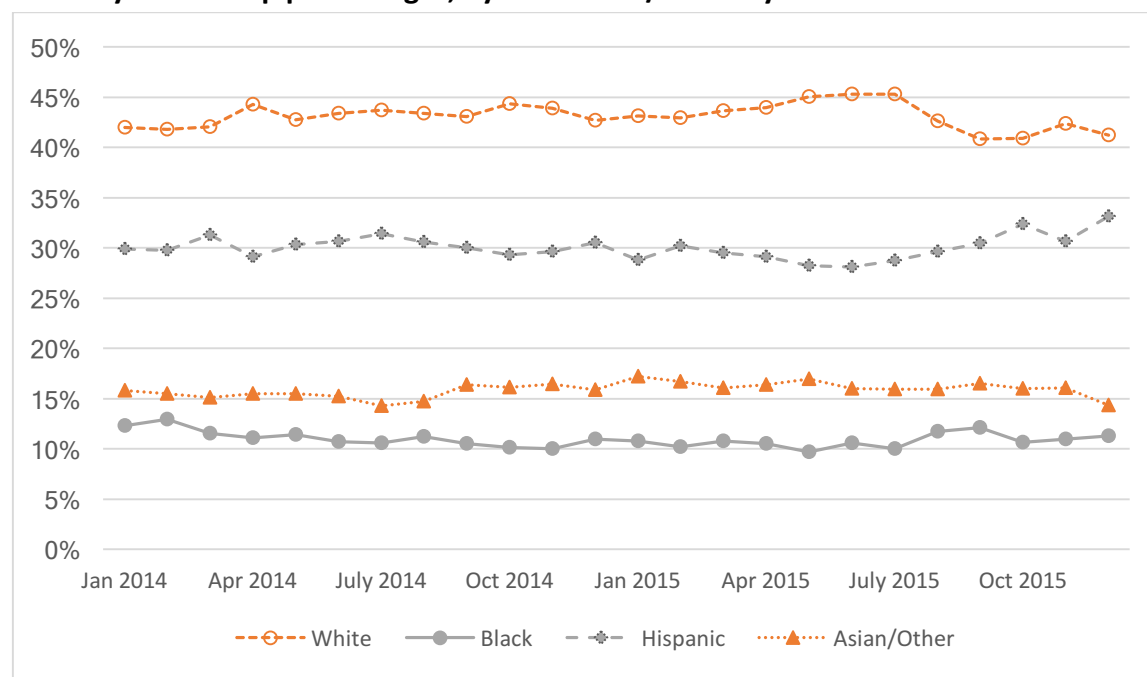
Taken together, the missing and underreported data affect the reliability of the stop card dataset. In our recommendations (Chapter 6), we discuss several ways in which the SDPD might enhance its data collection activities to ensure a full and accurate record of its traffic enforcement regime.

Table 3.4.

Comparing judicial citation records with stop card citation records

	Stop cards issued	Stop card citation records	Citation rate*	Judicial citation records	Projected traffic stops
Asian/Pacific Islander	41,021	23,483 (16.1%)	57.2%	33,919 (18.5%)	59,251
Black	28,535	13,160 (9.1)	46.1	17,040 (9.3)	36,948
Hispanic	77,934	44,165 (30.3)	56.7	55,674 (30.4)	98,243
White	111,855	64,682 (44.5)	57.8	76,769 (41.9)	132,757
Total	*259,345*	*145,490 (100.0)*	*56.1*	*183,402 (100.0)*	*326,926*

*Based on 2014 and 2015 stop card records.

Note: The 224 stop records submitted without driver race/ethnicity data account for the difference between the totals listed in Table 3.4 and those referenced throughout the Report.

Contextual data collection

To supplement our examination of the stop card data, we collected an array of additional data to better understand what transpires during traffic stops as well as to provide context around the state of police-community relations in San Diego.

Community focus groups

We sought to capture San Diego residents' experiences with and perceptions of policing – and of traffic stops in particular – through community focus groups. Focus group interviews are useful for extracting detailed information about individuals' and groups' feelings, perceptions and experiences, and are typically more cost- and time-effective than conducting individual interviews. Because focus groups can help facilitate a safe space where participants can share their ideas with others of similar backgrounds, the group context can be especially useful for gleaning information from participants who otherwise might be reluctant to express themselves openly about certain topics.

The SDSU research team collaborated with Harder+Company, a local research company with expertise in facilitating such group discussions. We held focus groups in four SDPD police divisions: Central, Mid-City, Southern, and Southeastern. We selected these divisions because they have the highest levels of crime, police activity, and racial/ethnic diversity. Harder+Company assisted SDSU researchers in focus group recruitment, staffing, and transcription. SDSU researchers attended and observed focus groups and undertook qualitative analyses of the interview data.

Participants were recruited through announcements placed through a variety of channels, including: Craigslist, restaurants, community centers, barber shops, libraries, and other local businesses. Selection criteria for focus group participation included that participants must be:

- between the ages 18 and 55;
- comfortable speaking in either English or Spanish; and
- a current resident of one of the communities served by the four identified SDPD divisions.

Additionally, during the screening process, we oversampled for young adults (ages 18 to 30), Blacks, Hispanics, and people who self-reported as regular drivers. These oversampling decisions were made based on empirical literature that indicates that these are the demographic groups most likely to be stopped while driving. Given that the focus group participants were not randomly selected from the population of City (or division) residents, findings from our discussions are therefore not necessarily representative of all residents' (or

those divisions' residents') perceptions. Although our sampling technique is a common and appropriate one for this type of qualitative research, it limits our ability to generalize the findings or draw inferences to the larger population.

During the Spring and Summer of 2016, we held 10 community focus groups with a total of 50 participants. Table 3.5 summarizes the number of participants by police division. Due to having to comply with Institutional Review Board requirements regarding protection of our participants' identities, we were unable to capture precise demographics. We captured this information during the recruitment and screening process, but in order to ensure anonymity, we were unable to verify participants' identities. However, of the 55 people who expressed interest in participating and met our screening criteria: 21.8% identified as Black or African-American; 32.7% identified as Hispanic or Latino; 31% identified as White or Caucasian; 3.6% identified as Asian-American; and 11% identified as another race/ethnicity not otherwise captured.

Focus group questions sought to gather information about community residents' perceptions of:

- community safety;
- the visibility and presence of police;
- the extent to which residents trust the police;
- experiences being stopped by the police while driving;
- how race/ethnicity shapes interactions with the police; and
- what improved police-community relationships might entail.

Focus group participants were provided a light meal and a $20 gift card.

Table 3.5.
Focus groups and participants

Division	Number of groups	Participants
Central	2	10
Mid-City	3	24
Southern	3	12
Southeastern	2	4
Total	*10*	*50*

From May to June 2016, the SDSU research team conducted a department-wide, electronic survey of all 1,867 active SDPD officers. Table 3.6 lists basic descriptive information for the 365 respondents (response rate = 19.5 percent). Officers were asked about several pertinent issues, including:

- the extent to which they believe San Diego residents trust the police;
- whether recent events involving the police nationally (e.g., Ferguson, MO) have made their jobs more difficult;
- the process of collecting traffic stop data;
- how race/ethnicity shapes police interactions with the public–both generally and in the context of traffic stops; and
- how the SDPD handles the issue of racial/ethnic bias, both in training its officers and in handling incidents of race-based misconduct.

Table 3.6
Descriptive statistics for police officer survey respondents

	Frequency	Percent
Race/ethnicity		
Asian	11	3.0
Black	9	2.5
Hispanic	51	14.0
White	203	55.6
Other	47	12.9
No response	44	12.1
Rank		
Police Officer (patrol)	179	49.0
Sergeant or above	141	38.6
Other	7	1.9
No response	38	10.4
Experience (years)		
1 or fewer	4	1.1
Between 2 and 5	47	12.9
Between 6 and 10	62	17.0
Between 11 and 20	97	26.6
21 or more	120	32.9
No response	35	9.6

A full copy of the survey is found in Appendix 3.

Officer interviews

Lastly, during June 2016, the SDSU research team also conducted in-depth, one-on-one interviews with 52 SDPD officers drawn from each of SDPD's nine patrol divisions as well as the city-wide traffic division. Most interviews lasted between 30 and 60 minutes and were intended to delve deeper into the topics covered by the department-wide survey. We also asked several of the same questions of officers as we did of community residents in focus groups to identify similar and divergent perspectives across these groups. Particularly, we sought to hear directly from officers about:

- their perceptions of community safety and trust in the police;
- procedures followed during traffic stops, including how stop data are collected;
- how race/ethnicity is and is not used in policing, including what training they receive around these issues;
- difficulties officers encounter in doing their jobs; and
- what can and should be done to improve police-community relations.

We do not present the full results from each of these three additional sources of data in this Report. Rather, in Chapter 6, we draw on our findings from these data to contextualize and support our recommendations to the Department.

CHAPTER 4: EXAMINING THE DECISION TO INITIATE A TRAFFIC STOP

Introduction

Police officers in the United States do their jobs with considerable independence. They typically operate outside the view of their supervisors and are often the only source of information about their conduct. Though guided by federal, state, and local law, as well as organizational rules and norms, they alone are responsible for determining which drivers to stop, how best to make an arrest, and when to call for backup, among countless other decisions. This discretionary authority undergirds the American criminal justice system; it fills the gaps created by a society with insufficient resources to support full enforcement of the existing corpus of criminal and administrative law.

The discretionary authority granted to police officers also forces citizens to accept a certain degree of inequality. Often, one driver is stopped while another going at a similar speed is not stopped. Most rolling stops and illegal U-turns are done outside the view of the police, and thus go un-enforced. Those who are stopped and ticketed for such infractions are the exception, and thus may, rightly or wrongly, see their ticket as the product of selective enforcement or prejudice. Yet only the officer knows for sure why he or she decided to stop one car as opposed to another. It is nearly impossible to determine why these decisions are made in the way that they are.

For this reason, rather than focusing on individual stop decisions, we analyze the entire population of individual decisions in an effort to identify larger trends. It is through this broader lens that we attempt to determine whether stop patterns vary by race/ethnicity and whether such variance is indicative of systemic disparities in the way SDPD officers enforce the City's traffic laws.

In February 2015, SDPD Police Chief Shelley Zimmerman presented to the City Council's Public Safety and Livable Neighborhoods Committee a report that addressed the SDPD's traffic enforcement in 2014.[37] These data showed disparities between actual driver stop rates and the stop rates one would expect given the City's racial/ethnic composition: Black and Hispanic drivers were stopped more than their demographic profile would predict, while White and Asian/Pacific Islander drivers were stopped less. As is shown in Figure 4.1, these disparities carried over into 2015.

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[37] City of San Diego, Report to the City Council, Public Safety & Livable Neighborhoods Committee. (2015, Feb. 13). Vehicle Stop Data Cards: January through December, 2014. Report No: 15-016. Retrieved Sept. 5, 2016, from http://docs.sandiego.gov/councilcomm_agendas_attach/2015/psln_150225_3.pdf.

Figure 4.1.
Comparing driver stop rates in 2014 and 2015 with San Diego's racial/ethnic composition
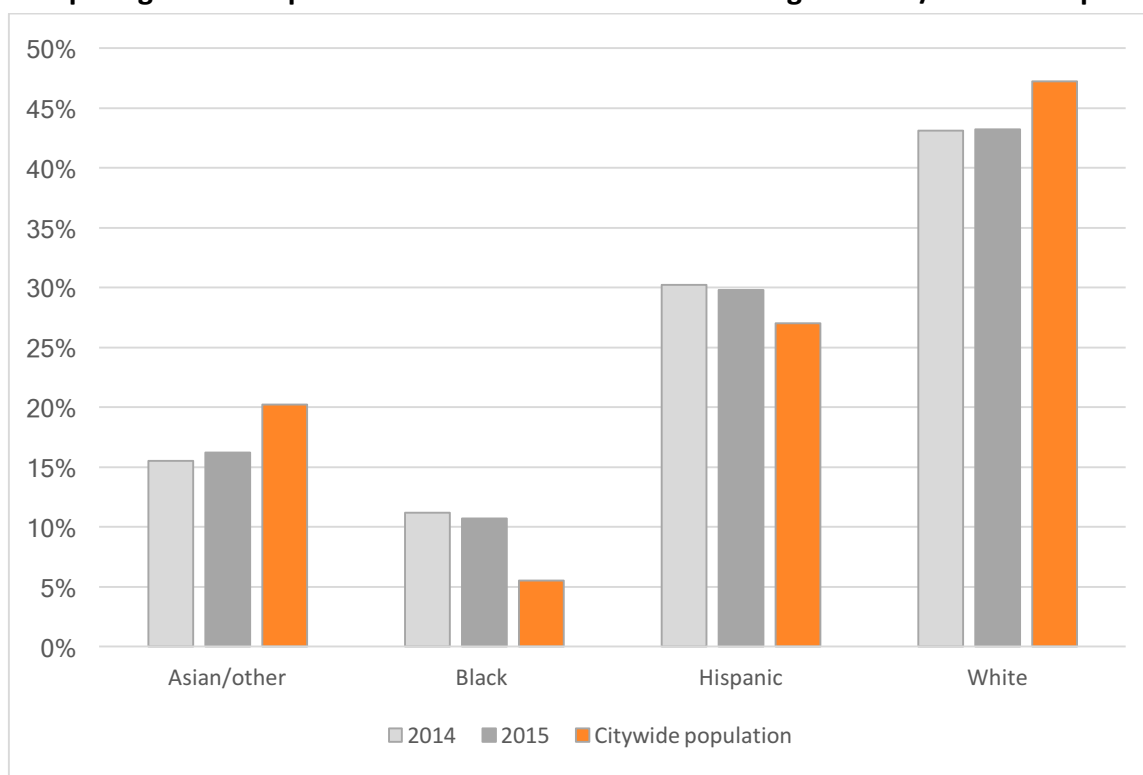
Yet these differences provide very little if any insight into whether there are racial/ethnic disparities in how traffic stop decisions are made by SDPD officers. Consider that in 2014, 65 percent of drivers stopped were male, despite the fact that males comprise only 51 percent of the City's population, according to the 2010 U.S. Census.[38] Perhaps this disparity is in fact because SDPD officers are more proactive in targeting men than women. It may also reflect the fact that more men than women drive on city streets, that men are more likely to violate traffic laws, or that more men drive in areas heavily populated by law enforcement, and are thus more likely to be observed violating the law.[39] In other words, some drivers run a greater risk of being stopped than others, for reasons having nothing to do with their gender. The same logic should define our thinking about driver race.[40]

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[38] Census viewer: San Diego, California population: Census 2010 and 2000 interactive map, demographics, statistics, quick facts. Retrieved Sept 28, 2016, from http://censusviewer.com/city/CA/San Diego.

[39] See Fridell, L.A. (2004). *By the numbers: A guide for analyzing race data from Vehicle Stops*. Washington, D.C.: Police Executive Research Forum; Ridgeway, G., (2009). *Cincinnati Police Department traffic stops: Applying RAND's framework to analyze racial disparities*. Santa Monica, CA: RAND Corporation.

[40] Ridgeway, G. (2009). *Cincinnati Police Department traffic stops: Applying RAND's framework to analyze racial disparities*. Santa Monica, CA: RAND Corporation.

As a result, to properly assess the effect that a driver's race/ethnicity has on the likelihood that he or she will be stopped, researchers must develop a benchmark that enables the comparison of actual stop rates with a driver's risk of being stopped in the absence of bias.[41] An appropriate benchmark must incorporate the various legal and non-legal factors that shape stop risk, including when, where, and how often they drive, the make, model, and condition of their car, and their behavior and demeanor while driving.[42]

The most common approach to this challenge has been to draw on U.S. Census figures to capture a jurisdiction's demographic profile and then use these data to make inferences about the city's driving population.[43] Though inexpensive and relatively easy to implement, the use of Census data has come under heavy criticism for its inability to accurately reflect not only a jurisdiction's driving population, but the various other risk factors at play.[44] Other statistical proxies, including drivers' license data[45] and no-fault traffic accident figures,[46] have also been used to address these limitations.

Other researchers have made efforts to observe the characteristics of the driving population first hand. Rather than relying on outside information as the benchmark, some have attempted to chart the demographic profile of a jurisdiction's drivers at various locations and times of day.[47] The observational approach is both expensive and time-consuming, and not without its own challenges.[48]

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[41] Tillyer, R., Engel, R.S., & Cherkauskas, J.C. (2010). Best practices in vehicle stop data collection and analysis. *Policing: An International Journal of Police Strategies & Management*, *33*(1), 69-92.

[42] Fridell, L.A. (2004). *By the numbers: A guide for analyzing race data from Vehicle Stops*. Washington, D.C.: Police Executive Research Forum; Ridgeway, G. & MacDonald, J. (2010). Methods for assessing racially biased policing. In S.K. Rice & M.D. White (Eds.) *Race, ethnicity, and policing: New and essential readings* (pp. 180-204). New York: New York University Press; Tillyer, R., Engel, R.S., & Cherkauskas, J.C. (2010). Best practices in vehicle stop data collection and analysis. *Policing: An International Journal of Police Strategies & Management*, *33*(1), 69-92; and Walker, S. (2001). Searching for the denominator: Problems with police traffic stop data and an early warning system solution. *Justice Research and Policy*, *3*, 63-95.

[43] Cordner, G., Williams, B., & Zuniga, M. (2001). *San Diego Police Department vehicle stop study: Year end report*. San Diego, CA, p. ii; Cordner, G., Williams, B., & Velasco, A. (2002). *San Diego Police Department vehicle stops in San Diego: 2001*. San Diego, CA.

[44] Engel, R.S., Frank, J., Klahm, C.F., & Tillyer, R. (2006, Jul.). *Cleveland Division of Police Traffic Stop Data Study: Final Report*. Cincinnati, OH: University of Cincinnati Division of Criminal Justice.

[45] Fridell, L.A. (2004). *By the numbers: A guide for analyzing race data from Vehicle Stops*. Washington, D.C.: Police Executive Research Forum.

[46] Alpert, G.P., Dunham, R.G., & Smith, M.R. (2007). Investigating racial profiling by the Miami-Dade police department: A multimethod approach. *Criminology & Public Policy*, *6*, 25-56.

[47] E.g., Lamberth, J.C. (2013, Sept.). *Final Report for the City of Kalamazoo Department of Public Safety*. West Chester, PA: Lamberth Consulting.

[48] Engel, R.S., & Calnon, J.M. (2004). Comparing benchmark methodologies for police-citizen contacts: Traffic stop data collection for the Pennsylvania State Police. *Police Quarterly*, *7*, 97-125.

We address the problem of whether race/ethnicity impacts police decisions to initiate traffic stops by employing a technique known as the "veil of darkness" method.[49] What follows is a description of this method and a detailed analysis of our findings.

The Veil of Darkness Technique

The veil of darkness technique allows the researcher to compare the racial/ethnic distribution of traffic stops made in daylight with that of stops made after dark.[50] The approach rests on the assumption that if driver race/ethnicity is a factor in determining who will be stopped, it will be more apparent among stops made in daylight, when drivers' physical profile is more likely to be detectable, than at night when these characteristics are obscured by darkness.[51] We do not suggest that race/ethnicity is somehow impossible to discern at night or a certainty during the

> The "**veil of darkness**" technique allows researchers to avoid the difficulty of identifying and applying a benchmark – a point of reference, such as Census data – against which to compare traffic stop data. This is the central challenge in the review of such data, as the driving population of a given area may look quite different from the residents of that area, as counted by the Census. Instead, using the veil technique, analysts can examine the likelihood that, for example, Black drivers will be stopped during the day versus at night, and compare that likelihood with the day-versus-night likelihood of White drivers being stopped.

day; rather, that "the rate of police knowing driver race/ethnicity in advance of the stop must be smaller at night than during daylight."[52]

The strongest argument for this approach comes from researchers who have tried to measure driver race/ethnicity at night. According to a 2003 analysis of traffic law enforcement in Santa

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[49] E.g., Grogger, J. & Ridgeway, G. (2006). Testing for racial profiling in traffic stops from behind the veil of darkness. *Journal of the American Statistical Association*, *101*(475), 878-887. Retrieved Aug. 24, 2016, from https://www.rand.org/content/dam/rand/pubs/reprints/2007/RAND_RP1253.pdf; Ridgeway, G., (2009). *Cincinnati Police Department traffic stops: Applying RAND's framework to analyze racial disparities*. Santa Monica, CA: RAND Corporation; Worden, R.E., McLean, S.J., & Wheeler, A.P. (2012). Testing for racial profiling with the veil-of-darkness method. *Police Quarterly*, *15*, 92-111.

[50] Ridgeway, G., (2009). *Cincinnati Police Department traffic stops: Applying RAND's framework to analyze racial disparities*. Santa Monica, CA: RAND Corporation.

[51] This assumption is potentially complicated by several unknown factors, including the presence or absence of ambient light, glare, shadowing, heavily tinted windows, and so on, at the time of the stop. Interestingly, the one study to control for ambient light found evidence of racial disparity when the effects of street lights were accounted for and no evidence of racial disparity when no such controls were included in the veil of darkness analysis. See Horrace, W.C., & Rohlin, S.M (2016). How dark Is dark? Bright lights, big city: Racial profiling, *Review of Economics and Statistics*, *98*, 226-232. Retrieved Oct. 24, 2016, from https://pdfs.semanticscholar.org/84ff/4695f264da05e69cbc4e3e5dbd794bf9e298.pdf.

[52] Ridgeway, G., (2009). *Cincinnati Police Department traffic stops: Applying RAND's framework to analyze racial disparities*. Santa Monica, CA: RAND Corporation, p. 12.

Cruz, California, the most difficult observational conditions occur either at dawn or dusk "or in dark areas where no supplemental lighting is provided."[53] As a result, study authors relied on the use of supplemental lighting to enhance driver visibility during these periods. That the use of supplemental lighting has become commonplace among observational researchers underscores the point.[54] Others report having to eliminate nighttime observations altogether, finding "reliable data collection on the race/ethnicity of the driver… [to be] impossible" at dusk and after sundown.[55]

Table 4.1.

Previous research employing the veil of darkness analytical approach

Author(s)/Year	Jurisdiction	Time Period Analyzed	Day-night Disparity Found?
Grogger & Ridgeway (2006)	Oakland, CA	Jun 2003 – Dec 2003	No
Ridgeway (2009)	Cincinnati, OH	2003 - 2008	No
Worden et al. (2012)	Syracuse, NY	2006-2009	No
Ritter (2013)[56]	Minneapolis, MN	2002	Yes
Horrace/ethnicity & Rohlin (2014)	Syracuse, NY	2006-2009	Yes
Ross et al. (2016)[57]	State of CT	Oct 2013 – Sept 2014	Yes
Taniguchi et al. (2016)[58]	Durham, NC	Jan 2010 – Oct 2015	Yes

The challenge of accurately categorizing a driver's race/ethnicity at night is also consistent with research on the validity of eyewitness testimony. To summarize years of research, witnesses

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[53] Rickabaugh, C.A. (2003, Sept.). *A study to analyze traffic stop data in Santa Cruz County*. Chadds Ford, PA: Lamberth Consulting, p. 30.

[54] E.g., Lange, J.E., Johnson, M.B., & Voas, R.B. (2005). Testing the racial profiling hypothesis for seemingly disparate traffic stops on the New Jersey turnpike. *Justice Quarterly, 22*, 193-223; Lamberth, J.C. (2013, Sept.). *Final Report for the City of Kalamazoo Department of Public Safety*. West Chester, PA: Lamberth Consulting.

[55] Alpert, G.P., Dunham, R.G., & Smith, M.R. (2007). Investigating racial profiling by the Miami-Dade police department: A multimethod approach. *Criminology & Public Policy*, *6*(1), 25-56, p. 36.

[56] Ritter, J.A. (2013). Racial bias in traffic stops: Tests of a unified model of stops and searches. University of Minnesota Population Center, Working Paper No. 2013-05. Retrieved Oct. 24, 2016, from http://ageconsearch.umn.edu/bitstream/152496/2/WorkingPaper_RacialBias_June2013-1.pdf.

[57] Ross, M.B., Fazzalaro, J., Barone, K., & Kalinowski. (2016). State of Connecticut traffic stop data analysis and findings, 2014-15. Connecticut Racial Profiling Prohibition Project. Retrieved Oct. 24, 2016, from http://www.ctrp3.org/reports/.

[58] Taniguchi, T., Hendrix, J., Aagaard, B., Strom, K., Levin-Rector, A., & Zimmer, S. (2016). *Exploring racial disproportionality in traffic stops conducted by the Durham Police Department*. Research Triangle Park, NC: RTI International. Retrieved Oct. 24, 2016, from https://www.rti.org/sites/default/files/resources/VOD_Durham_FINAL.pdf.

are much better at describing basic features of criminal suspects, including race/ethnicity and gender, when observed during daylight hours rather than at night.[59]

The veil of darkness approach was first utilized by Grogger and Ridgeway for their review of traffic stops in Oakland, California.[60] Since then, scholars have relied on this technique to examine data from five other jurisdictions. With minor exceptions, each of the replications listed in Table 4.1 followed Grogger and Ridgeway's original method and analytical approach. We follow suit.

To measure possible day-night disparities, we take advantage of a natural experiment produced by seasonal changes throughout the calendar year. In San Diego, the sun goes down earlier during winter months than it does in the summer. Someone driving home from work at 6:00 pm in January would experience darkness, but in July the driver's commute would occur in broad daylight.

The analysis is confined to the "inter-twilight period," or the period between the earliest end of civil twilight (5:09 pm on Nov. 27) and the latest (8:29 pm on Jun. 27), as defined by the U.S. Naval Observatory, in order to control for changes in the driving population during the course of the day.[61] The veil of darkness technique allows the analyst to assess differences between daylight and darkness stop patterns within this window of time. Furthermore, because these comparisons occur within the same segment of the driving population (i.e., drivers on the road between 5:09 and 8:29 pm during darkness with drivers on the road between 5:09 and 8:29 pm during daylight), there is no need for an external benchmark.

We excluded from the analysis those stops that occurred between sundown (also as defined by the U.S. Naval Observatory) and the start of civil twilight (n=3,349), as there was no clear strategy for determining whether these stops occurred in 'daylight' or 'darkness.'[62] We further limit our sample by including only those stops that occurred as a result of either equipment

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[59]Loftus, G. R. (1985). Picture perception: Effects luminance on available information and information extraction rate. *Journal of Experimental Psychology: General*, *114*, 342–356;
Meissner, C.A., Sporer, S.L., & Schooler, J.W. (2007). Person descriptions of eyewitness evidence. In R.C.L. Lindsay, D.F. Ross, J.D. Read, & M.P. Toglia (Eds.) *The handbook of eyewitness psychology, Vol. II* (pp. 1 – 34). New York: Psychology Press; Yarmey, A. D. (1986). Verbal, visual, and voice identification of a rape suspect under different levels of illumination. *Journal of Applied Psychology*, *71*, 363–370.

[60] Grogger, J. & Ridgeway, G. (2006). Testing for racial profiling in traffic stops from behind the veil of darkness. *Journal of the American Statistical Association*, *101*(475), 878-887. Retrieved Aug. 24, 2016, from https://www.rand.org/content/dam/rand/pubs/reprints/2007/RAND_RP1253.pdf.

[61] The full schedule can be found here: http://aa.usno.navy.mil/data/docs/RS_OneYear.php.

[62] Worden, R.E., McLean, S.J., & Wheeler, A.P. (2012). Testing for racial profiling with the veil-of-darkness method. *Police Quarterly*, *15*, 92-111.

(e.g., a broken tail light) or moving violations (e.g., an illegal left turn).[63] As is shown in Table 4.2, these types of stops, which are the product of a highly discretionary decision-making process, comprise the vast majority of traffic stops in San Diego. Stops made as a result of a suspect description, an informant's tip, or pre-existing officer knowledge are excluded, as they involve a much lower level of discretionary authority and may lawfully include a driver's race/ethnicity as part of the justification for stop.

Table 4.2.

Describing data generated by traffic stops conducted by SDPD officers in 2014 and 2015, by stop type

Stop type	2014	2015	Total
High discretion			
Moving violation	103,491 (71.9%)	86,387 (74.9%)	189,878 (73.2%)
Equipment violation	38,426 (26.7)	27,453 (23.8)	65,879 (25.4)
Sub-total	*141,917 (98.6)*	*113,840 (98.6)*	*255,757 (98.6)*
Low discretion			
Radio call	763 (0.5%)	497 (0.4%)	1,260 (0.5%)
Code violation	752 (0.5)	366 (0.3)	1,118 (0.4)
Prior knowledge of suspect	277 (0.2)	263 (0.2)	540 (0.2)
Suspect information	211 (0.2)	161 (0.1)	372 (0.1)
Other	32 (<0.1)	278 (0.2)	310 (0.1)
Sub-total	*2,035 (1.4)*	*1,565 (1.4)*	*3,600 (1.4)*
Total	*143,952 (100)*	*115,405 (100)*	*259,357 (100)*

Note: Totals do not include stop records submitted without data on stop type. Discrepancies in the percentage totals are owed to rounding error.

Figure 4.2 is a scatterplot of the date and times of all stops included in the full sample. Note that black markers represent those stops that occurred after the end of civil twilight, which we classify as occurring during darkness. Grey markers represent daylight stops, which occurred prior to sunset.

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[63] We note that some have argued that because some equipment violations (a broken tail light, for example) are easier to identify after dark, they should be excluded from a veil of darkness analysis (Worden, R.E., McLean, S.J., & Wheeler, A.P. (2012). Testing for racial profiling with the veil of darkness method. *Police Quarterly*, *15*, 92-111.). To account for this possibility, we replicated both the citywide and location-based analysis using just moving violations. The results, shown in Appendix 4, showed no meaningfully difference from the analysis described herein.

Our statistical analysis aggregates and averages all stops made during the inter-twilight period in an attempt to evaluate day-night disparities between several driver categories, including:[64]

- Black vs. White drivers
- Young Black vs. Young White (25 and under)
- Hispanic vs. White
- Young Hispanic vs. Young White (25 and under)
- Asian/Pacific Islander v. White
- Young Asian/Pacific Islander vs. Young White (25 and under)

Figure 4.2.
Scatterplot of traffic stops included in the veil of darkness analysis
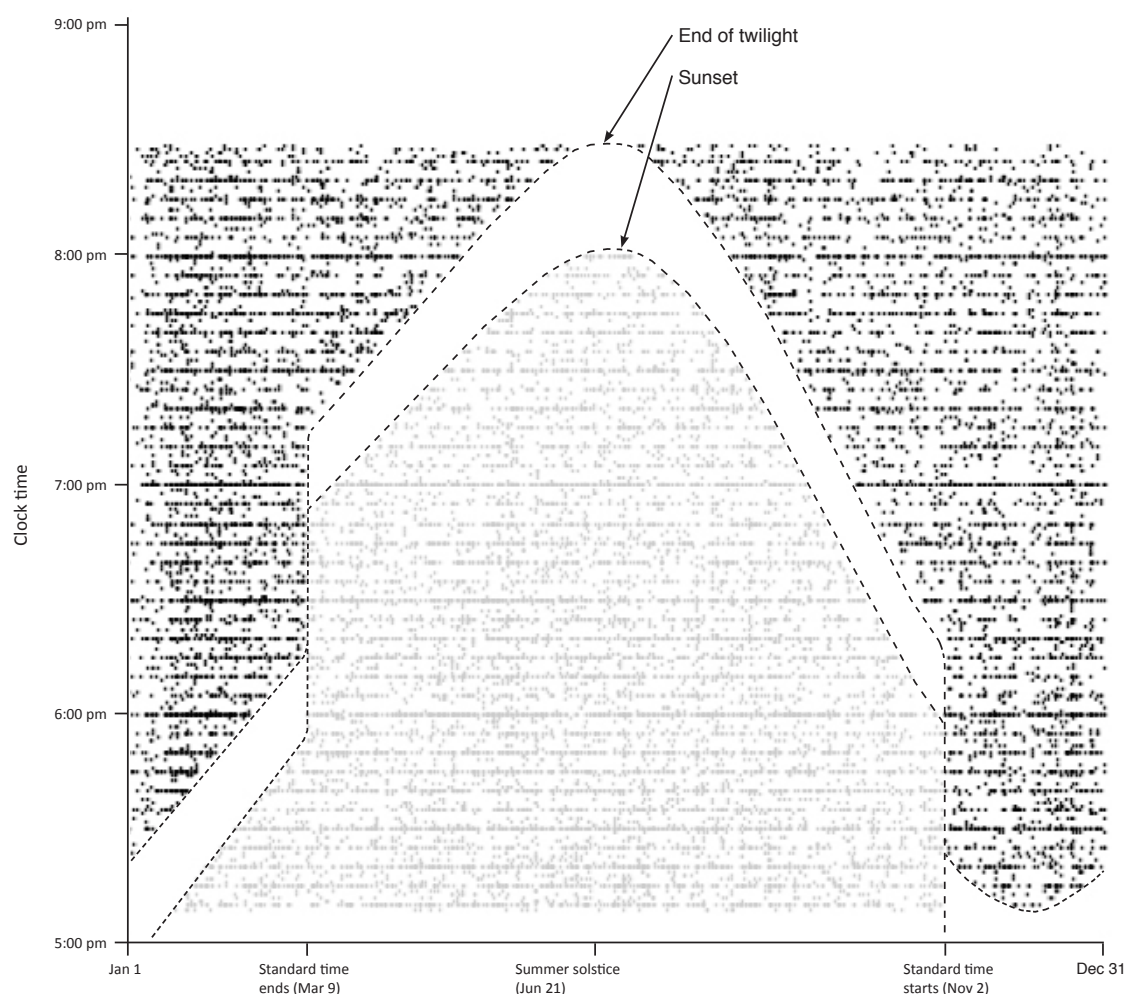
We distinguish drivers 25 and under in light of the consistent evidence that younger drivers are

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[64] As the relevant dependent variable is dichotomous (whether the stop occurred during daylight or after dark), we rely on logistic regression models to perform the analysis.

often less willing to comply traffic laws,[65] and tend to be more reckless drivers in general.[66] The research is also very clear that young people are also more susceptible to criminological behavior than are adults further into their life course.[67,68]

To account for potential changes to the driving population over time, our models include dichotomous variables for each 15-minute interval in the 3-hour and 20-minute inter-twilight period. This allows us to control for the likelihood that the racial/ethnic composition of drivers varies by time of day.

The driving population may also change based on the day of the week (for example, those people on the road at 7:30 pm on Friday evening may look and act differently than those driving at 7:30 on a Tuesday), so we also include dichotomous variables for the day of the week. These adjustments allow us to hold the day of the week constant, further isolating the effect of daylight. Similarly, to account for seasonal differences in the driving population, we control for the effects of stop month and stop location.

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[65] Yagil, D. (1998). Gender and age-related differences in attitudes toward traffic laws and traffic violations. *Transportation Research Part F: Traffic Psychology and Behaviour*, *1*, 123-135; McCartt, A.T., & Northrup, V.S. (2004). Factors related to seat belt use among fatally injured teenage drivers. *Journal of Safety Research*, *35*, 29-38.

[66] Lawton, R., Parker, D., Stradling, S. G., & Manstead, A. S. R. (1997). Self-reported attitude towards speeding and its possible consequences in five different road contexts. *Journal of Community and Applied Social Psychology*, *7*, 153-165; Lawton, R., Parker, D. Manstead, S. G., & Stradling, A. S. R. (1997). The role of affect in predicting social behaviors: The case of road traffic violations. *Journal of Applied Social Psychology*, *27*, 1258-1276.

[67] Farrington, D.P. (1986). Age and crime. *Crime and Justice*, *7*, 189-250; Jennings, W.G., & Reingle, J.M. (2012). On the number and shape of developmental/life-course violence, aggression, and delinquency trajectories: A state-of-the-art review. *Journal of Criminal Justice*, *40*, 472-489; Sampson, R.J., & Laub, J.H. (1993). *Crime in the Making*. Cambridge: Harvard University Press.

[68] There is also a well-established body of research showing that males are more likely to engage in both reckless (see, for example, Keane, C., Maxim, P.S., & Teevan, J. J. [1993]. Drinking and driving, self-control, and gender: Testing a general theory of crime. *Journal of Research in Crime and Delinquency*, *30*, 30-46) and criminal behavior (Synder, H.N. [2012]. Arrest in the United States, 1990-2010. U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. Retrieved Sept. 29, 2016, from http://www.bjs.gov/content/pub/pdf/aus9010.pdf). To account for the possibility that SDPD officers may as a result police males differently than they do females, we analyzed day-night disparities using a sample of male only drivers. The results, which showed no meaningful difference from the mixed gender analysis, are listed in Appendix 5.

Results

Before presenting the results of our traffic stop analysis, it may be helpful to review the metrics used to interpret the data. The findings will be presented in terms of odds ratios, which indicate the odds (or likelihood) of daylight affecting traffic stop patterns. An odds ratio of 1.0 indicates that time of day does not influence the odds of Black drivers being stopped; in that case, they are no more and no less likely to be stopped after dark than they are during daylight, compared to the stop pattern of White drivers. A positive odds ratio (>1.0) suggests that Black drivers are more likely to be stopped during the day than at night, and thus may indicate racial/ethnic disparity. A negative odds ratio (<1.0) indicates that Black drivers are more likely to be stopped at night than during the day (or, put another way, that White drivers are more likely to be stopped in daylight than after dark).

A **p-value** is commonly used measure of statistical significance. The smaller the p-value, the more confidence we have that the results would not occur under the null hypothesis (e.g., that no relationship exists between an officer's decision to stop a particular driver and that driver's race).

For example, a p-value of 0.01 means that we are 99% confident that our result is not due to chance. Following common practice in the social sciences, we report p-values of .05 and lower, which correspond to a level of confidence of 95% or higher, as statistically significant:

p-value	Level of confidence
0.001	99.9%
0.01	99%
0.05	95%

Black Drivers

Table 4.3 displays the results of our analysis of discretionary traffic stops conducted in the City of San Diego between January 1, 2014 and December 31, 2015 involving Black and White drivers. The data show that in 2014, when driver race/ethnicity was visible, Black drivers were nearly 20 percent more likely to be the subject of a discretionary traffic stop than were White drivers. When confined to drivers aged 25 and under, young Black drivers in 2014 were 43.8 percent more likely to be stopped in daylight than after dark, compared to young Whites. These findings are statistically significant at the 0.01 level and thus indicate racial/ethnic disparity in the distribution of traffic stops.

Table 4.3.

Modeling the effects of daylight on the odds that Black drivers will be stopped citywide for either a moving violation or an equipment violation

	Odds Ratio	p-value	Standard error	95% Confidence Interval	Number of Stops
2014					
Black v. White	1.196	0.005	0.077	1.055, 1.356	8,332
Young Black v. Young White	1.438	0.003	0.177	1.129, 1.832	2,189
2015					
Black v. White	0.800	0.118	0.114	0.605, 1.058	6,216
Young Black v. Young White	0.783	0.068	0.105	0.602, 1.018	1,631
Combined					
Black v. White	1.052	0.293	0.051	0.957, 1.156	14,548
Young Black v. Young White	1.098	0.309	0.101	0.917, 1.316	3,820

These same disparities were not present in the 2015 data. When the 2015 sample is limited to stops involving drivers aged 25 and younger, there is evidence, albeit of relatively weak statistical power, that Black drivers were *less* likely to be stopped during the day than after dark. When the 2014 and 2015 data are combined, we find no meaningful statistical distinction between Blacks and Whites.

To further control for potential seasonal differences among the driving population, we also conduct an analysis limited to inter-twilight stops occurring 30 days before and after Daylight Saving Time (DST) clock changes, which in 2014 occurred at 2:00 am on March 9th and November 2nd. In 2015, California moved clocks ahead on March 8 and back on November 1. Figure 4.3 is a scatterplot of those data included in the 2014 DST-only analysis, reflecting traffic stops occurring during 60-day periods in the Spring (Feb. 7th – Apr. 9th) and the Fall (Oct. 3rd – Dec. 2nd). The 2015 DST period includes stops recorded between February 6th and April 8th and between October 2nd and December 1st.

Figure 4.3.

Scatterplot of traffic stops included in the Daylight Saving Time veil of darkness analysis
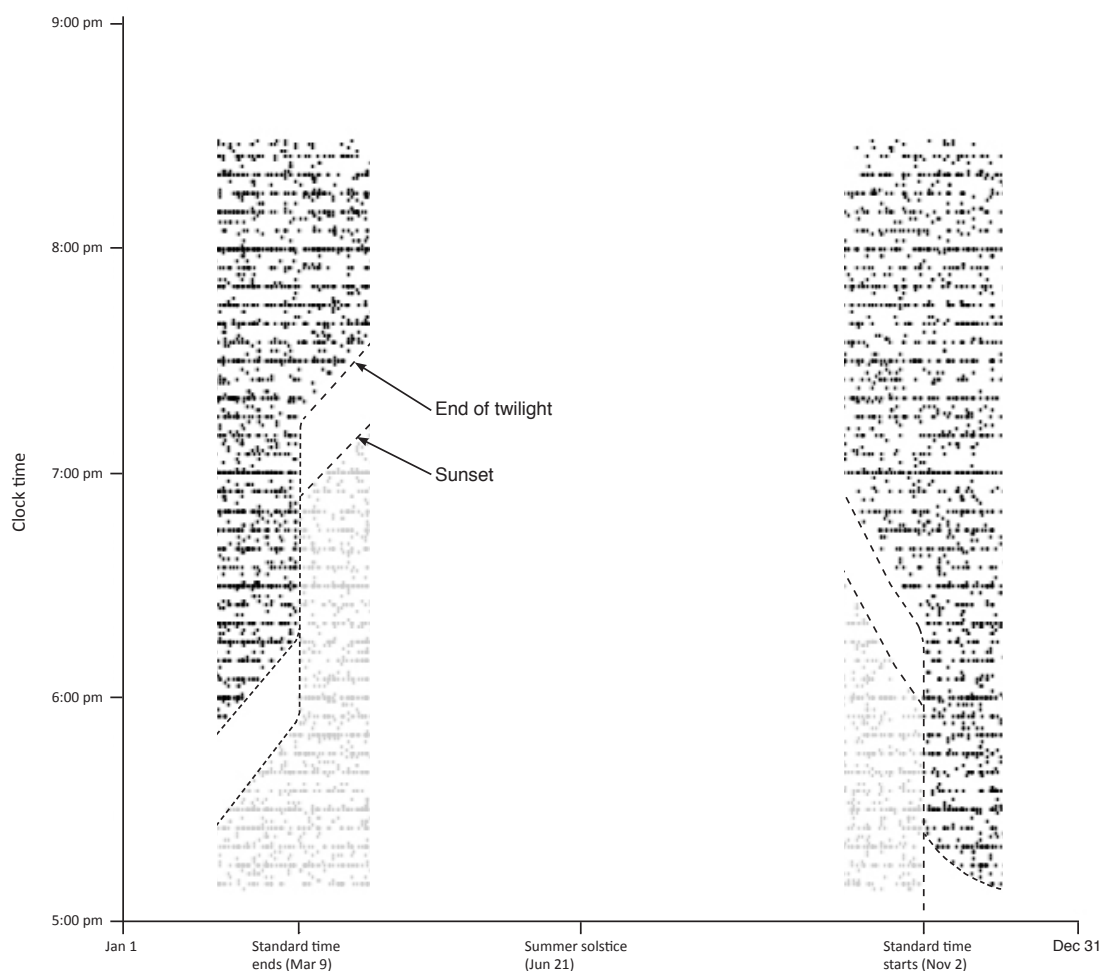
Delimiting the analysis is a way to evaluate the robustness of the findings discussed above and to provide more thorough protection against the influence of seasonal changes to the driving population. The primary trade-off of this more conservative approach is the loss of statistical power. As Ridgeway notes, the smaller sample sizes required are still large enough to reflect significant day-night disparities, but smaller differences may not be as readily apparent.[69]

As is shown in Table 4.4, our estimates shift somewhat under these more restrictive conditions, with changes most apparent in the 2014 data. When the analysis is confined to stops occurring during the DST-only period, disparities between Black and White drivers are no longer evident. Results generated by analysis of the 2015 and combined datasets remain substantively unchanged: no statistical difference exists in the likelihood that Black drivers are more likely to

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[69] Ridgeway, G., (2009). *Cincinnati Police Department traffic stops: Applying RAND's framework to analyze racial disparities*. Santa Monica, CA: RAND Corporation.

be stopped by police during daylight hours than they were after dark when compared to White drivers.

Table 4.4.

Modeling the effects of daylight on the odds that Black drivers will be stopped citywide for either a moving violation or an equipment violation during the DST period

	Odds ratio	p-value	Standard error	95% confidence interval	Number of stops
2014					
Black v. White	1.109	0.480	0.163	0.831, 1.479	2,564
Young Black v. Young White	1.175	0.573	0.336	0.670, 2.059	671
2015					
Black v. White	1.184	0.337	0.208	0.839, 1.671	1,994
Young Black v. Young White	0.720	0.343	0.249	0.365, 1.419	547
Combined					
Black v. White	1.143	0.233	0.128	0.918, 1.423	4,558
Young Black v. Young White	0.951	0.816	0.206	0.621, 1.455	1,218

Though we include controls for stop location in the citywide models, for several reasons we believe there is value in taking a closer look at division-level differences in the treatment of Black and White drivers. First, as shown in Figure 4.4, there appears to be a loose relationship between division-level stop rates and the localized crime rates (Pearson's r = 0.5134). This relationship suggests that patrol strategies in higher-crime areas, like the Central division, which is home to both the city's highest crime rate and highest stop rate, will be substantially different than in the Northern division, where both crime and stop rates are closer to citywide averages. In addition to other factors such as staffing levels and the availability of other resources, these data highlight the unique division-level circumstances that may shape patrol decisions, and which in turn may contribute to division-level differences in the racial/ethnic distribution of stops. Finally, as we discussed in Chapter 2, crime and poverty tend to concentrate in neighborhoods with comparatively high levels of minority residents. In San Diego, most of those neighborhoods are found in the police divisions located below Interstate 8.

Figure 4.4.

Examining the relationship between vehicle stop rates and crime, by SDPD police division

Source: City of San Diego and SDPD
Note: Both vehicle stop rate and crime rate listed per 1,000 division residents over 2014 and 2015.

Table 4.5 lists the volume of recorded stops by patrol division, as well as each division's population and square mileage. The Northern division was the city's busiest, accounting for 37,203 stops, or 14.7 percent of those recorded between January 1, 2014 and December 31, 2015. The Eastern, Northeastern, and Western divisions were the next-busiest in terms of stop volume, followed by the Central, Southern, and Mid-City divisions. Officers in the Northwestern division tallied the fewest stops, accounting for just 6.4 percent of the citywide total. Stops initiated in divisions located above Interstate 8 accounted for 58.1 percent of all recorded stops, while those recorded below I-8 represented 41.9 percent of the total.

Table 4.5.
SDPD vehicle stops, by patrol division, 2014 and 2015 combined

	Population	Square mileage	Stops
Above Interstate 8			
Northern	225,234 (16.4%)	41.3 (12.5%)	37,203 (14.7%)
Northeastern	234,394 (17.0)	103.8 (31.5)	31,692 (12.5)
Eastern	155,892 (11.3)	47.1 (14.3)	31,788 (12.6)
Western	129,709 (9.4)	22.7 (6.9)	30,078 (11.9)
Northwestern	70,822 (5.1)	41.6 (12.6)	16,306 (6.4)
Sub-total	*816,051 (59.3)*	*256.5 (77.8)*	*147,067 (58.1)*
Below Interstate 8			
Southeastern	175,757 (12.8)	19.1 (5.8)	19,292 (7.6)
Central	103,524 (7.5)	9.7 (2.9)	29,692 (11.7)
Southern	107,631 (7.8)	31.5 (9.6)	29,351 (11.6)
Mid-City	173,012 (12.6)	12.8 (3.9)	27,692 (10.9)
Sub-total	*559,924 (40.7)*	*73.1 (22.2)*	*106,027 (41.9)*
Total	**1,375,975 (100.0)**	**329.6 (100.0)**	**253,094 (100.0)**

Source: City of San Diego.
Note: Stop totals do not include the 6,475 stop records submitted without stop location information.

Table 4.6 lists the results of our comparison of stop rates among Black and White drivers, by stop location, across the combined dataset of 2014 and 2015 (for separate analysis of 2014 and 2015 data, see Appendix 6). There is some evidence to support the notion that drivers are treated differently in certain neighborhoods. In the Northeastern division, strong statistical evidence indicates that disparity was present: Black drivers were 60.2 percent more likely to be stopped in daylight than after dark, compared to White drivers. We find no meaningful difference in the treatment of drivers by race/ethnicity in the Eastern, Western, Northern, and Northwestern divisions. Analysis of the aggregated data from these five divisions shows no statistically significant difference in the daylight-darkness stop patterns of Black and White drivers.

Table 4.6.

Modeling the effects of daylight on the odds that Black drivers will be stopped for either a moving violation or an equipment violation in 2014 and 2015 combined, by stop location

	Odds ratio	p-value	Standard error	95% confidence interval	Number of stops
Above Interstate 8					
Northern	1.460	0.066	0.300	0.975, 2.184	2,319
Northeastern	1.602	0.005	0.271	1.149, 2.232	2,062
Eastern	1.050	0.752	0.162	0.776, 1.421	1,775
Western	0.936	0.670	0.145	0.692, 1.267	2,096
Northwestern	0.891	0.687	0.254	0.510, 1.599	925
Sub-total	*1.150*	*0.068*	*0.088*	*0.990, 1.337*	*9,452*
Below Interstate 8					
Southeastern	1.397	0.077	0.264	0.964, 2.024	1,064
Central	0.572	<0.001	0.080	0.434, 0.752	1,891
Southern	1.070	0.742	0.220	0.716, 1.600	753
Mid-City	0.887	0.269	0.096	0.717, 1.097	1,938
Sub-total	*0.793*	*<0.001*	*0.051*	*0.699, 0.899*	*5,646*

We find distinct variation among divisions located below Interstate 8 across 2014 and 2015. In the Central division, stops involving Blacks are nearly 43 percent *less* likely to occur during the day than they are after sundown, compared to those involving White drivers. Analysis of Southern, Southeastern, and Mid-City stops shows no statistically significant disparity. Perhaps on the strength of the Central division findings, analysis of the aggregated data for these four divisions shows that compared to White drivers, Blacks are 20.7 percent less likely to be stopped during daylight hours, when driver race/ethnicity is visible, than they are after sundown, when race/ethnicity is obscured by darkness.

Table 4.7.

Modeling the effects of daylight on the odds that Hispanic drivers will be stopped citywide for either a moving violation or an equipment violation

	Odds ratio	p-value	Standard error	95% confidence interval	Number of stops
2014					
Hispanic v. White	0.973	0.561	0.046	0.887, 1.067	11,952
Young Hispanic v. Young White	1.052	0.608	0.103	0.868, 1.275	2,775
2015					
Hispanic v. White	0.935	0.223	0.052	0.839, 1.042	9,055
Young Hispanic v. Young White	0.843	0.123	0.093	0.679, 1.047	2,392
Combined					
Hispanic v. White	0.949	0.141	0.034	0.885, 1.018	21,007
Young Hispanic v. Young White	0.939	0.392	0.069	0.814, 1.084	5,167

Table 4.8.

Modeling the effects of daylight on the odds that Hispanic drivers will be stopped citywide for either a moving violation or an equipment violation during the DST period

	Odds ratio	p-value	Standard error	95% confidence interval	Number of stops
2014					
Hispanic v. White	1.044	0.686	0.111	0.847, 1.288	3,669
Young Hispanic v. Young White	1.098	0.685	0.254	0.698, 1.728	854
2015					
Hispanic v. White	1.295	0.035	0.158	1.019, 1.644	2,950
Young Hispanic v. Young White	0.834	0.461	0.206	0.514, 1.353	803
Combined					
Hispanic v. White	1.145	0.090	0.092	0.979, 1.340	6,619
Young Hispanic v. Young White	0.950	0.756	0.158	0.685, 1.316	1,657

Hispanic drivers

Tables 4.7, 4.8, and 4.9 list results of our analysis of traffic stops involving Hispanic drivers. Per Table 4.7, when aggregated at the city level, the odds of a stop involving a Hispanic driver is not affected by the change from daylight to darkness, regardless of when the stop occurred or the comparison group used, as indicated by odds ratios that align so closely to 1.0.

Table 4.8 displays the results from several models examining day/night stop rates of Hispanic drivers stopped for either an equipment violation or a moving violation during the 120-day DST period. Under these more restrictive analytical conditions, the 2014 data reveal no disparity in the treatment of Hispanic and White drivers. In 2015, however, Hispanic drivers of all ages were 29.5 percent more likely to be stopped during daylight hours than after dark, when compared to Whites. This result was statistically significant at the 0.05 level. When the analytical sample is limited to those drivers ages 25 and younger, we find no indication of disparity.
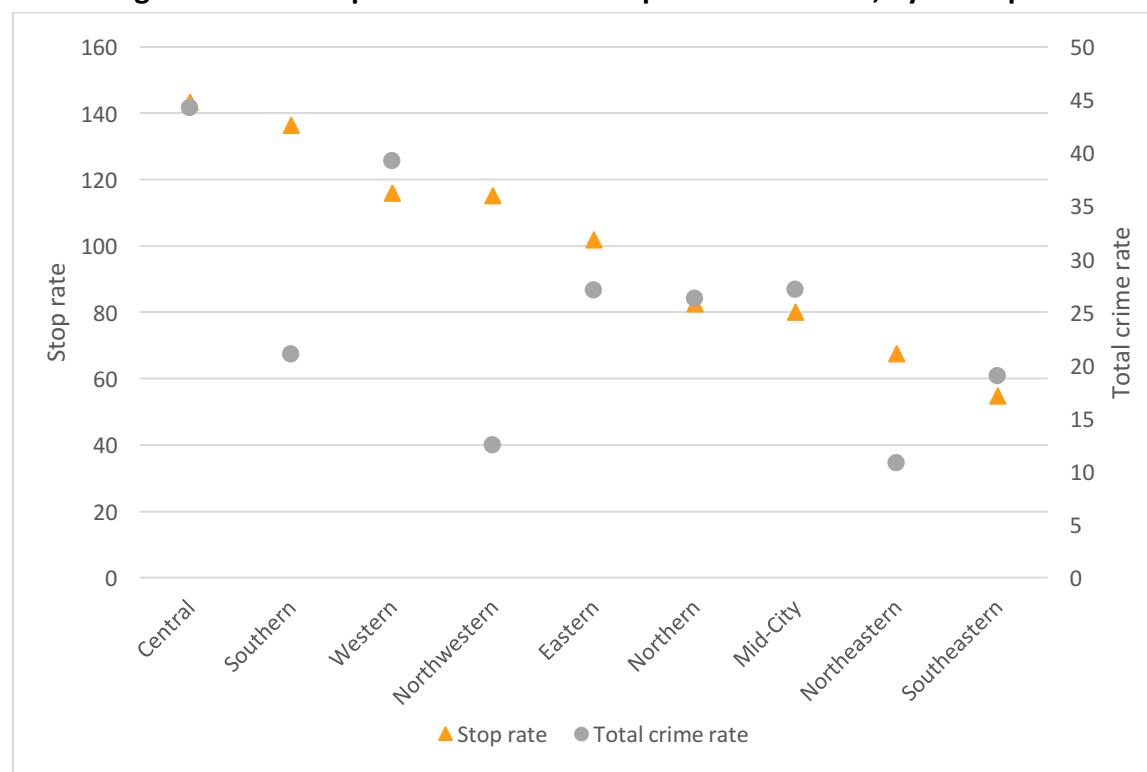
Table 4.9.

Modeling the effects of daylight on the odds that Hispanic drivers will be stopped for either a moving violation or an equipment violation in 2014 and 2015 combined, by stop location

	Odds ratio	p-value	Standard error	95% confidence interval	Number of stops
Above Interstate 8					
Northern	1.043	0.751	0.138	0.805, 1.350	2,596
Northeastern	1.337	0.020	0.167	1.047, 1.707	2,298
Eastern	0.956	0.715	0.117	0.753, 1.215	2,025
Western	0.953	0.656	0.102	0.773, 1.176	2,490
Northwestern	1.145	0.462	0.210	0.799, 1.640	1,063
Sub-total	*1.062*	*0.268*	*0.058*	*0.955, 1.181*	*10,893*
Below Interstate 8					
Southeastern	1.084	0.662	0.200	0.755, 1.558	1,351
Central	0.544	<0.001	0.054	0.447, 0.663	2,582
Southern	0.964	0.726	0.101	0.785, 1.184	4,547
Mid-City	0.812	0.030	0.079	0.673, 0.980	2,476
Sub-total	*0.716*	*<0.001*	*0.036*	*0.649, 0.790*	*10,956*

Table 4.9 shows the results of our division-level analysis of stops involving Hispanic drivers for the combined dataset of 2014 and 2015 (for analysis of these data broken out by year, see Appendix 6). We find no evidence of disparity in the Northern, Eastern, Western, or Northwestern divisions, but strong evidence of disparity in the Northeastern division: compared to White drivers, Hispanics stopped in the Northeastern division were 33.7 percent more likely to be stopped before sundown than after dark (p = 0.020).

We find no difference in the stop rates of Hispanic and White drivers stopped in the Southeastern or Southern divisions. Central division stops involving Hispanic drivers are 45 percent *less* likely to occur during the day than they are at night compared to stops of Whites. Similarly, Hispanic drivers stopped in Mid-City are 18.8 percent less likely to be stopped before sundown than after dark. Analysis of the combined nearly 11,000 stops occurring in divisions below Interstate 8 shows that Hispanic drivers were 28.4 percent less likely to experience a daytime stop than one occurring in darkness, compared to White drivers. These findings reach a high level of statistical significance.

Asian/Pacific Islander drivers

Tables 4.10 – 4.12 document the results of our analysis of traffic stops involving Asian/Pacific Islander and White drivers. In short, we find no meaningful difference in the stop patterns of API and White drivers, regardless of driver age, stop date, stop location, or modelling strategy.

Table 4.10.
Modeling the effects of daylight on the odds that Asian/Pacific Islander drivers will be stopped citywide for either a moving violation or an equipment violation

	Odds ratio	p-value	Standard error	95% confidence interval	Number of stops
2014					
Asian v. White	0.986	0.801	0.056	0.882, 1.102	8,927
Young Asian v. Young White	0.953	0.695	0.117	0.749, 1.212	1,911
2015					
Asian v. White	0.970	0.635	0.062	0.857, 1.099	6,845
Young Asian v. Young White	0.967	0.792	0.123	0.753, 1.231	1,721
Combined					
Asian v. White	0.978	0.596	0.041	0.900, 1.062	15,772
Young Asian v. Young White	0.960	0.646	0.085	0.808, 1.141	3,632

Table 4.11.

Modeling the effects of daylight on the odds that Asian/Pacific Islander drivers will be stopped citywide for either a moving or an equipment violation during the DST period

	Odds ratio	p-value	Standard error	95% confidence interval	Number of stops
<u>2014</u>					
Asian v. White	1.090	0.520	0.146	0.838, 1.417	2,758
Young Asian v. Young White	1.307	0.340	0.367	0.754, 2.266	614
<u>2015</u>					
Asian v. White	1.244	0.138	0.183	0.932, 1.660	2,200
Young Asian v. Young White	1.413	0.222	0.400	0.812, 2.460	582
<u>Combined</u>					
Asian v. White	1.161	0.130	0.114	0.957, 1.408	4,958
Young Asian v. Young White	1.322	0.153	0.259	0.901, 1.941	1,196

Table 4.12.

Modeling the effects of daylight on the odds that Asian/Pacific Islander drivers will be stopped for either a moving violation or an equipment violation, by stop location

	Odds ratio	p-value	Standard error	95% confidence interval	Number of stops
<u>Above Interstate 8</u>					
Northern	0.927	0.570	0.124	0.713, 1.205	2,585
Northeastern	1.117	0.196	0.056	0.944, 1.321	3,231
Eastern	1.237	0.085	0.153	0.971, 1.575	2,016
Western	0.872	0.315	0.119	0.666, 1.139	2,196
Northwestern	0.852	0.256	0.120	0.646, 1.123	1,310
Sub-total	*0.945*	*0.259*	*0.047*	*0.858, 1.042*	*11,603*
<u>Below Interstate 8</u>					
Southeastern	1.357	0.179	0.308	0.869, 2.118	473
Central	1.022	0.874	0.143	0.777, 1.345	1,960
Southern	1.370	0.132	0.286	0.910, 2.063	767
Mid-City	1.064	0.647	0.144	0.816, 1.387	1,499
Sub-total	*1.010*	*0.895*	*0.078*	*0.868, 1.176*	*4,699*

Table 4.13 lists the demographic profile of drivers stopped in 2014 and 2015, broken out by year. We include these data to highlight the statistical similarities between the full dataset and the inter-twilight and DST-only sub-samples. The proportions of driver race/ethnicity and driver age categories are nearly identical across the two sub-samples. Critically, the DST-only sub-sample data also mirror the full data set quite closely. These similarities lend confidence in projecting to the full sample of stops the day-night disparities revealed by our review of inter-twilight stops.

Table 4.13.

The demographic profile of drivers stopped in 2014 and 2015

	Total Sample		Inter-twilight Period		Inter-twilight – DST only*	
Driver race	2014	2015	2014	2015	2014	2015
Asian/PI	22,059 (15.6%)	18,493 (16.2%)	2,588 (15.4%)	2,085 (16.3%)	807 (15.6%)	674 (16.2%)
Black	15,763 (11.1)	12,162 (10.7)	2,000 (11.9)	1,459 (11.4)	616 (11.9)	467 (11.3)
Hispanic	42,888 (30.3)	33,974 (29.8)	5,716 (34.1)	4,348 (34.0)	1,755 (33.9)	1,446 (34.8)
White	61,011 (43.1)	49,211 (43.2)	6,480 (38.6)	4,884 (38.2)	1,999 (38.6)	1,563 (37.7)
Driver age						
25 and under	31,544 (23.3%)	28,949 (25.1%)	3,917 (24.4%)	3,455 (27.0%)	1,223 (24.5%)	1,163 (28.0%)
Over 25	103,966 (76.7)	86,456 (74.9)	12,137 (75.6)	9,321 (73.0)	3,764 (75.5)	2,987 (72.0)

*30 days prior to and after the start and end of Daylight Saving Time: Feb. 7th through Apr. 9th and the October 3rd through December 2nd.
Note: Race/ethnicity and age column totals are unequal because of missing data.

Analysis

Application of the veil of darkness technique to SDPD's 2014 and 2015 data produced a series of mixed results. Our analysis of citywide stops conducted in 2014 found disparities in the stop patterns of Black and White drivers, yet those disparities disappeared under the more rigorous parameters of the DST-only analysis. Neither the 2015 data nor the combined 2014/2015 totals showed statistically significant differences in the treatment of Black drivers compared to White drivers, regardless of driver age or stop date.

Our review of stops involving Hispanic drivers produced a similarly mixed yet distinct pattern or results. No disparities were evident in the 2014, 2015, or combined 2014/2015 data. However, when we limited the analysis to those stops occurring within 30 days of the Daylight Saving Time changes, we found some evidence of disparity in the 2015 stop data. Comparison of stop patterns involving API and White drivers revealed no statistically significant differences between the two groups.

In addition to our citywide analysis, we also examined division-level stop patterns. Our review of aggregate data from the five divisions located above Interstate 8 revealed no statistically significant disparities in the daylight-darkness stop patterns of Black and White drivers or Hispanics and Whites. Narrowing the focus to the division level revealed strong and consistent disparities in the day-night stop rates among Black and Hispanic drivers stopped in the Northeastern division, as compared to Whites. No such disparities were evident among stops occurring in the Northern, Eastern, Western, or Northwestern divisions.

Data on stops conducted below Interstate 8 reveal a different set of results. We find substantial evidence to suggest that in the aggregate, both Black and Hispanic drivers were *less* likely be stopped during daylight hours than they were after dark, compared to stops involving White drivers. In other words, when the police were able to see a driver's race, they were more likely to stop a White driver than they were a Black or Hispanic driver. At the division level, these results were evident in stops occurring in the Central division and among Hispanic (but not Black) drivers stopped in the Mid-City division.

CHAPTER 5: ANALYZING POST-STOP OUTCOMES

Introduction

In the previous section we examined 2014 and 2015 Vehicle Stop Card data in an effort to discern if any disparity exists in the way that SDPD officers initiate vehicle stops by race/ethnicity. In Chapter 5, we examine post-stop outcomes by driver race/ethnicity. These outcomes include an officer's decision to search a driver following a traffic stop, whether contraband is discovered, and whether an officer decides to issue a ticket or give the driver a warning, among others.

Unlike with vehicle stops, where the comparison population (the demographic profile of the city's driving population) is unknown, the pattern of post-stop outcomes can be measured against an established benchmark: all drivers that were stopped. Thus, in examining post-stop outcomes, we are able to get a clear picture of the extent to which disparities exist across driver characteristics, including race, gender, and residency status, as well as stop characteristics like location and time of day.

Table 5.1.

Traffic stops and post-stop outcomes in 2014 and 2015, by SDPD patrol division

	Stops (%)	Search (%)	Hit rate (%)	Arrest (%)	FI (%)	Citation (%)
Above Interstate 8						
Northern	14.7	3.3	12.1	1.5	1.4	67.1
Northeastern	12.5	2.6	7.6	0.9	1.9	56.1
Eastern	12.5	2.6	6.6	0.9	1.2	67.7
Western	11.9	4.2	12.4	1.4	2.7	60.8
Northwestern	6.4	2.6	7.1	0.8	1.6	45.1
Sub-total	58.1	3.1	9.9	1.1	1.8	57.8
Below Interstate 8						
Southeastern	7.6	10.1	9.1	1.7	8.8	46.9
Central	11.7	5.1	6.8	1.7	2.5	60.0
Southern	11.6	3.1	8.0	1.1	1.8	69.4
Mid-City	10.9	8.6	7.9	2.0	5.3	51.4
Sub-total	41.9	6.7	8.0	1.6	4.2	53.3
Total	**100.0**	**4.6**	**8.7**	**1.3**	**2.7**	**57.5**

* Hit rate is the percentage of searches that led to the discovery of contraband

Table 5.1 lists by police division both vehicle stop totals and the incidence rates of key post-stop outcomes. In the Northern division, police conducted a search in 3.3 percent of 37,203 vehicle stops, or 1 in 30. Contrast that with the Southeastern division, where 1 in 10 stops resulted in a formal search – three times the rate in the Northern division. The same kind of variance is present in other raw post-stop data. Drivers stopped in the Western division are more than twice as likely to face a field interview (FI) than are drivers stopped in the Eastern division. A similar pattern is visible in citation rates: 45.1 percent of stops conducted in the Northwestern division resulted in the issuance of a ticket, compared to almost 70 percent of stops in the Southern division.

These observed patterns do not appear to be random. To some extent, they follow division-based differences in terms of crime rates and Department allocation of officer resources. Drivers stopped in the city's higher-crime neighborhoods tend to face a greater police presence. That the SDPD may police some areas differently than other locations is common practice among other major city police departments and is well-supported in the research literature.[70] These data are also consistent with the well-established notion that police officers stop and search drivers with two strategic goals in mind: (1) to promote public safety through traffic law enforcement and deterrence; and (2) to investigate the possibility that the driver (or passenger) has engaged in other criminal activity.[71]

Post-stop enforcement patterns vary just as widely across other metrics as well. As is shown in Table 5.2, drivers stopped in the middle of the night are more likely to be searched and ultimately arrested than are drivers stopped in the morning or afternoon. Similar variation is found across day of the week, month, driver gender, and race, which is shown in Table 5.3. These raw numbers suggest that on balance Black drivers, compared to drivers of other races/ethnicities, were more frequently searched and arrested following a stop, less frequently found with contraband, and the least frequently ticketed.

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[70] Braga, A., Papachristos, A., & Hureau, D. (2012). Hot spots policing effects on crime. *Campbell Systematic Reviews*, *8*, 1-96; Weisburd, D., & Telep, C. (2014). Hot spots policing: What we know and what we need to know. *The Journal of Contemporary Criminology*, *30*, 200-220; CrimeSolutions.gov (2015). *Hot Spots Policing*. Retrieved Aug. 16, 2016 from https://www.crimesolutions.gov/PracticeDetails.aspx?ID=8.

[71] Ashton, R.J. (2007, Jul.). Bridging the legal gap between the traffic stop and criminal investigation. *The Police Chief*, *74*(7). Retrieved Aug. 16, 2016, from http://www.policechiefmagazine.org/magazine/index.cfm?fuseaction=display_arch&article_id=1229&issue_id=72 007; *Whren v. United States*. (1996). 517 U.S. 806.

Table 5.2.

Traffic stops and post-stop outcomes, by stop time

Time of day	Stops	Search (%)	Hit rate (%)	Arrest (%)	FI (%)	Citation (%)
Midnight - 3:00 AM	25,201	7.4	9.9	3.2	3.6	46.8
3:00 - 6:00 AM	7,584	6.6	10.6	2.3	3.0	46.0
6:00 - 9:00 AM	32,541	3.1	6.3	0.8	1.7	63.1
9:00 - Noon	52,309	2.9	6.8	0.7	1.5	64.6
Noon - 3:00 PM	33,145	2.4	6.3	0.7	1.2	66.8
3:00 - 6:00 PM	43,145	5.0	7.7	1.1	4.2	54.1
6:00 - 9:00 PM	27,703	5.7	11.0	1.5	3.6	46.8
9:00 - Midnight	36,613	5.6	10.2	1.8	3.8	45.6

These disparities may be due to the fact that more Black drivers live in high crime areas of the city or are more likely to drive late at night rather than during the day, thus the natural result of higher levels of exposure to police; they may also be the product of disparate treatment. The challenge with this kind of inquiry is to distinguish variation that may be the result of policy, like sending police officers to higher crime areas or more proactively searching those drivers stopped at after midnight, from that which is motivated by some form of bias.

Table 5.3.

Traffic stops and post-stop outcomes, by driver race/ethnicity

Driver race	Stops	Search (%)	Hit rate (%)	Arrest (%)	FI (%)	Citation (%)
Asian/PI	41,021	4.5	5.2	0.8	2.0	57.2
Black	28,535	9.3	7.7	1.8	8.0	46.1
Hispanic	77,934	5.9	7.4	1.5	3.0	56.7
White	111,855	2.9	11.2	1.2	1.5	57.8
Total	*259,345*	*4.4*	*8.5*	*1.3*	*2.7*	*56.1*

Research Method

To this end, we rely on an analytical technique known as propensity score matching, which allows the researcher to match drivers across several categories thought to affect the likelihood of certain post-stop outcomes. The matching criteria include stop-related factors like location and time of day, and driver characteristics, like gender and residency status. This approach has been used to study traffic stop data in Oakland, California,[72] Cincinnati, Ohio,[73] and St. Louis, Missouri,[74] among others. Though it is not the only technique that can be used to evaluate post-stop outcomes,[75] propensity score matching is the most effective and intuitive means of isolating the effects of driver race. In the section that follows we describe our application of this technique.

> **Propensity score matching** allows researchers to match drivers of different races across the various other factors known to affect the decision to ticket, search, arrest, or discover contraband.[1] Put another way, matching allows the analyst to compare the likelihood that two drivers who share gender, age, stop reason, stop location, and so on, but differ by race, will be searched, ticketed, or found with contraband.

A young male stopped on Friday night at 2:30 AM for speeding through a high-crime neighborhood may be more likely to receive a ticket than an elderly woman stopped on Tuesday at 1:00 PM for a broken tail light while driving in an area of town not associated with crime. If the first driver is ticketed and the second is not, can we fairly attribute that decision to the gender of the driver? Or is it because one was stopped at night and the other during the day? Or because one was stopped for a moving violation and the other for an equipment-related problem? In reality, an officer's decision to search is likely the product of these several factors taken together. Thus, we want to compare the post-stop outcomes of, for example, all

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[72] Ridgeway, G. (2006). Assessing the effect of race bias in post-traffic stop outcomes using propensity scores. *Journal of Quantitative Criminology*, *22*, 1-28.

[73] Riley, K.J., Turner, S., MacDonald, J., Ridgeway, G., Schell, T., Wilson, J., Dixon, T.L., Fain, T., & Barnes-Proby, D. (2005). *Police-community relations in Cincinnati*. Santa Monica, CA: RAND Corporation.

[74] Rosenfeld, R., Rojek, J., & Decker, S. (2011). Age matters: Race differences in police searches of young and older male drivers. *Journal of Research in Crime and Delinquency*, *49*, 31-55.

[75] Though we believe that the propensity score matching technique is the most effective means of isolating the effect of race on post-stop outcomes, the use of this approach does have the effect of reducing the sample size available for analysis. To account for the possibility that this limits the generalizability of our findings, we also analyzed the 2014 and 2015 data using logistic regression modeling, another statistical technique widely accepted for use with data of this kind (See, for example, Baumgartner, F., Epp, D., & Love, B. (2014). *Police Searches of Black and White Motorists. (Durham, NC).* Chapel Hill, NC: University of North Carolina-Chapel Hill Department of Political Science. Engel, R., Cherkauskas, J., Smith, M., Lytle, D., & Moore, K. (2009). *Traffic Stop Data Analysis Study: Year 3 Final Report, Prepared for the Arizona Department of Public Safety*. Cincinnati, OH: University of Cincinnati Policing Institute. Our findings, which are detailed in Appendix 7, are consistent.

young men stopped late on Friday nights for speeding in a high-crime neighborhood, to see if race/ethnicity is a determinative factor in these outcomes.

Figure 5.1.

The average percentage difference between matched and unmatched Black and White drivers across eight variables used to complete matching process
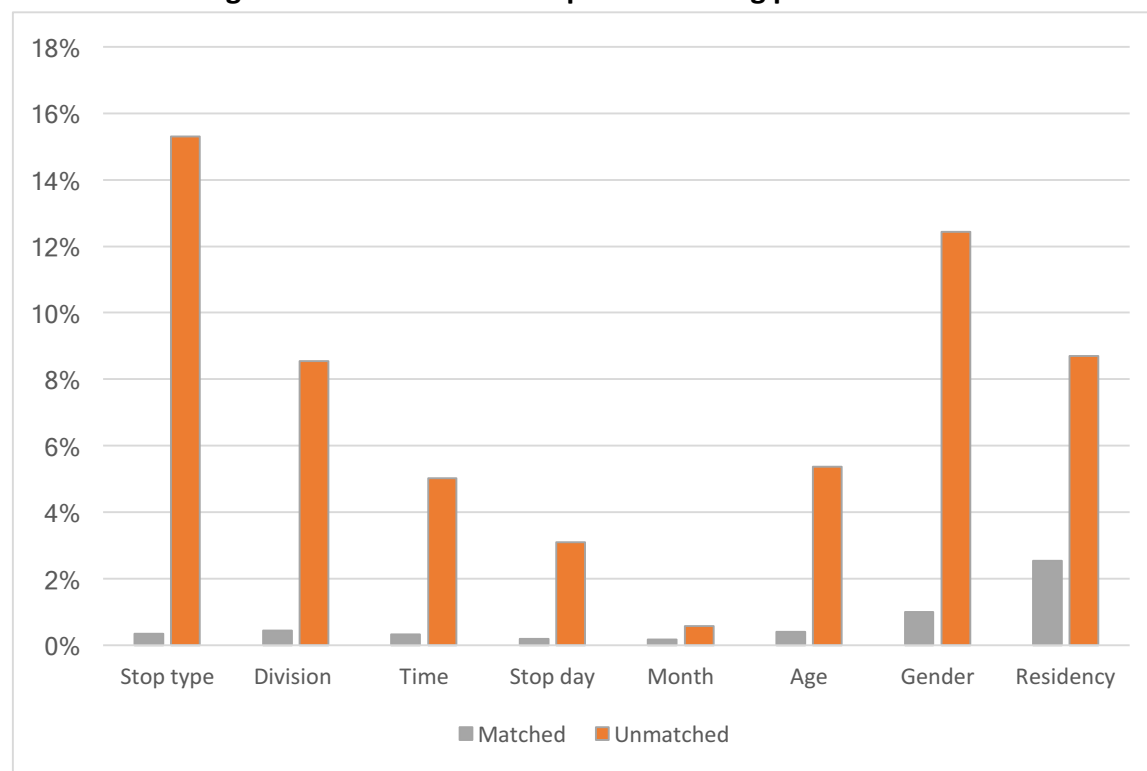
Note: Matched pairs consist of 19,948 Black and 19,948 White drivers. No matches were possible for 8,579 Black and 91,859 White drivers.

Figures 5.1 and 5.2 document the average differences between matched and unmatched drivers across the eight variables upon which the match was based. These variables include the reason for and location (police division) of the stop, the day of the week, month, and time of day during which the stop occurred, and the driver's age, gender, and residency status.

Per Figure 5.1, the stop location of matched Black and White drivers differs by only 0.44 percent, while the stop location of unmatched drivers differs by an average of 8.55 percent. Similarly, matched drivers were of identical age categories in 99.6 percent of cases, compared to 94.63 percent of cases involving unmatched Black and White drivers. Overall, the average disparity between matched Black and White drivers is 0.67 percent, compared to a 7.38 percent difference between unmatched drivers. Figure 5.2 shows similar outcomes from the matching process involving Hispanic and White drivers.

Figure 5.2.

The average percentage difference between matched and unmatched Hispanic and White drivers across eight variables used to complete matching process
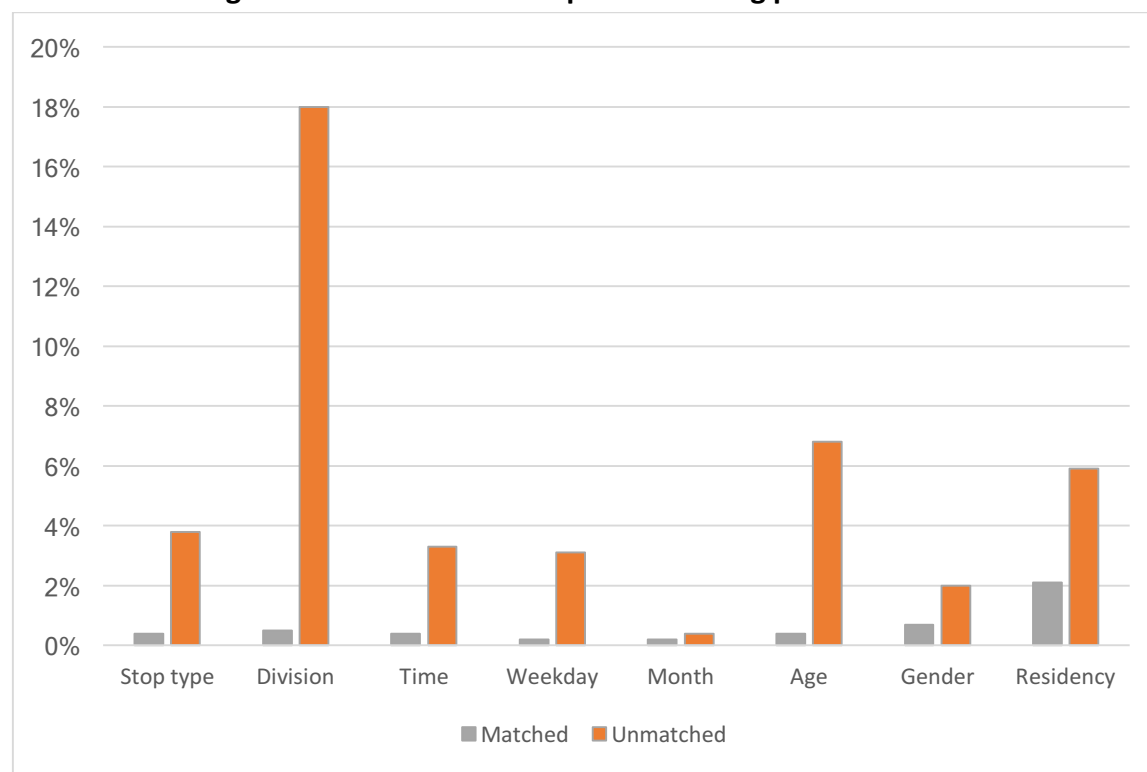
Note: Matched pairs consist of 39,252 Hispanic and 39,252 White drivers. No matches were possible for 38,682 Hispanic and 72,603 White drivers.

These figures illustrate a critical attribute of the propensity score matching approach: any differences we find between Black and Hispanic drivers and their matched White counterparts in terms of searches conducted, citations issued, or contraband found, are not the result of any of the factors listed. In other words, based on the information available, race/ethnicity is the only difference between the two groups of drivers, and thus the only factor that may explain the observed differences in post-stop outcomes.[76]

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[76] See Ridgeway, G., (2009). *Cincinnati Police Department traffic stops: Applying RAND's framework to analyze racial disparities*. Santa Monica, CA: RAND Corporation. There are other factors thought to affect the likelihood of certain post-stop outcomes, including, for examples: officer demographics (Rojek, J., Rosenfeld, R., & Decker, S. (2012). Policing race: The racial stratification of searches in police traffic stops. *Criminology*, *50*, 993-1024; Tillyer, R. Klahm, C.F., & Engel, R.S. (2012). The discretion to search: A multilevel examination of driver demographics and officer characteristics. *Journal of Contemporary Criminal Justice*, *28*, 184-205.) and performance history (Alpert, G.P., Dunham, R.G., & Smith, M.R. (2004). Toward a better benchmark: Assessing the utility of not-at-fault traffic crash data in racial profiling research. *Justice Research and Policy*, *6*, 43-69), age (Giles, H., Linz, D., Bonilla, D., & Gomez, M.L. (2012). Police stops of and interactions with Hispanic and White (non-Hispanic) drivers: Extensive policing and communication accommodation. *Communication Monographs*, *79*(4), 407-427), make, model, and condition of the vehicle stopped (Engel, R.S., Frank, J., Klahm, C.F., & Tillyer, R. (2006, Jul.). *Cleveland Division of Police Traffic Stop Data Study: Final Report*. Cincinnati, OH: University of Cincinnati Division of Criminal Justice),

Results

What follows are the results of our comparative analysis of post-stop outcomes for Black, Hispanic, and API drivers and their matched White counterparts, beginning with the decision to search.

<u>The decision to search</u>

Police searches can be classified based on the legal rules that define them. The SDPD vehicle stop card lists four such search types: consent search, Fourth waiver search, search incident to arrest, and inventory search. We frame each search type in terms of the level of officer discretion that may determine the decision to initiate the search.

We classify searches occurring incident to an arrest and inventory searches as involving low levels of discretionary authority. Officers are within their legal rights to conduct a search when an arrest is made,[77] and when a vehicle is impounded.[78] Because most such searches occur automatically, race-based disparities that exist say less about officer behavior than they do about the factors that led to the arrest or impound.

Consent searches are classified as involving higher levels of officer discretion. A consent search occurs after an officer has requested and received consent from the driver to search the driver's person or vehicle. When granting consent, the driver waives his or her Fourth Amendment protection against unreasonable search and seizure.[79] A consent search involves a high degree of police discretion, as there are few if any legal strictures in place to guide the request for or the nature of a search following the grant of consent. We would expect that whatever disparity exists would manifest more clearly in the execution of discretionary searches.

In the case of a Fourth waiver search, police officers are permitted to search a person and/or vehicle if and when they determine that the driver or passenger is either on probation or on parole. By virtue of this legal status, the driver implicitly agrees to waive Fourth Amendment protection. As a result, these searches often occur in the absence of probable cause.[80]

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and the demeanor of the driver (Engel, R.S., Klahm, C.F., & Tillyer, R. (2010). Citizens' demeanor, race, and traffic stops. In S.K. Rice & M.D. White (Eds.), *Race, ethnicity, and policing: New and essential readings*. New York: New York University Press), among others. Because the SDPD does not collect these data, it is impossible to include them in our matching protocol.

[77] *U.S. v. Robinson*. (1973). 414 U.S. 218; *Arizona v. Gant*. (2009). 556 U.S. 332.

[78] *South Dakota v. Opperman*. (1976). 428 U.S. 364.

[79] *Schneckloth v. Bustamonte*. (1973). 412 U.S. 218.

[80] *People v. Schmitz*. (2012). 55 Cal.4th 909.

Fourth waiver searches involve an ambiguous level of officer discretion.[81] On one hand, officers who are legally permitted to conduct a Fourth waiver search have the discretionary authority to opt against doing so. Similarly, officer discretion is used in determining whether a driver or passenger is on probation or parole. In each case, this discretionary authority may be applied differently based on driver race.[82] On the other hand, once it is determined that a driver/passenger is either on probation or parole, the officer has full legal authority to conduct a search, which reduces the import of the decision to initiate the search. Relatedly, we have no knowledge of the demographic profile of the City's probation/parole population or of the population of stopped drivers on probation/parole. Together, these factors complicate our ability to assign meaning to results generated by an analysis of Fourth waiver searches.

Table 5.4.
Comparing search rates among matched Black and White drivers

	Matched Black drivers (%)	Matched White drivers (%)	Difference (%)[83]	p-value
All searches	8.65	5.04	52.70	<0.001
Consent	1.39	0.75	60.09	<0.001
Fourth waiver	2.90	1.30	76.37	<0.001
Inventory	1.91	1.30	42.29	<0.001
Incident to arrest	0.90	0.89	0.56	0.480
Other (uncategorized)	1.56	0.86	58.09	<0.001

Note: The analysis is based on a total of 19,948 Black drivers and 19,948 matched White drivers.

An additional search type, the probable cause search, may occur after an officer has determined that there is sufficient probable cause to believe that a crime has been or is about to be committed.[84] The law grants officers a substantial degree of leeway in determining when the probable cause threshold has been met, which makes the evaluation of probable cause search incidence potentially very important. The SDPD Vehicle Stop card does not include a 'probable cause search' category. Given the legal and practical importance of the demonstration of probable cause prior to a search, this category of searches should be

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[81] Hetey, R., Monin, B., Maitreyi, A., & Eberhardt, J. (2016). *Data for change: A statistical analysis of police stops, searches, handcuffings, and arrests in Oakland, Calif., 2013-2014*. Stanford University, CA: Stanford SPARQ.

[82] E.g., Burks, M. (2014, Jan. 30). What it means when police ask: 'Are you on probation or parole.' *Voice of San Diego*. Retrieved Nov. 21, 2016, from http://www.voiceofsandiego.org/racial-profiling-2/what-it-means-when-police-ask-are-you-on-probation/.

[83] To calculate the percentage difference used in this and subsequent tables, we divide the absolute value of the difference between the first two columns (3.61) by the average of the first two columns – in this case, search rates (6.85). 3.61/6.85 = 52.7 percent.

[84] *Illinois v. Gates*. (1983). 463 U.S. 213.

captured. As a result of this omission, we were unable to analyze this category of police action.[85]

As is documented in Table 5.4, we found statistically significant evidence of a Black-White disparity across all search types combined, and in four out of five types of searches. For all search types combined, 8.65 percent of matched Black drivers were searched in 2014 and 2015, compared to 5.04 of matched White drivers. 2.90 percent of stopped Black drivers were subjected to a Fourth waiver search, compared to 1.30 percent of matched White drivers. Black drivers were also more likely to face consent searches than were matched Whites. To a certain extent, these disparities were also evident in low-discretion searches, including inventory searches and unclassified search types. We found no statistical difference between the rate of searches conducted incident to the arrest of a Black motorist when compared to those involving matched White drivers.

Table 5.5.
Comparing search rates among matched Hispanic and White drivers

	Matched Hispanic drivers (%)	Matched White drivers (%)	Difference (%)	p-value
All searches	6.56	3.93	50.22	<0.001
Consent	0.92	0.60	42.69	<0.001
Fourth waiver	1.07	0.90	17.62	0.004
Inventory	2.68	1.06	86.49	<0.001
Incident to arrest	0.91	0.68	29.86	<0.001
Other (uncategorized)	0.99	0.70	33.84	<0.001

Note: The analysis is based on a total of 39,252 Hispanic drivers and 39,252 matched White drivers

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[85] The data file we received from the SDPD included several uncategorized searches (i.e., a search was recorded, but the officer involved either did not consider it a Fourth waiver search, a consent search, a search incident to arrest, or an inventory search, or, simply neglected to categorize it as such). These incidents are referred to as 'Other (uncategorized)' searches. The current vehicle stop data card does include fields that allow the officer to describe the nature of the probable cause used to justify the search, including "Contraband visible," "Odor of contraband," "Canine alert," "Observed evidence related to criminal activity," or "Other" (See Appendix 2 for details). Yet in most cases, the officers are not consistent in this documentation. In 2014, for example, the 'Other (uncategorized)' category included 938 searches. Of these, 595 (63.4 percent) were unlabeled, while another 145 (15.5 percent) were described as 'Other,' in most cases without any additional information. Because we cannot confidently characterize some 78.9 percent of these data as meeting the probable cause standard, we neglected to create such a category.

Table 5.5 displays the results of our comparison of Hispanic drivers and their matched White counterparts. We find statistically significant evidence of a Hispanic-White disparity across all search types combined, as well as in all five types of searches. In the aggregate, officers conducted a search in 6.56 percent of stops involving Hispanic drivers, compared to the 3.93 percent of stops involving matched White drivers.

Though consent searches are relatively rare occurrences, regardless of driver race, in 2014 and 2015 Hispanic drivers were subject to consent searches more often than their White counterparts. We find statistically significant differences between Hispanic and matched White drivers across all search types, including consent searches, Fourth waiver searches, inventory searches, those conducted incident to arrest, and other uncategorized searches. Hispanic drivers were also significantly more likely to face an inventory search than are their matched White counterparts.

Table 5.6 lists the results of our analysis of searches involving matched API and White drivers. Under certain conditions, we find statistically significant evidence that White drivers were searched at greater rates than matched APIs. In the aggregate, matched White drivers were searched following 3.48 percent of stops, compared to a 2.61 percent search rate for API drivers. We also find that Whites were subject to higher rates of inventory searches, searches conducted incident to arrest, and uncategorized searches. There was no statistically significant difference in either consent or Fourth waiver search rates.

Table 5.6.
Comparing search rates among matched Asian/Pacific Islander and White drivers

	Matched Asian/PI drivers (%)	Matched White drivers (%)	Difference (%)	p-value
All searches	2.61	3.48	-28.57	<0.001
Consent	0.48	0.49	-2.06	0.390
Fourth waiver	0.64	0.74	-14.49	0.063
Inventory	0.69	1.02	-38.60	<0.001
Incident to arrest	0.35	0.68	-64.08	<0.001
Other (uncategorized)	0.50	0.64	-24.56	0.006

Note: The analysis is based on a total of 34,068 Asian/PI drivers and 34,068 matched White drivers

In sum, we find that Black and Hispanic drivers were more likely to be the subject of a police search following a traffic stop than were matched Whites. These disparities are consistent with

those generated by recent analyses of police search decisions in Minneapolis, Minnesota,[86] St. Louis, Missouri,[87] and Portland, Oregon,[88] among several other jurisdictions.[89]

<u>Hit rates</u>

The term 'hit rate' is used to describe the frequency that a police officer's search leads to the discovery of unlawful contraband, which the SDPD defines as "property that is illegal to possess."[90] This metric is a reflection of the quality and efficiency of a police officer's decision to search and is a well-accepted means of identifying racial/ethnic disparities.[91]

Our hit rate analysis was complicated by several challenges stemming from the way that the SDPD captures data on the discovery of contraband. The first involved how to treat the tens of thousands of ambiguously labeled cases included as part of the raw data compiled by the SDPD. As is documented in Table 5.6, a very high number – over 90 percent – of cases were either missing information on the discovery of contraband or coded ambiguously. We acknowledge that these missing data are likely the product of the SDPD's data management system rather than officer non-compliance. Indeed, our hit rate analysis reflects the assumption that these missing/ambiguous data indicate that no contraband was discovered. With that said, we cannot offer any evidence to substantiate this assumption, and thus make these calculations with slightly less confidence than some of our others.

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[86] Briggs, S.J. (2016). The impact of police deployment on racial disparities in discretionary searches. *Race and Justice*. Available online before print. DOI: 10.1177/2153368716646163.

[87] Rojek, J., Rosenfeld, R., & Decker, S. (2012). Policing race: The racial stratification of searches in police traffic stops. *Criminology*, *50*, 993-1024.

[88] Renauer, B.C. (2012). Neighborhood variation in police stops and searches: A test of consensus and conflict perspectives. *Justice Quarterly*, *15*, 219-240.

[89] Tillyer, R., & Klahm, C.F. (2015). Discretionary searches, the impact of passengers, and the implications for police-minotity encounters. *Criminal Justice Review*. Available online before print. DOI: 10.1177/0734016815581049; Tillyer, R., Klahm, C.F., & Engel, R.S. (2012). The discretion to search: A multilevel examination of driver demographics and officer characteristics. *Journal of Contemporary Criminal Justice*, *28*, 184-205; Fallik, S.W., & Novak, K.J. The decision to search: Is race or ethnicity important? *Journal of Contemporary Criminal Justice*, *28*, 46-165.

[90] The Department also notes that, "Determining whether property is contraband is contextual—some property that is generally legal to possess may be illegal in certain circumstances. For example, an open container of alcohol is generally legal for adults 21 years or older, however is illegal when possessed in a vehicle. Similarly, parolees may have restrictions regarding possession of specific weapons that would otherwise be legal.

[91] Persico, N., & Todd, P.E. (2008). The hit rate test for racial bias in motor-vehicle searches. *Police Quarterly*, *25*, 37-53; Ridgeway, G. & MacDonald, J. (2010). Methods for assessing racially biased policing. In S.K. Rice & M.D. White (Eds.) *Race, ethnicity, and policing: New and essential readings* (pp. 180-204). New York: New York University Press; Tillyer, R., Engel, R.S., & Cherkauskas, J.C. (2010). Best practices in vehicle stop data collection and analysis. *Policing: An International Journal of Police Strategies & Management*, *33*, 69-92.

Table 5.7.
Raw data on the discovery of contraband

| Contraband found? | Search conducted? | | | |
	Yes	No	Missing	Total
Yes	981	26	0	1,007
No	6,775	9,554	31	16,360
Null	337	63,488	722	64,547
Missing	3,434	163,453	10,777	177,664
Total	11,527	236,521	11,530	259,578

The second and related challenge resulted from the fact that according to the SDPD, contraband discovery should be considered valid for the purposes of our analysis only if it follows a search. Per Table 5.7 there were 26 cases where contraband was discovered, but no search was recorded. Furthermore, there are 3,771 cases where a search occurred, but the outcome of the search was either missing or ambiguously coded. Finally, there were 11,499 cases where search data was missing or listed as null, including 31 cases where 'no contraband' was listed.

To address these data issues, we excluded the 11,499 cases where search data was missing/null, and the 26 cases where the discovery of contraband was reported, but no search was conducted. From there, we classified cases where information on the discovery of contraband was either missing or null as indicative of a 'no contraband' finding. We recognize that there are possible implications for treating these missing cases differently and thus have included the results of additional analyses, including models where we drop all missing/null cases, in Appendix 8.

To generate the data shown in Table 5.8, we interpreted all missing and null cases as indicating that no contraband was discovered (n=242,211). From there, we calculated hit rates using the 19,948 matched Black and 19,948 matched White drivers that we used to analyze the Department's search decisions. Police searched 1,726 (8.65 percent) of Black drivers stopped and discovered contraband on 137 occasions, or 7.9 percent of the time. Of matched White drivers, 1,005 (5.04 percent) were searched, with 125 of those searched (12.4 percent) found to be holding contraband. Matched Whites were more likely to be found with contraband following Fourth waiver searches and consent searches. There were no statistically significant differences in the hit rates of matched Black and White drivers following searches conducted incident to arrest, inventory searches, or other, uncategorized searches.

Table 5.8.

Comparing hit rates among matched Black and White drivers

	Matched Black drivers (%)	Matched White drivers (%)	Difference (%)	p-value
All searches	7.9	12.4	-44.2	<0.001
Consent	7.2	14.8	-68.6	0.013
Fourth waiver	7.4	14.3	-63.2	0.002
Inventory	3.4	4.8	-34.6	0.368
Incident to arrest	14.0	13.5	3.5	0.897
Other (uncategorized)	11.6	17.5	-41.0	0.069

Note: The analysis is based on a total of 19,948 Black drivers and 19,948 matched White drivers. Missing and null cases coded as no contraband.

Table 5.9.

Comparing hit rates among matched Hispanic and White drivers

	Matched Hispanic drivers (%)	Matched White drivers (%)	Difference (%)	p-value
All searches	7.4	11.9	-46.2	<0.001
Consent	9.1	17.5	-62.9	0.002
Fourth waiver	11.0	13.1	-17.6	0.368
Inventory	2.8	4.3	-44.2	0.126
Incident to arrest	8.9	13.2	-38.6	0.089
Other (uncategorized)	13.2	15.6	-17.1	0.373

Note: The analysis is based on a total of 39,252 Hispanic drivers and 39,252 matched White drivers. Missing and null cases coded as 'no contraband.'

We used an identical four-part process to evaluate hit rates of matched Hispanic drivers and their matched White counterparts. The results are shown in Table 5.9. Police searched 2,576 (6.56 percent) of the 39,252 matched Hispanic drivers, finding contraband 191 times (7.4 percent). This figure is 46.2 percent lower than the 11.9 percent hit rate (183 of 1,542 searches uncovered contraband) of the matched White drivers who were searched. White drivers were more likely to be found carrying contraband following consent searches than were matched Hispanics. We found no meaningful difference in the hit rates following either Fourth waiver searches, inventory searches, those conducted incident to arrest, or unclassified searches.[92]

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[92] The SDPD also captures data on incidence of property seizure following traffic stops, though the Department does not document what type of property was seized or the circumstances under which the seizure occurred. Despite the ambiguity that accompanies these data, we analyzed them using the same analytical approach applied

Table 5.10.

Comparing hit rates among matched Asian/Pacific Islander and White drivers

	Matched API drivers (%)	Matched White drivers (%)	Difference (%)	p-value
All searches	9.42	10.39	-9.78	0.465
Consent	9.68	16.56	-52.44	0.075
Fourth waiver	9.22	12.90	-33.33	0.208
Inventory	5.15	3.17	47.60	0.230
Incident to arrest	12.61	12.23	3.04	0.920
Other (uncategorized)	12.29	12.79	-3.95	0.881

Note: The analysis is based on a total of 68,136 Asian/Pacific Islander drivers and 68,136 matched White drivers. Missing and null cases coded as 'no contraband.'

In Table 5.10, we document the hit rates of searches involving 68,136 matched API and White drivers. There were no statistically significant differences evident.

To review, we compared the hit rates – the percentage of searches that led to the discovery of contraband – of searches involving API, Black, and Hispanic drivers with those of matched White drivers. Despite having higher search rates, Black and Hispanic drivers were either less likely or just as likely to be found carrying an illegal substance, a finding that is consistent with those generated by other recent studies.[93] Matched White and API drivers were equally likely to be found carrying contraband.

<u>Arrest</u>

We also used propensity score matching to compare the arrest rates of Black and Hispanic drivers with White drivers who were stopped under similar circumstances. As is shown in Table 5.11, 1.79 percent (20,872 stops led to 374 arrests) of matched Black drivers were ultimately arrested, compared with 1.84 percent (384 of 20,872) of matched White drivers. This difference was not statistically significant.

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to the discovery of contraband. Property was seized from 8.9 percent of Black drivers searched, a rate 28 percent fewer than the 11.8 percent seizure rate of matched White drivers (difference statistically significant at the 0.01 level). Similarly, property was seized from 11.1 percent of Hispanic drivers stopped and searched by the SDPD, compared to the seizure rate of 12.3 percent of matched Whites (difference not statistically significant).

[93] Tillyer, R., & Klahm, C. (2011). Searching for contraband: Assessing the use of discretion by police officers. *Police Quarterly*, *14*, 166-185; Warren, P.Y., & Tomaskovic-Devey, D. (2009). Racial profiling and searches: Did the politics of racial profiling change police behavior?. *Criminal Justice & Public Policy*, *8*, 343-369; Williams, B.N., & Stahl, M. (2008). An analysis of police traffic stops and searches in Kentucky: A mixed methods approach offering heuristic and practical implications. *Policy Sciences*, Vol. *41*, 221-243.

Table 5.11.

Comparing arrest rates for matched Black and White drivers

	Matched Black drivers (%)	Matched White drivers (%)	Difference (%)	p-value	Matched pairs
Arrest	1.79	1.84	-2.8	-0.69	20,872

Note: Missing and null data considered as indicative of 'no arrest.'

As we document in Table 5.12, 651 of 41,220 stops involving matched Hispanic drivers resulted in an arrest, or an arrest rate of 1.71 percent. Stops involving matched White drivers ended in arrest slightly less often (537 times, or a rate of 1.41 percent), though the difference between the two groups proved to be statistically significant.

Table 5.12.

Comparing arrest rates for matched Hispanic and White drivers

	Matched Hispanic drivers (%)	Matched White drivers (%)	Difference (%)	p-value	Matched pairs
Arrest	1.71	1.41	19.2	<0.001	41,220

Note: Missing and null data considered as indicative of 'no arrest.'

Table 5.13 documents our analysis of arrests involving matched API and White drivers. API drivers were arrested following 0.85 percent of stops (304 arrests out of 35,847 stops), 44 percent lower than the 1.33 percent arrest rate for matched Whites (477 of 35,847 stops led to an arrest). This disparity is statistically significant at the 0.001 level.

Table 5.13.

Comparing arrest rates for matched Asian/Pacific Islander and White drivers

	Matched Asian/PI drivers (%)	Matched White drivers (%)	Difference (%)	p-value	Matched pairs
Arrest	0.85	1.33	-44.04	<0.001	35,847

Note: Missing and null data considered as indicative 'no arrest.'

The findings involving Black and Hispanic drivers are inconsistent with much of the existing research on the effects of race/ethnicity on police arrest decisions. In fact, according to a 2011

paper, 24 of the 27 studies published on the issue found that Blacks and other minorities were more likely to be arrested than Whites encountering the police under similar circumstances.[94]

Field Interviews

Per SDPD Procedure 6.03, which establishes Department guidelines for the use and processing of Field Interview Reports, a field interview is defined as "any contact or stop in which an officer reasonably suspects that a person has committed, is committing, or is about to commit a crime." According to one SDPD Sergeant, FIs are "the bread and butter of any gang investigator" and important for identifying criminal suspects.[95]

The traffic stop data card includes space for officers to document these encounters. Our analysis of the SDPD's field interview records also showed statistically significant differences between matched pairs. As we show in Table 5.14, matched Black drivers were subject to field interview questioning 1,203 times (6.60 percent of stops) between January 1, 2014 and December 31, 2015, while 552 White drivers were given field interviews (2.75 percent) during that same period, a difference of just over 82 percent.

Table 5.14.
Comparing field interview rates for matched Black and White drivers

	Matched Black drivers (%)	Matched White drivers (%)	Difference (%)	p-value	Matched pairs
Field interview	6.60	2.75	82.4	<0.001	20,060

Note: Missing and null cases considered as indicative of 'no field interview.'

Table 5.15 documents the results of our analysis of matched Hispanic and White drivers. SDPD officers conducted field interviews with 2.98 percent of matched Hispanics, a rate 37 percent greater than the 2.05 percent experienced by White drivers.

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[94] Kochel, T.R., Wilson, D.B., & Mastrofski, S.D. (2011). Effect of suspect race on officers' arrest decisions. *Criminology*, *49*, 473-512. See also, Alpert, G. P., Becker, E., Gustafson, M. A., Meister, A. P., Smith, M. R., & Strombom, B. A. (2006). *Pedestrian and motor vehicle post-stop data analysis report*. Los Angeles, CA: Analysis Group. Retrieved Oct. 3, 2016, from http://assets.lapdonline.org/assets/pdf/ped_motor_veh_data_analysis_report.pdf; Smith, M. R., & Petrocelli, M. (2001). Racial profiling? A multivariate analysis of police traffic stop data. *Police Quarterly, 4*, 4-27; Withrow, B. L. (2004). Race-based policing: A descriptive analysis of the Wichita stop study. *Police Practice and Research, 5*, 223-240.
[95] O'Deane, M., & Murphy, W.P. (2010, Sept. 23). Identifying and documenting gang members. *Police Magazine*. Retrieved Aug. 16, 2016, from http://www.policemag.com/channel/gangs/articles/2010/09/identifying-and-documenting-gang-members.aspx.

Table 5.15.

Comparing field interview rates for matched Hispanic and White drivers

	Matched Hispanic drivers (%)	Matched White drivers (%)	Difference (%)	p-value	Matched pairs
Field Interviews	2.98	2.05	37.0	<0.001	39,505

Note: Missing and null cases considered as indicative of 'no field interview.'

Table 5.16 documents the results of our analysis of field interviews involving matched API and White drivers. Though field interviews were relatively rare occurrences overall, we find that the FI rate of matched API drivers (1.98 percent, or 710 FIs following 35,847 stops) was higher than that of matched Whites (1.67 percent, or 599 FIs following 35,847 stops).

Table 5.16.

Comparing field interview rates for matched Asian/Pacific Islander and White drivers

	Matched Asian/PI drivers (%)	Matched White drivers (%)	Difference (%)	p-value	Matched pairs
Field interview	1.98	1.67	16.99	<0.001	35,847

Note: Missing and null cases considered as indicative of 'no field interview.'

It is difficult to position these findings in context with data generated by other departments, as the vast majority of published research examining field interviews considers those FIs that occur following pedestrian stops. We note that SDPD's current data management regime does not allow officers to distinguish a field interview conducted pursuant to a traffic stop from those involving pedestrians.

Citation or warning

We close Chapter 5 with a review of data on the issuance of citations. As with the previous analyses, we use propensity score matching to account for the several factors that may affect an officer's decision to issue a citation rather than a warning, including when, why, and where the stop occurred. This allows us to attribute any disparities we observe to driver race. We interpreted missing data and those cases listed as 'null' (n = 11,550) to indicate that the driver received a warning rather than a citation.[96]

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[96] To account for the possibility that our findings are influenced by this interpretation of the missing and/or null data, we examined the citation/warning data under several other assumption conditions. The full results, which are consistent with those described above, are found in Appendix 10.

The findings, listed in Table 5.17, show that matched Black drivers receive a citation in 49.6 percent of stops, as compared to matched White drivers, who were cited in 56.1 percent of stops. To account for the possibility that those factors that led to a search may affect the likelihood that a driver will receive a citation, we also limited the analysis to those motorists who were stopped by the SDPD but not searched. After dropping searched drivers from the sample, we re-matched the remaining drivers using the same set of variables and procedure as described above.[97] The results, also displayed in Table 5.17, suggest that the relationship between the initiation of a search and the decision to issue a citation is unrelated to race. In fact, the percentage of citations increased slightly for both matched Black and White drivers.

Table 5.17.

Comparing citation rates for matched Black and White drivers

	Matched Black drivers (%)	Matched White drivers (%)	Difference (%)	p-value	Matched pairs
Searched drivers included	49.60	56.10	-12.3	<0.001	20,922
Searched drivers excluded	51.97	58.03	-11.0	<0.001	19,353

Note: Missing and null cases coded as indicative of 'no citation given.'

As shown in Table 5.18, SDPD officers cite matched Hispanic and White drivers at very similar rates. When searched drivers are included as part of the matched sample, the percentage of drivers given a citation is nearly identical across races. When searched drivers were omitted from the sample, the re-matched Hispanic drivers were ticketed 60.67 percent of the time, compared to 59.72 for Whites.

Table 5.18.

Comparing citation rates for matched Hispanic and White drivers

	Matched Hispanic drivers (%)	Matched White drivers (%)	Difference (%)	p-value	Matched pairs
Searched drivers included	58.44	58.36	0.1	0.833	41,340
Searched drivers excluded	60.67	59.72	1.6	0.007	39,006

Note: Missing and null cases coded as indicative of 'no citation given.'

Finally, as is shown in Table 5.19, we relatively small yet statistically significant differences in the citation rates of matched API and White drivers.

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[97] The categorical balancing requirements (no statistical difference) were met for each of the independent variables used to match Black/Hispanic and White drivers.

Published research on the relationship between driver race/ethnicity and the citation/warning decision has generated inconsistent findings. In some studies, analysts have found that Black and Hispanic drivers are less likely to receive a traffic citation than White drivers.[98] In others, data show that minority drivers receive citations at greater rates than Whites stopped under similar conditions.[99] No published research that we are aware of examines the citation patterns of API drivers.

Table 5.19.

Comparing citation rates for matched Asian/Pacific Islander and White drivers

	Matched Asian/PI drivers (%)	Matched White drivers (%)	Difference (%)	p-value	Matched pairs
Searched drivers included	59.13	57.39	2.99	<0.001	35,847
Searched drivers excluded	60.11	58.66	2.44	<0.001	34,884

Note: Missing and null cases coded as indicative of 'no citation given.'

Summary

We used the propensity score matching technique to pair API, Black, and Hispanic drivers with White drivers who were stopped by the SDPD under similar circumstances. By matching drivers along these lines we were able to isolate the effect that driver race/ethnicity has on the likelihood that each group will experience one of several post-stop outcomes. We found that:

- 8.65 percent of stops involving Black drivers involved a search, a rate 52.7 percent greater than the 5.04 percent of matched White drivers who were searched. Similarly, Hispanics were searched in 6.56 percent of stops, 50.22 percent greater than matched Whites (3.93 percent). With few exceptions, these disparities were robust across all search types.

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[98] Engel, R. S., Frank, J., Tillyer, R., & Klahm, C.F. (2006). *Cleveland division of police traffic stop data study: Final report.* Cincinnati, OH: University of Cincinnati. Submitted to the Cleveland Division of Police, Cleveland, OH; Schafer, J.A., Carter, D.L., Katz-Bannister, A., & Wells, W.M. (2006). Decision- making in traffic stop encounters: A multivariate analysis of police behavior. *Police Quarterly, 9*, 184-209.

[99] Engel, R. S., Tillyer, R., Cherkauskas, J. C., & Frank, J. (2007). *Traffic stop data analysis study: Year 1 Final Report.* Cincinnati, OH: University of Cincinnati. Submitted to the Arizona Department of Public Safety, Phoenix, AZ; Regoeczi, W.C., & Kent, S. (2014). Race, poverty, and the traffic ticket cycle: Exploring the situational context of the application of police discretion. *Policing: An International Journal of Police Strategies & Management*, 37, 190–205. Tillyer, R., & Engel, R.S. (2013). The impact of drivers' race, gender, and age during traffic stops: Assessing interaction terms and the social conditioning model. *Crime & Delinquency*, 59, 369-395.

- Despite occurring at greater rates, police searches of Black and Hispanic drivers were either less likely than or just as likely to be found with contraband as matched White drivers. The size and statistical strength of the disparity vary by search type.
- Matched Black drivers were subject to field interviews in 6.60 percent of stops, 2.4 times the rate of matched White drivers (2.75 percent). Police conducted field interviews in 2.98 percent of stops involving matched Hispanic drivers, 37 percent lower than the 2.05 percent FI rate of their matched White counterparts. Police conducted field interviews with 1.98 percent of matched API drivers, nearly 17 percent greater than the 1.67 percent FI rate of matched Whites.
- There was no statistical difference in the arrest rates of matched Black and White drivers. Hispanic drivers were arrested at a slightly higher rate than their matched white counterparts, while Whites were arrested at a greater rate than matched API drivers.
- Black drivers were issued citations less often than their matched White peers, while matched API, Hispanic, and White drivers were cited at nearly identical rates.

CHAPTER 6: SUMMARY AND RECOMMENDATIONS

Summary of research method and findings

In this Report, we analyzed several data sources – including records of 259,569 traffic stops conducted between January 1, 2014 and December 31, 2015, data gathered from 10 community focus groups, an electronic survey of the SDPD (n=365), and follow-up interviews with officers from all nine patrol divisions (n=52) – in an effort to address four broad questions:

1. To what extent is there a department-level pattern of racial/ethnic disparity in the initiation of traffic stops?
2. To what extent are racial/ethnic disparities in the initiation of traffic stops evident at the patrol division level?
3. To what extent is there a department-level pattern of racial/ethnic disparity in the outcome of traffic stops?
4. How does SDPD's traffic enforcement regime affect police-community relations in San Diego?

The research methodology and findings detailed over the previous several chapters are summarized below. In the subsequent recommendations section, we draw on our findings from the community focus groups, electronic survey, and officer interviews to contextualize and support our recommendations to the Department.

Method of analysis: Traffic stops

To properly assess the effect that a driver's race/ethnicity has on the likelihood that he or she will be stopped, researchers must develop a benchmark that enables the comparison of actual stop rates with a driver's risk of being stopped in the absence of bias.[100] An appropriate benchmark must incorporate the various legal and non-legal factors that shape this stop risk, including: when, where, and how often they drive; the make, model, and condition of their car; and their behavior and demeanor while driving.[101]

The challenge that has plagued past efforts to perform this kind of analysis is driven by what police accountability expert Sam Walker calls the "denominator" problem: researchers do not

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[100] Tillyer, R., Engel, R.S., & Cherkauskas, J.C. (2010). Best practices in vehicle stop data collection and analysis. *Policing: An International Journal of Police Strategies & Management*, 33(1), 69-92.

[101] Fridell, L.A. (2004). *By the numbers: A guide for analyzing race data from Vehicle Stops*. Washington, D.C.: Police Executive Research Forum; Ridgeway, G. & MacDonald, J. (2010). Methods for assessing racially biased policing. In S.K. Rice & M.D. White (Eds.) *Race, ethnicity, and policing: New and essential readings* (pp. 180-204). New York: New York University Press; Tillyer, R., Engel, R.S., & Cherkauskas, J.C. (2010). Best practices in vehicle stop data collection and analysis. *Policing: An International Journal of Police Strategies & Management*, 33(1), 69-92; and Walker, S. (2001). Searching for the denominator: Problems with police traffic stop data and an early warning system solution. *Justice Research and Policy*, 3(1), 63-95.

have an accurate way to measure the demographic profile of a city's driving population.[102] There are several weaknesses in using Census data as a proxy, including well-established racial/ethnic and age-based disparities between those who live in a city and those who drive on its roads.[103] Further, a city's driving population is fluid; those who drive at 8 am may look and act substantially different than those who drive at 8 pm across many relevant stop-related risk factors.

We circumvent this problem by employing what is known as the veil of darkness technique. This approach rests on the assumption that if stop disparities exist, whether driven by race, age, or other factors, they will be more apparent among stops made in daylight, when drivers' physical profile and demeanor are more readily detectable, than at night, when these characteristics are obscured by darkness. In an attempt to isolate the effect of driver race, the analysis is confined to the "inter-twilight period," or the period between the earliest end of civil twilight (approximately 5:09 pm on Nov. 27) and the latest (approximately 8:29 pm on Jun. 27). This allows us to account for changes to the driving population during the course of the day and obviates the need for an external benchmark against which to compare actual stop patterns.

Findings: Traffic stops
Comparative analysis of discretionary traffic stops involving Black and White drivers revealed an inconsistent pattern of results. Our review of the 2014 data (aggregated at the city level) indicated that Black drivers were 19.6 percent more likely to be stopped during daylight hours, when driver race/ethnicity was visible, than after sundown, when driver race/ethnicity was obscured by darkness, compared to White drivers. Though the 2014 disparities were more pronounced when the sample was limited to drivers under the age of 25, they were not present in the 2015 data or in the combined 2014/2015 data. Similarly, our analysis of citywide data revealed no indication that officers' decision to stop Hispanic drivers was affected by the change from daylight to darkness, regardless of when the stop occurred or the comparison group used.

In addition to our citywide analysis, we also compared stop patterns by location. Analysis of stops initiated in divisions located above Interstate 8 showed that in the aggregate police were no more likely to stop either Black or Hispanic drivers during daylight hours than after dark, compared to White drivers. We found no evidence that Blacks or Hispanics were treated differently in the Northern, Eastern, Western, or Northwestern divisions, but statistically

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[102] Walker, S. (2001). Searching for the denominator: Problems with police traffic stop data and an early warning system solution. *Justice Research and Policy*, *3*(1), 63-95.
[103] Tillyer, R., Engel, R.S., & Cherkauskas, J.C. (2010). Best practices in vehicle stop data collection and analysis. *Policing: An International Journal of Police Strategies & Management*, *33*, 69-92.

significant evidence of disparity among stops initiated in the Northeastern division. Compared to White drivers, Black and Hispanic drivers stopped in Northeastern division neighborhoods were 60.2 and 33.7 percent more likely to be stopped in daylight than after dark, respectively.

Conversely, when the analysis was confined to stops occurring in divisions below Interstate 8, we found that in the aggregate Blacks were nearly 20.7 percent *less* likely to be stopped during daylight hours, when driver race/ethnicity is more likely to be visible, than after sundown, when race/ethnicity is obscured by darkness. Similarly, our review of the nearly 11,000 stops occurring below Interstate 8 shows that Hispanic drivers were 28.4 percent less likely to experience a daytime stop than one occurring in darkness, compared to White drivers. We found no statistical disparity among drivers stopped in the Southeastern or Southern divisions. Central division stops involving Black drivers were 42.8 percent *less* likely to occur during the day than they are at night compared to stops of Whites. Hispanic drivers stopped in the Central division were 45.6 percent less likely to experience a stop during daylight hours than in darkness. Similarly, Hispanic drivers stopped in Mid-City were 18.8 percent less likely to be stopped before sundown than after dark, compared to Whites.

Finally, we found no difference in the pattern of stops involving Asian/Pacific Islander and White drivers, regardless of the analytical approach taken (citywide and location-based, as well as the annual and DST-only analyses) or the nature of the comparison (all drivers, drivers 25 and under).

Method of analysis: Post-stop outcomes
In an effort to eliminate potentially confounding explanations for racial/ethnic disparities in post-stop outcomes, we matched Black, Hispanic, and API drivers with White counterparts across a set of demographic and stop-based characteristics using a statistical technique known as propensity score matching. Propensity score matching allows researchers to pair drivers of different races across the various other factors known to affect the likelihood of receiving a citation, being searched, arrested, subject to a field interview, or being found with contraband. In other words, this technique enables a much more careful and nuanced comparison of the treatment of drivers who share gender, age, stop reason, stop location, and so on, but differ by race.

Analysis of the post-stop outcomes between matched pairs shows statistically significant differences in the experiences of Black and Hispanic drivers and their matched White counterparts.

Findings: Search

After accounting for several possible explanatory factors, we found that Black drivers were searched by the SDPD following 8.65 percent of discretionary traffic stops, while matched Whites were searched 5.04 percent of the time. Analysis of specific search types revealed similar levels of disparity. Black drivers were 1.85 times more likely to submit to a consent search and 1.47 times more likely to face an inventory search. The differences were most extreme in the administration of Fourth waiver searches, where Black drivers were searched more than 2.23 times more often than matched Whites.

The data also show similar differences in the search rates involving Hispanic drivers. In fact, depending on the nature of the search, Hispanic drivers were between 17 and 87 percent more likely to be searched following a routine traffic stop than were their matched White counterparts. Analysis of search rates involving matched API and White drivers showed that White drivers were 1.33 times more likely to be searched than their matched API peers.

Findings: Hit rate

Despite being subject to higher search rates, Black drivers were less likely to be found with contraband than were matched White drivers. Hispanic drivers were also less likely to be found holding contraband, again despite being subject to more searches. In fact, contraband discovery rates were lower for searches involving Hispanic drivers, though the statistical strength of the differences with paired White drivers varied by search type. No meaningful differences were evident in the hit rates of matched API and White drivers.

Findings: Field interview, arrest, and citation

Finally, we found statistically significant disparities in the field interview rates of minority drivers, and mixed results regarding the citation and arrest rates of Black and Hispanic drivers compared to matched Whites. For Black drivers, 6.60 percent of stops involved a field interview, some 2.4 times higher than the rate at which matched White drivers were interviewed (2.75 percent). The arrest rate of Black drivers was not meaningfully different from that of matched Whites, despite the Department's more proactive approach to searching and interviewing Black drivers. We found that Black drivers were cited at lower rates (49.6 percent) than White drivers (56.1 percent) who were stopped by the SDPD under similar circumstances.

Our analysis showed that Hispanic drivers were subject to field interviews more often than matched White drivers, though the disparity was less pronounced than was the case with Black drivers. The observed disparity between Hispanics and matched Whites did not extend to either arrest or the decision to issue a citation. Hispanic drivers were given citations at almost exactly

the same rate as matched White drivers and though we found statistical differences in the arrest rates of the two matched groups, the practical difference was rather small (1.71 percent arrest rate for Hispanics compared to 1.41 percent for Whites).

In sum, we find statistically significant and meaningful differences in the post-stop treatment of Black and Hispanic drivers compared to White drivers across several important outcomes. In an effort to put some of these data into context, we highlight the substantial race-based disparities in the search rate/hit rate data.

In San Diego, matched Black drivers were 1.72 times more likely to be searched, and – despite being searched more frequently – were 44.2 percent less likely to be found with contraband. Similarly, SDPD officers searched Hispanic drivers at 1.67 times the rate of matched Whites, yet were 46.2 percent less likely to discover contraband following searches of Hispanic drivers compared to matched Whites.

Compare these rates to those of two cities recently investigated by the U.S. Department of Justice. In Ferguson, Missouri, the DOJ found that Black drivers were 2.07 times more likely to be searched, yet 26 percent less likely to be found with contraband than were White drivers.[104] These disparities contributed to the DOJ's conclusion that the Ferguson Police Department engaged in systematic bias against the city's Black population.[105] In Baltimore, another city recently found by the DOJ to have engaged in a pattern or practice of "discriminatory policing against African Americans,"[106] Black drivers were 23 percent more likely than Whites to be searched following a traffic stop, yet 74 percent less likely to be found with contraband.[107] Analysis of data from Los Angeles, California, a city that spent nine years under federal oversight to address a pattern or practice of unlawful police behavior, revealed a similar pattern.[108]

By contrast, recent reports from two other jurisdictions found to have engaged in a pattern or practice of practice of unlawful conduct, Cincinnati, Ohio and Oakland, California, showed that

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[104] United States Department of Justice, Civil Rights Division. (2015, Mar. 4). Investigation of the Ferguson Police Department, p. 65. Retrieved Sept. 8, 2016, from
https://www.justice.gov/sites/default/files/crt/legacy/2015/03/04/ferguson_findings_3-4-15.pdf.

[105] United States Department of Justice, Civil Rights Division. (2015, Mar. 4). Investigation of the Ferguson Police Department. Retrieved Sept. 8, 2016, from
https://www.justice.gov/sites/default/files/crt/legacy/2015/03/04/ferguson_findings_3-4-15.pdf.

[106] United States Department of Justice, Civil Rights Division. (2016, Aug. 10). Investigation of the Baltimore City Police Department, p. 47. Retrieved Sept. 8, 2016, from https://www.justice.gov/crt/file/883296/download.

[107] United States Department of Justice, Civil Rights Division. (2016, Aug. 10). Investigation of the Baltimore City Police Department. Retrieved Sept. 8, 2016, from https://www.justice.gov/crt/file/883296/download.

[108] Ayres, I., & Borowsky, J. (2008), A study of racially disparate outcomes in the Los Angeles Police Department, Prepared for the ACLU of Southern California.

Black drivers were more likely to be searched than Whites, but found little difference in the rate of contraband discovery.[109]

To be clear, we do not intend to suggest that these similarities indicate that the SDPD suffers from the same level of the far-reaching, systemic dysfunction revealed by the DOJ's investigation of police departments in Ferguson or Baltimore, or those that lie at the center of reform initiatives pursued in the other three jurisdictions. Rather, the comparison is made to highlight the gravity of these particular findings and the pattern of disparate treatment that exists across several post-stop outcomes.

Recommendations

As other researchers have recently acknowledged,[110] a risk in conducting analyses of racial/ethnic differences in the rates of contact with police and the outcomes of those contacts is to oversimplify the results. Either the police are racists who purposefully target people of color, or there are no differences in how people are treated by the police, despite the disparities regularly witnessed and experienced by communities of color. While shedding light on an important topic, these approaches – either attacking the police or denying that racial/ethnic bias exists – inevitably miss the complexity of the issue and thus do not offer a productive way forward.

We follow other recent research on police-community relations in taking a *problem-solving* approach to the interpretation of our analyses of police traffic stop data. That is, in this chapter, we offer potential ways of reducing racial/ethnic disparities in traffic stops and thereby repairing the harm such disparities have inflicted on police-community relations. In order to do so, we draw on not only the SDPD traffic stop data, but also data gathered from three other sources, as described in Chapter 3: focus groups with residents of communities with high numbers of traffic stops; an SDPD-wide electronic survey; and in-depth interviews with SDPD officers. Here, we draw on all of these data to present a set of recommendations that we believe, if earnestly implemented, will enable the SDPD to eliminate racial/ethnic disparities. We focus our recommendations on three themes: addressing racial/ethnic disparities; building stronger police-community relations; and improving data collection practices.

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[109] Ridgeway, G., (2009). *Cincinnati Police Department traffic stops: Applying RAND's framework to analyze racial disparities*. Santa Monica, CA: RAND Corporation; Hetey, R., Monin, B., Maitreyi, A., & Eberhardt, J. (2016). *Data for change: A statistical analysis of police stops, searches, handcuffings, and arrests in Oakland, Calif., 2013-2014*. Stanford University, CA: Stanford SPARQ, p. 136.

[110] See: Hetey, R., Monin, B., Maitreyi, A., & Eberhardt, J. (2016). *Data for change: A statistical analysis of police stops, searches, handcuffings, and arrests in Oakland, Calif., 2013-2014*. Stanford University, CA: Stanford SPARQ; Eberhardt, J. (2016). Strategies for change: Research initiatives and recommendations to improve police-community relations in Oakland, Calif. Stanford University, CA: Stanford SPARQ.

<u>Addressing racial/ethnic disparities</u>

The racial/ethnic disparities we found in the treatment of Black drivers – and to a lesser extent, Hispanic drivers – are by no means unique to the SDPD. In recent years, analyses of data from state and local jurisdictions across the country have identified similar disparities in the rates of stops, searches, and arrests.[111] Moreover, we did not find evidence that these disparities were the result of deliberate discrimination or racism on the part of SDPD officers. Rather, as other researchers of racial/ethnic disparities in policing have suggested, "many subtle and unexamined cultural norms, beliefs, and practices sustain disparate treatment."[112]

Here, we discuss 4 recommendations aimed toward the elimination of systemic disparities:

Systemic disparities
1. Acknowledge the existence of racial/ethnic disparities and make combatting such disparities a priority;
2. Continue to enhance training and supervision around issues of racial/ethnic disparities;
3. Make traffic stop practices more transparent; and
4. Make traffic stop practices more systematic and data-driven.

Acknowledge that racial/ethnic disparities exist and make combatting such disparities a priority
Previous research has shown that there is a strong race–crime association not just among police officers, but across the general population as a whole: Black faces are more frequently associated with criminal behavior than are non-Black faces, and this association extends to how Black people – youth and adult alike – are treated throughout the criminal justice system.[113] This is known as *implicit* or *unconscious bias*, which may be perpetuated even by the most well-meaning people. The post-stop disparities noted earlier in this Report suggest that implicit bias may exist among SDPD officers.

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[111] See, for examples: Baumgartner, F., Epp, D., & Love, B. (2014). *Police Searches of Black and White Motorists. (Durham, NC).* Chapel Hill, NC: University of North Carolina-Chapel Hill Department of Political Science. Engel, R., Cherkauskas, J., Smith, M., Lytle, D., & Moore, K. (2009). *Traffic Stop Data Analysis Study: Year 3 Final Report, Prepared for the Arizona Department of Public Safety*. Cincinnati, OH: University of Cincinnati Policing Institute; Ross, M. Fazzalaro, J., Barone, K., & Kalinowski, J. (2016). *State of Connecticut Traffic Stop Data Analysis and Findings, 2014-2015.* Connecticut Racial Profiling Prohibition Project.

[112] Eberhardt, J. (2016). Strategies for change: Research initiatives and recommendations to improve police-community relations in Oakland, Calif. Stanford University, CA: Stanford SPARQ, p. 4.

[113] Eberhardt, J., Goff, P., Purdie, V., & Davies, P. (2004). Seeing Black: Race, crime, and visual processing. *Journal of Personality and Social Psychology* 87(6), 876-893; Rattan, A., Levine, C., Dweck, C., & Eberhardt, J. (2012). Race Race and the fragility of the legal distinction between juveniles and adults. *PLoS ONE 7*(5); Hetey, R. & Eberhardt, J. (2014). Racial disparities in incarceration increase acceptance of punitive policies. *Psychological Science 25*(10), 1949-1954.

The first step in addressing the issue of racial/ethnic disparities is acknowledging that they exist and making it a departmental priority to combat such disparities. We acknowledge the SDPD's recent efforts to do this by incorporating curricula on implicit bias, emotional intelligence, and cultural competency into its training for front-line officers and supervisors (see Appendix 11 for a description of the SDPD's current officer training requirements).

Perhaps partly due to these recent training efforts, SDPD officers appear to already be aware of these issues to some extent. In our electronic survey of the department, we asked officers to assess whether they believed various racial/ethnic groups *feel comfortable* interacting with the SDPD. Just over a third – 38.8 percent – of officers who responded to our survey strongly agreed or agreed that Blacks feel comfortable interacting with the SDPD. In contrast, substantially more officers believed non-Black citizens feel comfortable: 61.5 percent believe Hispanics feel comfortable; 80 percent believe Asians feel comfortable; and 87.5 percent believe Whites feel comfortable interacting with the SDPD.

We also asked officers whether they believe these racial/ethnic groups have *confidence* in the SDPD. The officers who responded to our survey believe Blacks have the lowest confidence levels in the SDPD: 35.2 percent either strongly agreed or agreed that Blacks have confidence in the SDPD, while 60.5 percent believed Hispanics have confidence; 78.9 percent believed Asians have confidence; and 85.9 percent believed Whites have confidence in the SDPD. These responses indicate that officers are aware of how they may be perceived by different racial/ethnic groups.

However, only 4.23 percent of our electronic survey respondents strongly agreed or agreed that *racial/ethnic bias is a genuine problem for the SDPD*. In interviews with officers, we sought to probe deeper into these beliefs. When asked whether they would be surprised if we found racial/ethnic disparities in our analysis of the traffic stop data, the vast majority of officers we spoke to expressed beliefs in line with our survey respondents, stating that they would be surprised if racial/ethnic bias were to be found to exist in how traffic stops are conducted by the Department. A typical explanation offered to us by officers is that the demographics of drivers who are stopped are a reflection of the composition of the patrol area. As one officer explained,

> The community I work in is a predominantly Hispanic community. The people I pull over, if you pull my data, it's gonna show that the people I pull over are Hispanic… So there's disparity there, that I'm pulling over Hispanics more than any other group out there. But it's not because of my perception or of a racist view I have, it's because of where I work.

Indeed, many of the individual officers we spoke to adamantly stated that not only do they not make individual decisions based on race/ethnicity, but also that in the traffic stop context, they frequently cannot see the race/ethnicity of the driver prior to pulling them over.

Only a handful of officers directly stated that race/ethnicity is a factor – whether explicit or implicit – in how traffic stop decisions are made. These officers spoke about the "race/ethnicity out of place" approach,[114] in which officers deliberately target individuals whose race/ethnicity does not fit the dominant demographics of the area. Officers readily offered examples of this, such as stopping a White person in a predominately Black area of the Southeastern division, or a Black person in a majority-White area such as La Jolla. As one officer candidly noted, "I'm not going to lie. If I see somebody that's totally out of place and there's a reason to stop them, I'm going to stop them and ask them what they're doing. I mean, I'm being truthful. Unfortunately, it sucks. It's not like I'm trying to." Most other officers, however, denied using race/ethnicity in this way. One officer who voiced a typical statement about this explained, "I am not looking at who the driver is, whether they are male, female, or what ethnicity they are. That is not what I am looking for because I do not write a citation based on your ethnicity. I write it based on the moving violation or traffic violation that you did."

Continue to enhance training and supervision
In response to the PERF report, the San Diego Police Department has already made progress toward establishing a comprehensive training program for its patrol officers and supervising officers (see Appendix 11). As of the July 2016 Public Safety and Livable Neighborhoods Committee meeting, the SDPD had not only implemented an annual supervisor training on procedural justice, but had also added competency in procedural justice and community policing concepts to its promotional testing process. The SDPD has also incorporated a two-day "effective interactions" class on unconscious bias for all new officers.[115]

The Department should be credited for its prompt response to these recommendations. As the SDPD makes implicit bias curriculum a mandatory part of how both new and veteran patrol officers, sergeants, and command staff are trained, it should track officer satisfaction with the training to ensure maximal efficacy of and officer buy-in to training on these important topics.

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[114] Carroll, L. & Gonzalez, M.L. (2014). Out of place: Racial stereotypes and the ecology of frisks and searches following traffic stops. *Journal of Research in Crime & Delinquency, 51*(5), 559-584; Novak, K. & Chamlin, M. (2012). Racial threat, suspicion, and police behavior: The impact of race and place in traffic enforcement. *Crime & Delinquency, 58*(2), 275-300.
[115] Zimmerman, S. (July 2016). *Update of the San Diego Police Department's response to the Police Executive Research Forum (PERF) recommendations.* Testimony submitted to the Public Safety and Livable Neighborhoods Committee of the San Diego City Council.

While not indicated in Chief Zimmerman's testimony, the unconscious bias training may currently be drawn from two providers.[116] First, the Fair and Impartial Policing (FIP) program[117] educates patrol officers about how such bias affects people's perceptions and can thereby affect the actions that they take, as well as providing tools to help officers recognize their conscious and unconscious biases and instead take actions that are unbiased. Training for first-line supervisors (sergeants) helps these officers to identify when their supervisees may be engaging in biased behavior as well as to effectively address such behavior.

Second, the Principled Policing training has been developed by California's Department of Justice in partnership with Stanford University's Social Psychological Answers to Real-world Questions (SPARQ) organization. Principled Policing is the first Commission on Peace Officer Standards and Training (POST)-certified training on procedural justice and implicit bias in the U.S. Thus far, it has been offered to police leaders throughout California, including to representatives of the SDPD, with positive results.[118]

When we asked our community focus group participants about how to improve police-community relations, many agreed that law enforcement would benefit from training that would enhance their ability to understand – and effectively respond to – local residents, particularly those from diverse cultural backgrounds. Two residents from different divisions put it this way:

> It needs to be more of a partnership model. Police are in the power position and instead of being more militarized, they need to be more emotionally trained. They are not soldiers; they are here to keep peace. Come around more, smile. (Central division)

> I wish [the police] took a body language class. A lot of things that are going wrong is because they don't understand the body language of the community or the cultures of people of color. We speak really loud. If these officers are not from our culture they don't understand that. (Southeastern division)

We note that the SDPD has recently added training in emotional intelligence and effective interactions to its new officer phase training and we encourage the tracking of officer satisfaction with such training.

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[116] However, we note that a third, more comprehensive intervention, consisting not only of implicit bias training, but also training around procedural justice and reconciliation, is currently being piloted in six U.S. cities by the National Initiative for Building Community Trust and Justice. See: https://trustandjustice.org/.
[117] http://www.fairandimpartialpolicing.com.
[118] https://oag.ca.gov/sites/all/files/agweb/pdfs/law_enforcement/principled-policing-white-paper.pdf.

Make traffic stop practices more transparent

Traffic stops can be one of the most dangerous activities a patrol officer engages in on a regular basis; there is no such thing as a "routine" traffic stop. Indeed, a vast majority of officers who responded to our electronic survey – 96.1 percent – strongly agreed or agreed that conducting a traffic stop is an inherently dangerous activity. Recent events involving the deaths of drivers and of police officers – including a tragic incident in the summer of 2016 here in San Diego[119] – further heighten the tension for all involved. SDPD officers receive extensive training on how to manage their own safety and the safety of the cars they pull over, from how to position their vehicles in relation to that of the cars they have stopped to how to approach a car and identify potential threats to their safety. Yet this training does not eliminate the palpable sense that anything can happen during a traffic stop. As one officer described it to us during an interview, "Every time I stop a car, I have no clue. I am stopping them for a violation. I have no clue what they have just done, what they were going to go do or what they might have... It is your most dangerous [part of the job] – you are rolling the dice every time."

Some traffic stops may further impair police-community relations, particularly in communities where these relations may already be strained. Several San Diego residents we spoke with expressed a belief that traffic stops are conducted in a discriminatory fashion. As one Southeastern resident put it, "nine times out of ten, it's people of color [being pulled over]... That will make them feel worse about the police because they make you feel alienated because of your skin color."

Several focus group members also expressed concern over the practice of calling multiple patrol vehicles to the scene of a vehicle stop. A common refrain was that such practices have the effect of heightening the anxiety of the driver, thereby contributing to the volatility of the interaction and alienating other members of the community, many of whom see this practice as a gratuitous or even provocative demonstration of force. As one resident of the Southeastern division stated,

> If they are pulling people over, it doesn't take four [cars] to pull someone over. It's very disrespectful and makes more of a scene. I don't know if it's to show power. I understand if it's two...if someone doesn't have a partner they need help. It's always three or more.

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[119] Kennedy, M. (2016, July 29). San Diego police officer shot and killed, another injured following traffic stop. *Southern California Public Radio.* Retrieved on Aug. 24, 2016 from http://www.scpr.org/news/2016/07/29/63075/san-diego-police-officer-shot-and-killed-another-i/.

In interviews, officers underscored the value of the routine practice of officers providing back-up during traffic stops due to the perceived potential dangers of such stops. While this back-up was appreciated (and reciprocated) by the patrol officers we interviewed, it tends to engender resentment among community residents, particularly those who may not understand the perceived and real risks that officers face during these encounters. Reducing the number of stops made for violations not directly related to public safety may indirectly improve community relations, given community members' perceptions about such stops.

Make traffic stop practices more systematic and data-driven
Amongst the many recommendations recently issued by President Obama's Task Force on 21st Century Policing[120] was the following:

> Law enforcement agencies and municipalities should refrain from practices requiring officers to issue a predetermined number of tickets, citations, arrests, or summonses, or to initiate investigative contacts with citizens for reasons not directly related to improving public safety, such as generating revenue.

We found no evidence of the use of quotas, nor pressure to issue citations to increase revenue. The SDPD and the City of San Diego should be commended for this, in light of recent findings of a profit motive underlying the issuance of citations in other jurisdictions across the country.

However, we urge the SDPD to make its traffic stop practices more systematic and data-driven. Traffic stops in San Diego appear to be inconsistently used as an enforcement tool, which may further contribute to negative perceptions of SDPD activity. In interviews, SDPD officers described highly varying approaches to and justifications for making traffic stops. Some officers we spoke with frequently described traffic stops as being useful for educational purposes, such as reminding drivers that they should not be texting while driving, while others stated that they hardly conduct any traffic stops at all. Still others touted the investigative usefulness of traffic stops to uncover criminal activity. This speaks to a highly-individualized approach to this form of law enforcement, which suggests one way in which disparate treatment can arise.

As noted in Chapter 5, our analysis of traffic stop data revealed that out of the 259,569 stops conducted in 2014 and 2015, only 981 resulted in the discovery of contraband. This means that contraband was found in fewer than one out of every 260 traffic stops conducted by the SDPD in the past two years. Other post-stop outcomes indicative of criminal investigation activity are

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[120] President's Task Force on 21st Century Policing. (2015). *Final Report of the President's Task Force on 21st Century Policing*. Washington, DC: Office of Community Oriented Policing Services, p.26. Retrieved Aug. 24, 2016, from http://www.cops.usdoj.gov/pdf/taskforce/Implementation_Guide.pdf.

similarly rare: across the two years, roughly 4.4 percent of all stops led to a search, 2.7 percent led to a field interview, and 1.3 percent led to an arrest. Collectively, the finding that traffic stops yield minimal crime control value while potentially contributing to the deterioration of police-community relations point to the need for a reconsideration of how traffic stops are used in law enforcement. This recommendation is in line with what other researchers of this topic have noted – that "the benefits of investigatory stops are modest and greatly exaggerated, yet their costs are substantial and largely unrecognized."[121]

Given the post-stop disparities discovered in our analyses, we urge the Department to consider how it might devise and implement policy guiding traffic stops to address this issue.

<u>Strengthening police-community relations</u>
Drawing primarily on the data we collected from our community focus groups and in-depth interviews with SDPD officers, as well as the evidence-based recommendations recently made by other researchers, we discuss two recommendations for strengthening police-community relations, particularly in police divisions where these relations may currently be strained:
1. Make community engagement a core departmental value, and
2. Improve communication and transparency regarding police practices.

Make community engagement a core departmental value
Community residents who participated in our focus groups indicated a strong desire to see and interact with police officers in their neighborhoods, and to get to know them in non-crime control situations. Residents expressed their belief that the best way to improve police-community relations is to expand opportunities for positive police-community interaction. Likewise, many of the officers we interviewed, particularly those who work in divisions with higher levels of crime and police activity, expressed awareness that police-community relations must be improved. These findings are wholly consistent with those of the PERF report, which found a belief among some members of the community that the SDPD has become disconnected from the communities it serves.[122] Thus, we urge the Department to make community engagement a core departmental value. We note that this is a central recommendation of President's Task Force on 21st Century Policing, which stated that "in communities that have high numbers of interactions with authorities for a variety of reasons,

[121] Epp, C., Maynard-Moody, S., & Haider-Markel, D. (2014). *Pulled over: How police stops define race and citizenship.* Chicago, IL: University of Chicago Press, p. 153.

[122] Police Executive Research Forum (PERF). (2015). *Critical response technical assessment review: Police accountability - findings and national implications of an assessment of the San Diego Police department.* Washington, DC: Office of Community Oriented Policing Services, U.S. Department of Justice, p. 55.

police should actively create opportunities for interactions that are positive and not related to investigation or enforcement action."[123]

The most frequent example officers offered of the sign that police-community relations are suffering in at least some parts of San Diego was the prevalence of the "one-finger" (middle finger) wave rather than the "five-finger" wave. Officers use this as an indication that their presence isn't welcome, and that any efforts at outreach would be futile. As one officer put it,

> I know that the people are not always very police-friendly. I would never stop my car and just say, 'how are you doing?' because I am going to get the one-finger salute… I think in a community where people are more police-friendly, as you drive down the street, if I were to wave at someone, they would wave back or smile. You learn people's body language. They intentionally turn away… You get the feeling that they do not like police in that area.

These officers expressed a desire for greater community connection, and some lamented the fact that there was little or no time for community engagement or proactive policing, given staffing constraints and the ongoing demands of calls for service. It was clear from these interviews that patrol officers' participation in community events across the nine SDPD divisions is highly variable and voluntary.

When asked what strong, positive police-community relations would look like, residents emphasized that they would involve more non-service and non-enforcement interactions with the officers who police their communities. The residents we spoke with had many suggestions for the types of activities they would like to engage in with the officers. It is important to note that some of these activities are already occurring, but unevenly across the city. One resident of the Southeastern described her attendance at one such event and how this experience made her long for more similar opportunities to engage with officers:

> I went to an event in Skyline and it was awesome to connect with the community. The police low-riders were out and they were bumping old-school and it was cool to see STAR PAL (Sports Training, Academics, Recreation/Police Athletic League). It made me wish there were more programs to help kids respect the police. This experience last year made me feel more connected to the police, like when I was a kid (and there were many more events between police and residents).

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[123] President's Task Force on 21st Century Policing. (2015). *Final Report of the President's Task Force on 21st Century Policing*. Washington, DC: Office of Community Oriented Policing Services. Retrieved Aug. 24, 2016, from http://www.cops.usdoj.gov/pdf/taskforce/Implementation_Guide.pdf.

Similarly, a resident from the Southern division had these suggestions for fostering positive relations:

> … a carnival to get to know each other--for residents and police to say hi and get to know each other; a community meeting every month where we talk about our fears and concerns; community outreach by the cops in our community. It's not us against them—they are here to help, so let's work together.

The residents we spoke with want to get to know their local police officers and want the police get to know them; they would like to see police out of their cars and interacting with residents. Several residents stressed the importance of nurturing relationships between police and youth, so that future relationships with the community and law enforcement will improve. As a Central division resident observed,

> If officers would attend community events with kids or teenagers, that would go far with respect. Be a part of the community…not in your uniform. Go to schools, go to the community garden. It will just take the police Department to want to do that. When people see that they are on the same level they will feel freer to express themselves and get the help they need.

Our focus group participants' suggestions echo those noted in the recent analysis of the SDPD conducted for the PERF report, in which the most frequent suggestions from community members were related to maximizing police-community engagement "through proactive and positive interactions."[124]

We acknowledge the SDPD's existing community engagement activities. In our interviews with officers at all nine SDPD divisions, it was evident that each division's Community Liaison/Resource Officers have attempted to connect with residents through a wide variety of meetings and events and are disseminating information and sharing resources in multiple venues. Further, it is clear from both our officer interviews and community focus groups that many patrol officers are community-minded and enjoy opportunities to positively engage with residents while on patrol. In addition to the various community safety and prevention programs offered through the SDPD, including the youth programs STAR PAL and KIDZWATCH Academy, the Department also collaborates with local clergy and advocacy groups in various

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[124] Police Executive Research Forum (PERF). (2015). *Critical response technical assessment review: Police accountability - findings and national implications of an assessment of the San Diego Police department.* Washington, DC: Office of Community Oriented Policing Services, U.S. Department of Justice, p. 22.

neighborhood-based initiatives.[125] Another way the SDPD currently promotes community engagement is through a program called Inside SDPD, in which some sessions of new officer training that every new recruit attends are open to the public. Inside SDPD allows citizens the opportunity to receive some of the same training the Department provides to its officers on topics such as use of force, procedural justice, and non-biased based policing.

We recommend that the SDPD create a system to make positive, community-based interactions and activities a fundamental component of officers' roles and to incentivize officers' community engagement activities. We also recommend that the SDPD further publicize and raise awareness about existing community meetings and events, and create additional opportunities for officers and the community to interact. We suggest that such interactions involve more of each police division's officers – not just Community Liaison/Resource officers – perhaps on a rotating basis, and that the communities with higher crime and lower police trust are prioritized in this process.

Improve communication and transparency regarding police practices
Both community residents and law enforcement officers interviewed in our study recognized that tension exists and desired better communication and understanding. Several officers we spoke with wished community members better understood the challenges and constraints of their jobs, and many community members desired more information about local crime issues and police decision-making. Police officers expressed a desire for more citizens to request to go on police ride-alongs so they could witness the challenges officers regularly face.[126] Citizens wished officers would share more information about crime problems in their communities and efforts underway to address them. As previously noted, they also desired more interaction and collaboration.

Expanding and improving the lines of communication between police and residents should be a high priority. The SDPD should seek additional opportunities for information-sharing and clarification of police practices and procedures in the communities they serve. Greater transparency and communication about these practices will strengthen community trust and perceptions of police legitimacy.[127] Ongoing communication strategies utilizing social media outlets (Facebook, Twitter, Nextdoor, etc.) and websites should continue, but more face-to-face

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[125] See the SDPD website for more information on community policing and crime prevention activities: https://www.sandiego.gov/police/services/prevention/programs (Retrieved Sept. 28, 2016).
[126] Any member of the community can request a ride-along through this online form: https://www.sandiego.gov/sites/default/files/legacy/police/pdf/RideAlong.pdf (Retrieved Sept. 28, 2016).
[127] See: Advancement Project and PolicyLink. (2014). *Engaging communities as partners: Strategies for problem solving.* Part of the *Beyond confrontation: Community-centered policing tools* series. Los Angeles, CA: Urban Peace Institute. Retrieved September 8, 2016, from: http://www.urbanpeaceinstitute.org/key-projects/.

outreach is needed, especially in the communities where police trust is low and residents are concerned about crime and safety, yet suspicious of police crime control strategies. In our study, Southeastern and Mid-City were the communities that were most vocal in asking for greater police communication. As two Southeastern residents noted:

> They could do more meetings, maybe get involved in neighborhood watches. The community needs to have awareness (about local crime problems) and get to know the cops; give us their cards and do outreach… build a relationship between the police and the school district.

> If they would actually walk beats and get to know people; I would like if they have an officer meet and greet to introduce yourself or share input or suggestions—to increase familiarity.

The SDPD is to be credited for the communication and information/resource dissemination already underway, but additional work is needed. As noted in the previous section, several residents expressed concern and confusion about traffic stop practices in their communities, particularly related to the number of cars and officers involved in such stops. The SDPD should explain the rationale behind these decisions and address communities' concerns. Obtaining the support of community members in local law enforcement can be a challenging task, but we note that there are several effective models for doing so.[128] We recommend that the SDPD consider adopting one of these models, and in doing so, identify new ways to promote transparency and communicate information about local crime and police enforcement practices with community residents, particularly in neighborhoods with higher levels of police presence, where police-community relations are most strained.

Improving data collection

Finally, we include five broad recommendations germane to the collection, analysis, and dissemination of data related to SDPD's traffic enforcement regime:

1. Revise the current data collection system;
2. Coordinate existing data collection efforts;
3. Collect additional data; and

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[128] See: President's Task Force on 21st Century Policing. (2015). *Final Report of the President's Task Force on 21st Century Policing*. Washington, DC: Office of Community Oriented Policing Services. Retrieved Aug. 24, 2016, from http://www.cops.usdoj.gov/pdf/taskforce/Implementation_Guide.pdf; Advancement Project and PolicyLink. (2014). *Engaging communities as partners: Strategies for problem solving.* Part of the *Beyond confrontation: Community-centered policing tools* series. Los Angeles, CA: Urban Peace Institute. Retrieved September 8, 2016 from http://www.urbanpeaceinstitute.org/key-projects/.

4. Strengthen accountability and oversight of data collection and management

Revise the current data collection system

The Department's current traffic stop data collection system, which relies heavily on the traffic stop data card, produces duplicative, often inaccurate and unreliable data, is unnecessarily time-consuming, and harmful to officer morale. For these reasons, we recommend that the SDPD discontinue the use of the traffic stop data card in favor of a system that captures and compiles data gathered by officers through other means.

Stop card data are duplicative. At the conclusion of a traffic stop, SDPD officers must document the contact in several different ways. If the stop involved the issuance of a citation or a written warning, the officer must complete the requisite paperwork. The officer must complete an additional set of forms if they conduct a field interview, a search, or an arrest. Next, they must describe every encounter in a separate form, called a "journal," an internal mechanism used to track officer productivity. They must then submit an additional form logging their body-worn camera footage. Finally, they must then complete the traffic stop data card.

In interviews, SDPD officers described this documentation process as both time-consuming and filled with redundancy. Many also noted that much of the data captured by vehicle stop cards, including driver race, gender, age, and stop location, is information already captured by many of the other forms they submit. This is a key point: Eliminating the traffic stop data card will not hinder the Department's ability to document traffic enforcement patterns, nor will the public lose oversight ability.

Excessive paperwork is a noted source of officer stress,[129] a fact no doubt amplified by staffing shortages and other resource deficiencies. Whether owed to the time it takes to complete the paperwork, the notion that they are not trusted and thus must document every action taken, or some other reason, we believe that the stress associated with the use of the traffic stop cards contributes to relatively low morale Department-wide.

Stop cards harm officer morale. Lingering questions about the broad purpose of the data collection effort and the stop card data in particular likely contribute to the sense that the stop cards represent unnecessary, extraneous, and even frivolous work. In the words of one officer, "The collection of traffic stop data is useless." Others called the process a "waste of time,"

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[129] Crank, J. P., & Caldero, M. (1991). The production of occupational stress in medium-sized police agencies: A survey of line officers in eight municipal departments. *Journal of Criminal Justice*, *19*, 339-349; Zhao, J.S., He, N., & Lovrich, N. (2002). Predicting five dimensions of police officer stress: Looking more deeply into organizational settings for sources of police stress. *Police Quarterly*, *5*, 43-62.

"worthless," "stupid," and a "joke." Officer survey responses make the point more systematically: 72 percent of respondents either disagreed or disagreed strongly with the notion that "completing the traffic stop data card is a worthwhile use of officer time." Several officers also reported feeling as though the data gathered would be used to unfairly portray their work as biased. As one officer put it, "[r]egardless of the outcome, the data will be misconstrued and manipulated." In the words of another, "[in completing the card], I feel as though I'm having to prove I'm not a racist after every traffic stop."

The effects of officer cynicism over use of the stop cards appears to stretch beyond morale. In an effort to avoid being characterized as biased, several officers discussed instances where they chose not to submit a stop card following a stop involving minority drivers, or mislabeling the driver's race/ethnicity on the stop card. Others acknowledged choosing not to stop minority drivers altogether in hopes of avoiding the possible ramifications of the encounter. That the data collection regime is contributing to what scholars refer to as depolicing suggests strongly that there is need for reform.

Stop card data are unreliable. As we noted in Chapter 3, and very much related to the point about depolicing, the traffic stop records used in this analysis was of relatively low quality. The dataset contained several instances of missing data, a problem that was most apparent among post-stop variables. Data charting the issuance of citations or warnings was absent from 10.6 percent of the 259,569 stops recorded between 2014 and 2015. Data on field interviews (7.9 percent), searches (4.4 percent), and arrests (4.1 percent), were also missing in relatively high volume. Of the poorest quality were data associated with the discovery of contraband and the seizure of property, where over 93 percent were either left blank or ambiguously labeled, 'null.'

The problems associated with missing cases are amplified by what appears to be the substantial under-reporting of traffic stops. As we have noted previously, SDPD records indicate that 183,402 traffic tickets were issued between January 1, 2014 and December 31, 2015. Yet the Department's stop card database includes records of only 145,490 stops where drivers were issued a citation. The sizable difference between actual citations and reported citations suggests that tens of thousands of traffic stops went undocumented.

This disparity raises significant questions about the reliability of data set used for this analysis, particularly in light of missing stop card data and the inconsistent month-to-month enforcement trends. These data quality issues are not new. In fact, Cordner and his colleagues raised a very similar set of concerns in their 2001 analysis of SDPD traffic stops:

This very substantial [year-to-year] decrease [in stop card records] raises serious questions about the validity of the vehicle stop data. One question is whether officers always filled out the vehicle stop forms – the answer to this is clearly no. A natural follow-up question asks what the compliance rate was – this can only be estimated, but it appears to have been about 60%.[130]

The consistency of our findings with those articulated by Dr. Cordner speaks to a series of systemic weaknesses that must be addressed before the SDPD is able to generate a thorough, accurate reporting of officer traffic enforcement. For these reasons, we recommend eliminating the use of the traffic stop data card and replacing the current system with a modified data collection and management infrastructure.

Coordinate existing data collection efforts

The recommendation to replace the traffic stop data card is predicated on the development of a more effective, more efficient system for tracking vehicle stops and post-stop outcomes. Collection of stop card data should not be discontinued unless and until a viable replacement system is up and fully operational.

The current SDPD system of data collection and management is defined by duplication and siloed information. We believe the department's current architecture contains many of the necessary components of a more usable, and thus more valuable system based on the data collected via the CAD system,[131] traffic citations and written warnings, as well as forms officers are required to submit in documentation of field interviews, search/seizure incidence, and arrests.

Additional data collection

In addition to the data currently collected, we recommend the SDPD capture and incorporate the following information into the new database:

- Police officer race, gender, unit (e.g., Gang Unit, Auto Theft Unit, etc.) and division (e.g., Traffic division)
- Specific stop location (address, intersection, and/or landmark)
- Vehicle make, model, and condition

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[130] Cordner, G., Williams, B., & Zuniga, M. (2001). *San Diego Police Department vehicle stop study: Year-end report*. San Diego, CA., p. 1-2.

[131] For an introduction to police CAD systems and a useful description of the standard capability of such systems, see Law Enforcement Information Technology Standards Council (LEITSC). (n.d.). *Standard Functional Specifications for Law Enforcement Computer Aided Dispatch (CAD) Systems*. Bureau of Justice Assistance, Office of Justice Programs, U.S. Department of Justice. Retrieved Aug. 14, 2016, from, https://www.it.ojp.gov/documents/LEITSC_Law_Enforcement_CAD_Systems.pdf.

- Description of driver behavior and demeanor
- Probable cause search
- Nature and amount of contraband discovered and property seized

Augmenting the current data collection efforts with these additional data would put SDPD squarely in line with best practices and would yield significant benefits both for the SDPD and the City of San Diego.

Officer information. SDPD's current traffic stop data card contains no information about the officer conducting the stop, and thus no such information was available for the present analysis. To our knowledge, most if not all of the existing data collection mechanisms, from traffic citations to search detail forms, are associated with officer badge numbers, which seems to suggest that the inclusion of basic information about the officer may not represent a major challenge.

Officer data are essential for charting enforcement patterns at the officer level – necessary for identifying so-called "rotten apple" officers.[132] The Department's existing early intervention system, a point of emphasis in the 2015 PERF report,[133] has the potential to be very useful in this regard. We also believe that officer data may hold the key to more effectively understanding the role that race/ethnicity plays in driving stop and post-stop patterns. Scholars have found in several instances that disparities are most pronounced in cases where the officer and the driver are of different racial or ethnic backgrounds (for example, when a White officer stops, searches, or arrests a Black driver).[134] The quality of future analysis of SDPD's traffic stop patterns would be strengthened considerably by the capture of officer race/ethnicity and gender data.

Stop location. In one-on-one interviews, several SDPD officers noted that traffic enforcement patterns follow closely the crime and demographic trends of the stop location. In the words of one officer, "The population in the area I patrol is mainly Hispanic or Black. Therefore, majority of the traffic stops, criminals, etc. are going to be those ethnicities. It has nothing to do with

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[132] For an example of what this analysis might look like, see Ridgeway, G., (2009). *Cincinnati Police Department traffic stops: Applying RAND's framework to analyze racial disparities*. Santa Monica, CA: RAND Corporation, pp. 43-48.

[133] Police Executive Research Forum (PERF). (2015). *Critical response technical assessment review: Police accountability - findings and national implications of an assessment of the San Diego Police department.* Washington, DC: Office of Community Oriented Policing Services, U.S. Department of Justice.

[134] Tillyer, R. Klahm, C.F., & Engel, R.S. (2012). The discretion to search: A multilevel examination of driver demographics and officer characteristics. *Journal of Contemporary Criminal Justice*, 28(2), 184-205; Brown, R.A., & Frank, J. (2006). Race and officer decision making: Examining differences in arrest outcomes between Black and White officers. *Justice Quarterly*, 23, 96-126.

race, but the population itself in the city." Other officers suggested that traffic stops are used as a means of investigating and controlling crime. We believe analysis of the relationship between traffic enforcement and crime control is hugely important and potentially beneficial both for law enforcement purposes and for enhancing external oversight and accountability.

Yet this type of place-driven analysis is not possible when limited to division-level data. Criminological research has established definitively that crime is not randomly dispersed throughout a city or even a neighborhood.[135] Instead, what we heard from SDPD officers is largely consistent with the current research: hot spots of illegal activity vary by crime type and are a function of time of day, time of year, and, most importantly, by very narrowly defined spaces.[136] In fact, the relationship between crime and place is most effectively considered at the "micro" level.[137] According to one recent study, these crime places "can be as small as the area immediately next to an automatic teller machine or as large as a block face, a strip shopping center, or an apartment building. Often places are thought of as addresses, specific types of businesses, or blockfaces."[138] As such, we recommend that stop data be captured in terms of the specific location of the encounter, rather than by division.

Further stop-related detail. We recommend that the SDPD incorporate into existing data collection efforts the make, model, and condition of the driver's vehicle, as well as stop and post-stop data on stops involving cyclists and pedestrians.

An officer's knowledge of his or her beat is critical to good police work in part because it allows the officer to recognize and act on incongruities.[139] Community policing is premised on this notion: police work to get to know the community not only to foster trust, but also to develop the skills to be able to distinguish interlopers from residents.[140] The same is true of patrol officers. A consistent theme from our interviews with SDPD staff was the importance of traffic stops for investigating circumstances or individuals that may appear out of place. Language used to describe vehicles that appear incongruous often goes hand-in-hand with discussion of an individual of a particular race/ethnicity who appears out of place in certain neighborhood

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[135] Braga, A.A., & Weisburd, D.L. (2010). *Policing Problem Places*. Oxford, UK: Oxford University Press.
[136] Sherman, L. W., Gartin, P. R., & Buerger, M. E. (1989). Hot spots of predatory crime: Routine activities and the criminology of place. *Criminology*, *27*, 27-56.
[137] Groff, E.R., Weisburd, D., & Yang, S. (2010). Is it important to examining crime trends at the 'micro' level?: A longitudinal analysis of street variability in crime trajectories. *Journal of Quantitative Criminology*, *26, 7-32.*
[138] Eck, J.E., & Weisburd, D. L. (2015). Crime places in crime theory. *Crime and place: Crime prevention studies*, *4*. Retrieved Aug. 10, 2016, from
http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.362.1293&rep=rep1&type=pdf.
[139] Mastrofski, S. D. (1983). Police knowledge of the patrol beat: a performance measure. *Police at Work: Policy Issues and Analysis, Sage Publications, Beverly Hills, CA*, 45-64.
[140] Greene, J. R. (2000). Community policing in America: Changing the nature, structure, and function of the police. *Criminal justice*, *3*(3), 299-378.

contexts. As one officer put it, "I do not write many tickets. I pull people over that I think might be doing bad things. Am I going to pull over the guy coming home from work because he does not have a front license plate? No. If I see two people wearing hoodies with their hoods up in a Tesla, yeah chances are I am pulling them over."

Relatedly, we believe that the SDPD would benefit from capturing data on individual behavior and demeanor. Particular behaviors on the part of either the driver or passenger – apparent nervousness, aggression or combativeness, even obsequiousness – are often associated with suspicion and thus used to justify a field interview, request for permission to search, or, when combined with other factors, a probable cause search.[141] That an officer's perception of certain behavior may be unwittingly influenced by driver/pedestrian race/ethnicity (and stop context) is a fundamental component of implicit bias in law enforcement. More to the point, racial/ethnic differences in the characterization of a vehicle as being out of place or in the interpretation of certain behavior, have been consistently linked to racial/ethnic disparities in the treatment of drivers.[142] This is critically important in light of the wide search and field interview disparities found between White and minority drivers.

Collection of vehicle data and driver behavior/demeanor information, which is widely considered best practices,[143] would add depth and insight into future analysis, in the process allowing the SDPD to more effectively disentangle manifestations of bias from those of solid, proactive policing.

We further recommend that the SDPD collect and track an additional mechanism for evaluating racial/ethnic disparities in the enforcement of traffic regulations: stop duration. From mere inconvenience to other job- or family-related costs, the length of a traffic stop can have substantial ramifications for drivers, regardless of whether the stop ends with a citation, a warning, or some other outcome. Discussion of the issue among community focus group members often reflected research that has found that these costs are often weigh more heavily

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[141] Alpert, G. P., MacDonald, J. M., & Dunham, R. G. (2005). Police suspicion and discretionary decision making during citizen stops. *Criminology*, *43*(2), 407-434.

[142] Eberhardt, J., Goff, P., Purdie, V., & Davies, P. (2004). Seeing Black: Race, crime, and visual processing. *Journal of Personality and Social Psychology* 87(6), 876-893; Novak, K. & Chamlin, M. (2012). Racial threat, suspicion, and police behavior: The impact of race and place in traffic enforcement. *Crime & Delinquency, 58*(2), 275-300.

[143] Tillyer, R., Engel, R.S., & Cherkauskas, J.C. (2010). Best practices in vehicle stop data collection and analysis. *Policing: An International Journal of Police Strategies & Management*, *33*(1), 69-92.; Ramirez, D., McDevitt, & Farrell, A. (2000). A resource guide on racial profiling data collection systems: Promising practices and lessons learned. *U.S. Department of Justice*. Retrieved Aug. 15, 2016, from https://www.ncjrs.gov/pdffiles1/bja/184768.pdf.

on minority drivers, as their stops have been shown to last longer than those involving White drivers.[144]

Finally, we recommend that the SDPD take steps to increase the specificity of their documentation of post-stop outcomes in two ways: (1) begin tracking searches justified by probable cause; and (2) documenting the specific nature and amount of contraband discovered and property seized.

Pedestrian and bicycle stop data. On October 3, 2015, Governor Jerry Brown signed into law Assembly Bill 953,[145] which requires all law enforcement agencies in the State of California to collect and disseminate data on all traffic and pedestrian stops. The SDPD must submit its first report to the State's Attorney General by April 1, 2019. We urge the Department to institute and implement policy mandating data collection for pedestrian and bicycle stops well in advance of the AB 953 mandate. Further, we urge the department to distinguish by stop type (vehicle, bicycle, or pedestrian) data on relevant post-stop outcomes, including search, contraband discovery, and property seizure, as well as field interview, arrest, and citation.

Strengthen accountability and oversight of data collection and management
Regardless of which approach the SDPD takes toward future data collection efforts, we strongly recommend that the Department institute a more robust set of data imputation quality control mechanisms. Adoption of the recommendation to replace the current system with one that draws more heavily on data from the CAD system and incorporates information generated by judicial records, including traffic citations and other post-stop forms, would likely reduce some of the quality assurance requirements, as their value as legal documents is predicated on thoroughness and accuracy. However, we recommend that during the transition to the new system (or in the alternative, should the Department opt to continue within the parameters of the current approach), there be much more careful organizational attention paid to ensuring data quality.

A possible first step toward this end is the incorporation of traffic stops, citations, and other post-stop outcomes into the Department's early intervention system. Doing so would seem to obviate the need for officers to submit a "journal" entry for each stop (though the use of daily activity journals may continue to be relevant for other Department purposes), freeing up

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[144] Engel, R.S., & Calnon, J.M. (2004). Comparing benchmark methodologies for police-citizen contacts: Traffic stop data collection for the Pennsylvania State Police. *Police Quarterly*, *7*, 97-125; Ridgeway, G. (2006). Assessing the effect of race bias in post-traffic stop outcomes using propensity scores. *Journal of Quantitative Criminology*, *22*, 1-28.
[145] Racial and Identity Profiling Act of 2015, Cal. Assemb. B. 953 (2015-2016), Chapter 466 (Cal. Stat. 2015).

additional time for other work. Further, it would allow mid- and high-level supervisors to track individual, squad, division, and department-wide trends in real time.

Relatedly, we recommend that the Department begin to brief officers on the purpose of the data collection effort and include traffic/pedestrian stop and post-stop outcomes as part of regular line-up level briefings. Finally, we recommend that the Department work to include open format traffic and pedestrian stop data files (e.g., .csv [comma-separated values] files rather than PDF) as part of the City of San Diego Open Data Portal.[146] Doing so would increase the visibility of these data and facilitate third-party oversight.[147,148]

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[146] San Diego Open Data Portal. (n.d.). Retrieved Aug. 15, 2016, from http://data.sandiego.gov/.

[147] Ross, D. (2015, May 17). How to jumpstart the release of open data on policing. *Code for America*. Retrieved Aug. 15, 2016, from https://www.codeforamerica.org/blog/2015/05/17/5-ways-to-jumpstart-the-release-of-open-data-on-policing/.

[148] The SDSU research team is investigating funding opportunities to assist the SDPD in building the robust data collection infrastructure we recommend. One promising funding source is the Research Network on Misdemeanor Justice at John Jay College of Criminal Justice. With funding from the Laura and John Arnold Foundation, the Network is in the process of identifying seven jurisdictions in which to bring together law enforcement agencies and research institutions to build data analytic infrastructure and capacity to examine trends in various forms of low-level enforcement activity: misdemeanor arrests, citations, and pedestrian and traffic stops. See: http://johnjay.jjay.cuny.edu/mjp/RN_MJ_Solicitation.pdf.

Appendix 1

Detailed data on SDPD staffing and crime in San Diego

Table A1.1.

SDPD patrol staffing, by division, watch, and year

	1st Watch	2nd Watch	3rd Watch	Total
2014				
Northern	28	32	27	87
Northeastern	20	24	17	61
Eastern	19	27	21	67
Western	35	33	24	92
Northwestern	11	9	9	29
Above Interstate 8	*113*	*125*	*98*	*336*
Southeastern	25	39	23	87
Central	36	34	30	100
Southern	22	24	15	61
Mid-City	35	42	38	115
Below Interstate 8	*118*	*139*	*106*	*363*
Traffic	41	9	10	60
Annual total	**272**	**273**	**214**	**759**
2015				
Northern	36	39	26	101
Northeastern	20	21	16	57
Eastern	21	25	21	67
Western	29	38	22	89
Northwestern	9	9	9	27
Above Interstate 8	*115*	*132*	*94*	*341*
Southeastern	24	30	28	82
Central	32	36	38	106
Southern	16	22	19	57
Mid-City	28	36	40	104
Below Interstate 8	*100*	*124*	*125*	*349*
Traffic	38	14	9	61
Annual total	**253**	**270**	**228**	**751**

Source: San Diego Police Department

Table A1.2.

Crime in San Diego, CA, by crime type, location, and year

	Population	Violent Crime (rate)	Property crime (rate)	Total crime (rate)
2014				
Northern	225,234	599 (2.7)	5,111 (22.7)	5,710 (25.4)
Northeastern	234,394	226 (1.0)	2,211 (9.4)	2,437 (10.4)
Eastern	155,892	372 (2.4)	3,486 (22.4)	3,858 (24.7)
Western	129,709	684 (5.3)	4,055 (31.3)	4,739 (36.5)
Northwestern	70,822	58 (0.8)	791 (11.2)	849 (12.0)
Above Interstate 8	*816,051*	*1,939 (2.4)*	*15,654 (19.2)*	*17,593 (21.6)*
Southeastern	175,757	846 (4.8)	2,408 (13.7)	3,254 (18.5)
Central	103,524	1,099 (10.6)	3,336 (32.2)	4,435 (42.8)
Southern	107,631	303 (2.8)	1,905 (17.7)	2,208 (20.5)
Mid-City	173,012	1,023 (5.9)	3,509 (20.3)	4,532 (26.2)
Below Interstate 8	*559,924*	*3,271 (5.8)*	*11,158 (19.9)*	*14,429 (25.8)*
Annual total	**1,375,975**	**5,210 (3.8)**	**26,812 (19.5)**	**32,022 (23.3)**
2015				
Northern	225,234	626 (2.8)	5,499 (24.4)	6,125 (27.2)
Northeastern	234,394	267 (1.1)	2,361 (10.1)	2,628 (11.2)
Eastern	155,892	446 (2.9)	4,109 (26.4)	4,555 (29.2)
Western	129,709	714 (5.5)	4,450 (34.3)	5,164 (39.8)
Northwestern	70,822	70 (1.0)	847 (12.0)	917 (13.0)
Above Interstate 8	*816,051*	*2,123 (2.6)*	*17,266 (21.2)*	*19,389 (23.8)*
Southeastern	175,757	888 (5.1)	2,523 (14.4)	3,411 (19.4)
Central	103,524	1,183 (11.4)	3,549 (34.3)	4,732 (45.7)
Southern	107,631	328 (3.0)	2,006 (18.6)	2,334 (21.7)
Mid-City	173,012	1,046 (6.0)	3,813 (22.0)	4,859 (28.1)
Below Interstate 8	*559,924*	*3,445 (6.2)*	*11,891 (21.2)*	*15,336 (27.4)*
Annual total	**1,375,975**	**5,568 (4.0)**	**29,157 (21.2)**	**34,725 (25.2)**

Source: San Diego Police Department

Appendix 2
The San Diego Police Department Vehicle Stop Data Card

VEHICLE STOP

Northern	☐ 110	☐ 120	☐ 130	
Northeastern	☐ 230	☐ 240		
Eastern	☐ 310	☐ 320		
Southeastern	☐ 430	☐ 440		
Central	☐ 510	☐ 520	☐ 530	
Western	☐ 610	☐ 620	☐ 630	
Southern	☐ 710	☐ 720		
Mid-City	☐ 810	☐ 820	☐ 830	☐ 840

Date ____ / ____ / ____   **Time** _____

1. **Primary cause for stop (Check only one)**
   ☐ Moving violation   ☐ Personal knowledge/Informant
   ☐ Equipment violation   ☐ Suspect info (I.S., Bulletin, Log)
   ☐ Radio call/Citizen contact ☐ Muni, County, H&S Code

2. **Race** _____

3. **Sex** _____

4. **Age** _____

5. **Action taken (check all that apply)**
   ☐ Citation
   ☐ Written warning
   ☐ Verbal warning
   ☐ FI
   ☐ Other _____

6. **Resident Type?**
   City of San Diego Resident? ☐ Yes   ☐ No

7. **Arrested?**   ☐ Yes   ☐ No

8. **Searched?**   ☐ Yes   ☐ No
   (If yes on #8, answer questions 9-13)

9. **Search type? (check all that apply)**
   ☐ Vehicle   ☐ Driver   ☐ Passenger(s)

10. **Basis for Search? (check all that apply)**
    ☐ Contraband visible   ☐ Odor of contraband
    ☐ Canine alert   ☐ Consent search
    ☐ 4th Waiver search   ☐ Search incident to arrest
    ☐ Inventory search (prior to impound)
    ☐ Observed evidence related to criminal activity
    ☐ Other _____

11. **Obtained *Consent Search* form?**   ☐ Yes   ☐ No

12. **Contraband found?**   ☐ Yes   ☐ No

13. **Property seized?**   ☐ Yes   ☐ No

RACE CODE LEGEND	A=OTHER ASIAN	F=FILIPINO	J=JAPANESE	P=PACIFIC ISLANDER	V=VIET
	B=BLACK	G=GUAMANIAN	K=KOREAN		W=WHITE
	C=CHINESE	H=HISPANIC	L=LAOTIAN	S=SAMOAN	Z=ASIAN INDIAN
	D=CAMBODIAN	I=INDIAN	O=OTHER	U=HAWAIIAN	

PD-2000N (9-02)   *This information is available in alternative formats upon request.*

Appendix 3
SDPD Officer Survey

A research team from San Diego State University is gathering the opinions of SDPD officers as a part of the ongoing review of traffic stop data and police-community relations in the City of San Diego. As a part of this process, we are asking you to complete the following survey. It should take no more than 5 or 10 minutes of your time.

As the recent Department Announcement made clear, your input is extremely important. This is why we ask that you please be as honest as you can and select the response to each question that best describes your opinion about each topic.

No personally identifiable information will be collected in this survey. Your participation is voluntary and your responses will be kept confidential. Responses will not be identified by individual, but rather will be compiled together and analyzed as a group.

If you have any questions or concerns about this survey or your rights as a research subject, please contact SDSU professor Joshua Chanin at jchanin@mail.sdsu.edu.

Thank you very much for your time and for the work you do.

SDPD Officer Survey - May 2016

Police-Community Relations in San Diego

1. San Diego residents trust the San Diego Police Department.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
○	○	○	○	○

2. San Diego residents trust *my division* of the San Diego Police Department.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
○	○	○	○	○

1

3. The following racial/ethnic groups feel comfortable interacting with the SDPD:

	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
Asian	○	○	○	○	○
Black	○	○	○	○	○
Hispanic	○	○	○	○	○
White	○	○	○	○	○

4. Recent events involving police in cities like Ferguson and Baltimore have made my job as a police officer more difficult.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
○	○	○	○	○

5. The community in my patrol area is appreciative of police presence.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
○	○	○	○	○

6. The community in my patrol area is willing to work with the police to solve neighborhood problems.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
○	○	○	○	○

7. The Department should do more to reach out to members of the community in my patrol area.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
○	○	○	○	○

8. The SDPD treats the following racial/ethnic groups fairly:

	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
Asian	○	○	○	○	○
Black	○	○	○	○	○
Hispanic	○	○	○	○	○
White	○	○	○	○	○

2

9. The following racial/ethnic groups have confidence in the SDPD:

	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
Asian	○	○	○	○	○
Black	○	○	○	○	○
Hispanic	○	○	○	○	○
White	○	○	○	○	○

10. Please use the space below to add any additional thoughts you might have about police-community relations in San Diego. Is there anything we haven't asked about this topic that you believe should be addressed?

11. Do you have any suggestions for improving police-community relations in San Diego?

SDPD Officer Survey - May 2016

Race, Crime, and Police Patrol

12. When you *do not have* the description of a suspect, a person's race or ethnicity is an important factor for:

	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
Identifying criminal behavior	○	○	○	○	○
Identifying gang-related activity	○	○	○	○	○
Discovering illegal drugs, guns, or other contraband	○	○	○	○	○
Enforcing traffic laws	○	○	○	○	○

3

13. In your experience, the following racial/ethnic groups are more likely to commit crime than members of other groups:

	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
Asian	○	○	○	○	○
Black	○	○	○	○	○
Hispanic	○	○	○	○	○
White	○	○	○	○	○

14. In your experience, the following racial/ethnic groups are more likely to carry illegal drugs, weapons, or other contraband than members of other groups:

	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
Asian	○	○	○	○	○
Black	○	○	○	○	○
Hispanic	○	○	○	○	○
White	○	○	○	○	○

15. In your experience, the following racial/ethnic groups are subject to a disproportionate number of police stops compared to drivers of other racial/ethnic backgrounds:

	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
Asian	○	○	○	○	○
Black	○	○	○	○	○
Hispanic	○	○	○	○	○
White	○	○	○	○	○

16. Racially or ethnically biased policing is justified if it helps keep the community safe.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
○	○	○	○	○

17. Conducting a traffic stop is an inherently dangerous activity.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
○	○	○	○	○

4

18. Please use the space below to add any additional thoughts you might have about police patrol in San Diego. Is there anything we haven't asked about this topic that you believe should be addressed?

19. Completing the Traffic Stop Data Card is a worthwhile use of officer time.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
○	○	○	○	○

20. Officers who submit incomplete or inaccurate Traffic Stop Data Cards are held accountable.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
○	○	○	○	○

21. Sharing traffic stop data (where, when, and of whom stops are made) with the public increases trust in the police.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
○	○	○	○	○

22. Sharing traffic stop data with the public hurts morale among SDPD officers.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
○	○	○	○	○

23. Please use the space below to add any additional thoughts you might have about the use of Traffic Stop Data Cards. Is there anything we haven't asked about this topic that you believe should be addressed?

5

24. Officer racial/ethnic bias is a genuine problem for the San Diego Police Department.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
○	○	○	○	○

25. SDPD policy is clear on the appropriate use of race/ethnicity in making law enforcement decisions.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
○	○	○	○	○

26. Additional training on racial/ethnic bias would make me a more effective officer.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
○	○	○	○	○

27. The Department does an effective job identifying officers who are acting in a racially/ethnically biased manner.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
○	○	○	○	○

28. Officers who engage in biased policing are held accountable for their actions.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
○	○	○	○	○

29. Please use the space below to add any additional thoughts you might have about SDPD policy, training, or officer culture. Is there anything we haven't asked about this topic that you believe should be addressed?

SDPD Officer Survey - May 2016

Demographics

6

30. What is your current rank?

( ) Police Office I or II

( ) Sergeant, Detective, or Lieutenant

( ) Captain or above

( ) Other

31. How long have you been a member of the San Diego Police Department?

( ) 1 or fewer years

( ) Between 2 and 5 years

( ) Between 6 and 10 years

( ) Between 11 and 20 years

( ) 21 or more years

32. What is the highest level of education you have completed?

( ) High School Graduate

( ) Some College

( ) College Graduate

( ) Post-Graduate Degree

33. What is your age?

( ) 24 or Younger

( ) Between 25 and 34

( ) Between 35 and 44

( ) Between 45 and 54

( ) 55 or Older

34. What is your race/ethnicity?

( ) Asian

( ) Black

( ) Hispanic

( ) White

( ) Other

7

35. How many hours per week do you spend enforcing traffic laws?

○ 0-5

○ 6-10

○ 11-15

○ 16-20

○ 21+

36. To which division are you currently assigned?

○ Central

○ Eastern

○ Mid-City

○ Northern

○ Northeastern

○ Northwestern

○ Southern

○ Southeastern

○ Western

○ Not Applicable

SDPD Officer Survey - May 2016

Follow-up Interview

Thank you again for your time. We are seeking volunteers to participate in short, confidential follow-up interviews on the topics covered in this survey. If interested, please contact Joshua Chanin at jchanin@mail.sdsu.edu.

8

Appendix 4

Limiting the veil of darkness analysis to stops involving moving violations

The authors of a recent paper analyzing traffic stops in Syracuse, New York argued that "some kinds of equipment violations (e.g., malfunctioning headlights) are uniquely nighttime violations, and it is conceivable that the incidence of such equipment violations is also correlated with drivers' race."[149] Worden goes on to argue that the inclusion of equipment violations may bias the veil of darkness analysis. To account for this possibility, we excluded equipment violations and re-applied the veil of darkness technique to a sub-sample of records generated for stops involving only moving violations. Our findings are shown in Tables A4.1 through A4.4.

Table A4.1.

Modeling the effects of daylight on the odds that Black drivers will be stopped citywide for a moving violation

	Odds Ratio	p-value	Standard error	95% Confidence Interval	Number of Stops
2014					
Black v. White	1.165	0.066	0.097	0.990, 1.374	5,884
Young Black v. Young White	1.269	0.128	0.198	0.934, 1.724	1,544
2015					
Black v. White	0.793	0.016	0.076	0.656, 0.957	4,381
Young Black v. Young White	0.649	0.019	0.120	0.452, 0.932	1,112
Combined					
Black v. White	0.985	0.809	0.062	0.871, 1.114	10,265
Young Black v. Young White	0.952	0.676	0.113	0.755, 1.120	2,656

Table A4.1 shows the results of an analysis of citywide stops made during the intertwilight period involving Black and White drivers stopped for a moving violation. These data show no statistically significant difference in the 2014 stop patterns of Blacks and Whites. When limited to moving violation stops occurring in 2015, our analysis shows that Black drivers were less likely to be stopped during daylight hours than after dark, compared to Whites. Analysis of the combined 2014/2015 data showed no meaningful disparity in the stop patterns of Black and

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[149] Worden, R.E., McLean, S.J., & Wheeler, A.P. (2012). Testing for racial profiling with the veil of darkness method. *Police Quarterly*, *15*, 92-111.

White drivers.

Table A4.2.

Modeling the effects of daylight on the odds that Hispanic drivers will be stopped citywide for a moving violation

	Odds Ratio	p-value	Standard error	95% Confidence Interval	Number of Stops
2014					
Hispanic v. White	1.039	0.463	0.054	0.938, 1.151	8,619
Young Hispanic v. Young White	1.102	0.382	0.123	0.886, 1.372	1,849
2015					
Hispanic v. White	0.793	<0.001	0.047	0.706, 0.891	6,681
Young Hispanic v. Young White	0.711	0.005	0.087	0.559, 0.904	1,639
Combined					
Hispanic v. White	0.915	0.023	0.036	0.848, 0.988	15,300
Young Hispanic v. Young White	0.893	0.165	0.073	0.761, 1.048	3,488

Table A4.2 shows results of our comparative analysis of Hispanic and White drivers stopped for moving violations. We find no statistically significant differences in the 2014 data or in the combined 2014/2015 data. Analysis of the 2015 data shows that Hispanic drivers were less likely to be stopped for a moving violation during the day, when driver race/ethnicity is more apt to be visible to the naked eye, than were Whites.

Table A4.3.

Modeling the effects of daylight on the odds that Black drivers will be stopped for a moving violation, above and below Interstate 8

	Odds Ratio	p-value	Standard error	95% Confidence Interval	Number of Stops
2014					
Above Interstate 8	1.358	0.019	0.177	1.052, 1.752	3,771
Below Interstate 8	0.773	0.024	0.088	0.618, 0.967	2,240
2015					
Above Interstate 8	1.050	0.752	0.162	0.775, 1.422	2,983
Below Interstate 8	0.597	<0.001	0.077	0.463, 0.770	1,514
Combined					
Above Interstate 8	1.191	0.077	0.118	0.981, 1.446	6,754
Below Interstate 8	0.692	<0.001	0.058	0.586, 0.817	3,754

In Table A4.3 we display the results of our moving violation-only analysis of Black and White drivers by stop location. We report findings by year for stops occurring both above and below Interstate 8. The data show that in 2014, stops occurring above I-8 involving a Black driver were more likely to occur during daylight hours, when driver race/ethnicity was visible, than after dark, when it was not, compared to Whites. No such disparities were evident in either 2015 or the combined 2014/2015 data.

Conversely, records of stops initiated in those divisions located below Interstate 8 in 2014, 2015, and 2014/2015 combined show that Black drivers were more likely to be stopped during daylight hours than after dark than were Whites stopped under similar conditions.

Table A4.4.

Modeling the effects of daylight on the odds that Hispanic drivers will be stopped for a moving violation, above and below Interstate 8

	Odds Ratio	p-value	Standard error	95% Confidence Interval	Number of Stops
2014					
Above Interstate 8	1.089	0.339	0.097	0.914, 1.297	4,353
Below Interstate 8	0.721	<0.001	0.055	0.620, 0.838	4,485
2015					
Above Interstate 8	1.012	0.909	0.106	0.823, 1.243	3,390
Below Interstate 8	0.659	<0.001	0.060	0.552, 0.787	3,458
Combined					
Above Interstate 8	1.044	0.515	0.071	0.915, 1.193	7,743
Below Interstate 8	0.677	<0.001	0.039	0.604, 0.759	7,943

Table A4.4, which lists findings of our location-based analysis of moving violation stops involving Hispanic and White drivers, shows a similar pattern. We find no statistical difference between Hispanic and White drivers stopped for a moving violation above I-8, regardless of stop year.

These data show evidence across stop year that moving violation stops involving Hispanic drivers were less likely to occur during daylight hours than at night, when compared to White drivers.

Appendix 5

Limiting the veil of darkness analysis to stops involving male drivers

Tables A5.1 through A5.4 show results of our application of the veil of darkness technique to a sub-sample of male drivers stopped for either moving or equipment-related violations. The results are not meaningfully different from analysis of stops involving male and female drivers compared under similar conditions.

Table A5.1.

Modeling the effects of daylight on the odds that Black male drivers will be stopped citywide for either a moving violation or equipment violation

	Odds Ratio	p-value	Standard error	95% Confidence Interval	Number of Stops
2014					
Black v. White	1.322	<0.001	0.089	1.159, 1.509	5,981
Young Black v. Young White	1.487	0.002	0.193	1.153, 1.918	1,569
2015					
Black v. White	0.844	0.027	0.064	0.727, 0.981	4,616
Young Black v. Young White	0.695	0.010	0.098	0.527, 0.917	1,219
Combined					
Black v. White	1.084	0.108	0.054	0.982, 1.195	10,597
Young Black v. Young White	1.040	0.675	0.098	0.865, 1.252	2,788

Table A5.1 compares citywide stop patterns of Black and White male drivers. In 2014, we find that Black men were more likely to be stopped during daylight hours than after dark, as compared to White drivers. In 2015, the exact opposite was true. Black male drivers were less likely to be stopped during daylight hours than they were after dark, compared to White male drivers. Analysis of the 2014/2015 combined data show no statistically significant difference in the stop patterns of Black and White male drivers.

Table A5.2.

Modeling the effects of daylight on the odds that Black male drivers will be stopped for either a moving violation or equipment violation, above and below Interstate 8

	Odds Ratio	p-value	Standard error	95% Confidence Interval	Number of Stops
<u>2014</u>					
Above Interstate 8	1.368	0.013	0.172	1.069, 1.749	3,224
Below Interstate 8	0.998	0.984	0.104	0.813, 1.225	2,218
<u>2015</u>					
Above Interstate 8	1.142	0.347	0.162	0.865, 1.508	2,650
Below Interstate 8	0.645	<0.001	0.078	0.509, 0.816	1,553
<u>Combined</u>					
Above Interstate 8	1.254	0.015	0.117	1.044, 1.506	5,874
Below Interstate 8	0.806	0.005	0.063	0.692, 0.938	3,771

In Table A5.2, we present the Black-White comparative analysis by stop location. Stops of Black male drivers initiated above I-8 were more likely to occur during daylight hours than after dark in 2014 and 2014/2015 combined, but not 2015, when compared to stops of White men.

In 2015 and 2014/2015, stops of Black men occurring below Interstate 8 were less likely to occur during daylight hours than after dark, compared to stops involving White males.

Table A5.3.

Modeling the effects of daylight on the odds that Hispanic male drivers will be stopped citywide for either a moving violation or equipment violation

	Odds ratio	p-value	Standard error	95% confidence interval	Number of stops
2014					
Hispanic v. White	1.088	0.080	0.053	0.990, 1.197	8,723
Young Hispanic v. Young White	1.144	0.173	0.113	0.943, 1.389	2,119
2015					
Hispanic v. White	0.827	0.001	0.046	0.741, 0.923	6,728
Young Hispanic v. Young White	0.737	0.005	0.081	0.595, 0.913	1,822
Combined					
Hispanic v. White	0.963	0.297	0.035	0.896, 1.034	15,451
Young Hispanic v. Young White	0.928	0.308	0.068	0.805, 1.071	3,941

Table A5.3 displays the results of analysis of stop patterns of Hispanic and White male drivers, aggregated at the city level. In 2015, Hispanic males were less likely to be stopped during daylight than they were after dark, compared to White male drivers. Analysis of the 2014 and 2014/2015 combined data show no statistically significant difference in the citywide stop patterns of Hispanic and White male drivers.

Table A5.4.

Modeling the effects of daylight on the odds that Hispanic male drivers will be stopped for either a moving violation or equipment violation, above and below Interstate 8

	Odds Ratio	p-value	Standard error	95% Confidence Interval	Number of Stops
2014					
Above Interstate 8	1.173	0.078	0.106	0.982, 1.340	3,712
Below Interstate 8	0.767	0.001	0.062	0.655, 0.899	4,292
2015					
Above Interstate 8	0.990	0.920	0.100	0.812, 1.207	3,061
Below Interstate 8	0.693	<0.001	0.068	0.572, 0.840	3,109
Combined					
Above Interstate 8	1.087	0.214	0.073	0.953, 1.240	6,773
Below Interstate 8	0.725	<0.001	0.045	0.642, 0.819	7,401

Table A5.4 shows results of our location-based analysis of Hispanic and White male drivers stopped for either an equipment or moving violation. Analysis of the 2014, 2015, and 2014/2015 combined data show no statistically significant difference in the Above I-8 stop patterns of Hispanic and White male drivers.

As was the case with Black male drivers, stops below Interstate 8 involving Hispanic men were less likely to be initiated during daylight than after dark than were stops involving White male drivers.

Appendix 6

Division-level traffic stop patterns, by year

Tables A6.1 through A6.6 display the results of our analysis of traffic stop patterns in the nine SDPD police divisions, broken down by driver race/ethnicity and stop year.

Table A6.1.

Modeling the effects of daylight on the odds that Black drivers will be stopped for either a moving violation or an equipment violation in 2014, by stop location

	Odds ratio	p-value	Standard error	95% confidence interval	Number of stops
Above Interstate 8					
Northern	1.038	0.878	0.258	0.638, 1.691	1,343
Northeastern	1.908	0.002	0.394	1.273, 2.861	1,204
Eastern	1.018	0.918	0.182	0.718, 1.445	1,098
Western	1.410	0.057	0.255	0.989, 2.011	1,416
Northwestern	1.151	0.681	0.393	0.590, 2.246	594
Sub-total	*1.253*	*0.029*	*0.129*	*1.024, 1.534*	*5,226*
Below Interstate 8					
Southeastern	1.641	0.030	0.375	1.048, 2.568	740
Central	0.724	0.057	0.123	0.520, 1.010	1,306
Southern	0.952	0.844	0.236	0.586, 1.548	484
Mid-City	0.977	0.869	0.140	0.738, 1.292	1,099
Sub-total	*0.905*	*0.238*	*0.077*	*0.766, 1.069*	*3,402*

In Table A6.1, we list the odds that Black drivers will be stopped for a moving violation or an equipment violation in daylight, compared to White drivers, using data from 2014. In the Northeastern division, Black drivers were 90.8 percent more likely to be stopped during daylight hours, when driver race/ethnicity was visible, than in darkness (p = 0.002), compared to White drivers. Disparities were also evident in data from the Southeastern division (p = 0.030) and in our analysis of aggregate data from the five divisions located above Interstate 8 (p = 0.029). We found no statistically significant disparities in data from the other seven patrol divisions, or in the aggregated data from below Interstate 8.

Table A6.2.

Modeling the effects of daylight on the odds that Black drivers will be stopped for either a moving violation or an equipment violation in 2015, by stop location

	Odds ratio	p-value	Standard error	95% confidence interval	Number of stops
Above Interstate 8					
Northern	1.327	0.277	0.345	0.797, 2.209	1,211
Northeastern	1.072	0.749	0.235	0.699, 1.647	1,087
Eastern	1.281	0.249	0.275	0.841, 1.952	898
Western	0.817	0.375	0.186	0.522, 1.277	904
Northwestern	0.704	0.403	0.295	0.309, 1.602	392
Sub-total	*1.067*	*0.576*	*0.124*	*0.849, 1.341*	*4,226*
Below Interstate 8					
Southeastern	1.113	0.716	0.328	0.625, 1.982	456
Central	0.650	0.026	0.125	0.445, 0.949	869
Southern	1.208	0.557	0.389	0.643, 2.272	333
Mid-City	0.978	0.895	0.163	0.705, 1.358	730
Sub-total	*0.686*	*<0.001*	*0.069*	*0.564, 0.834*	*2,244*

Table A6.2 reproduces the above analysis using data from 2015. We find no statistically significant evidence of Black-White disparity in either the Northeastern or Southeastern divisions, or the below I-8 aggregation. In 2015, stops in the Central division involving Black drivers were *less* likely to occur during daylight than after dark (p = 0.026), compared to White drivers. What is more, our analysis of the aggregated data from the four divisions located below Interstate 8 revealed a similar pattern: White drivers were more likely to be stopped during daylight hours than after dark (p <0.001), compared to Black drivers.

We found no statistically significant disparities in data from the other eight patrol divisions, or in the aggregated data from above Interstate 8.

Table A6.3.

Modeling the effects of daylight on the odds that Hispanic drivers will be stopped for either a moving violation or an equipment violation in 2014, by stop location

	Odds ratio	p-value	Standard error	95% confidence interval	Number of stops
Above Interstate 8					
Northern	0.870	0.398	0.143	0.630, 1.202	1,494
Northeastern	1.250	0.139	0.188	0.930, 1.679	1,361
Eastern	0.717	0.026	0.107	0.536, 0.961	1,227
Western	1.240	0.080	0.152	0.975, 1.576	1,701
Northwestern	1.519	0.064	0.064	0.976, 2.365	679
Sub-total	*1.084*	*0.262*	*0.078*	*0.941, 1.249*	*6,058*
Below Interstate 8					
Southeastern	0.960	0.850	0.207	0.629, 1.465	916
Central	0.595	<0.001	0.072	0.469, 0.754	1,718
Southern	0.999	0.991	0.129	0.775, 1.286	2,766
Mid-City	0.950	0.682	0.119	0.743, 1.215	1,418
Sub-total	*0.755*	*<0.001*	*0.049*	*0.665, 0.858*	*6,382*

Table A6.3 list the results of our application of the veil of darkness technique to stops conducted in 2014 involving Hispanic and White drivers. Stops in the Eastern (p = 0.026) and Central (p < 0.001) divisions involving Hispanic drivers were *less* likely to occur during daylight hours than in darkness, compared to White drivers. Analysis of the aggregated data from the four divisions located below Interstate 8 produced similar outcomes: White drivers were more likely to be stopped during periods when driver race/ethnicity was visible, compared to Hispanic drivers (p < 0.001).

We found no statistically significant disparities in data from the other seven patrol divisions, or in the aggregated data from above Interstate 8.

Table A6.4.

Modeling the effects of daylight on the odds that Hispanic drivers will be stopped for either a moving violation or an equipment violation in 2015, by stop location

	Odds ratio	p-value	Standard error	95% confidence interval	Number of stops
Above Interstate 8					
Northern	1.033	0.847	0.177	0.739, 1.445	1,368
Northeastern	1.241	0.190	0.204	0.898, 1.713	1,193
Eastern	1.206	0.284	0.211	0.856, 1.701	1,016
Western	0.711	0.037	0.116	0.516, 0.979	1,051
Northwestern	1.030	0.909	0.263	0.624, 1.698	521
Sub-total	*1.044*	*0.607*	*0.087*	*0.887, 1.228*	*4,835*
Below Interstate 8					
Southeastern	1.191	0.544	0.343	0.678, 2.093	577
Central	0.499	<0.001	0.070	0.379, 0.657	1,205
Southern	0.983	0.910	0.149	0.730, 1.323	2,212
Mid-City	0.807	0.173	0.127	0.593, 1.098	890
Sub-total	*0.697*	*<0.001*	*0.055*	*0.597, 0.815*	*4,574*

Data from 2015 reveal similar patterns. Stops conducted in the Western (p = 0.037) and Central divisions (p < 0.001) involving Hispanic drivers were less likely to occur during daylight hours than after dark, compared to Whites. Similarly, in the aggregate, Hispanics stops conducted below I-8 were less likely to occur in daylight than after dark (p < 0.001), compared to Whites.

We found no statistically significant disparities in data from the other seven patrol divisions, or in the aggregated data from above Interstate 8.

Table A6.5.

Modeling the effects of daylight on the odds that Asian/Pacific Islander drivers will be stopped for either a moving violation or an equipment violation in 2014, by stop location

	Odds ratio	p-value	Standard error	95% confidence interval	Number of stops
Above Interstate 8					
Northern	0.722	0.048	0.119	0.523, 0.996	1,500
Northeastern	1.274	0.022	0.134	1.036, 1.566	1,912
Eastern	1.348	0.050	0.205	1.000, 1.817	1,216
Western	1.074	0.644	0.168	0.792, 1.459	1,483
Northwestern	0.811	0.232	0.142	0.575, 1.144	800
Sub-total	*0.982*	*0.784*	*0.067*	*0.859, 1.121*	*6,349*
Below Interstate 8					
Southeastern	1.110	0.691	0.293	0.662, 1.862	356
Central	0.803	0.202	0.138	0.516, 4.028	1,305
Southern	1.509	0.104	0.382	0.919, 2.480	499
Mid-City	1.300	0.133	0.226	0.923, 1.826	860
Sub-total	*1.007*	*0.947*	*0.104*	*0.822, 1.233*	*2,860*

Table A6.5 lists the odds that API drivers will be stopped for a moving violation or an equipment violation in daylight, compared to White drivers, using data from 2014. In the Northeastern (p = 0.022) and Eastern (p = 0.050) divisions, API drivers were more likely to be stopped during daylight hours, when driver race/ethnicity was visible, than in darkness, compared to White drivers. Data from the Northern division reveal the inverse: API drivers were less likely to be stopped during daylight hours than after dark, compared to Whites.

Statistically significant disparities were not present in the other six patrol divisions, or in the aggregated data from above and below Interstate 8.

Table A6.6.

Modeling the effects of daylight on the odds that Asian/Pacific Islander drivers will be stopped for either a moving violation or an equipment violation in 2015, by stop location

	Odds ratio	p-value	Standard error	95% confidence interval	Number of stops
Above Interstate 8					
Northern	1.332	0.095	0.229	0.951, 1.866	1,368
Northeastern	0.982	0.869	0.110	0.787, 1.224	1,682
Eastern	1.065	0.698	0.172	0.776, 1.460	1,046
Western	0.717	0.111	0.150	0.476, 1.079	937
Northwestern	0.863	0.430	0.161	0.599, 1.244	662
Sub-total	*0.905*	*0.176*	*0.066*	*0.783, 1.046*	*5,254*
Below Interstate 8					
Southeastern	1.382	0.391	0.521	0.660, 2.900	166
Central	1.468	0.028	0.256	1.043, 2.067	962
Southern	1.388	0.274	0.416	0.772, 2.498	344
Mid-City	0.846	0.450	0.187	0.548, 1.305	499
Sub-total	*1.023*	*0.849*	*0.122*	*0.809, 1.294*	*1,839*

As is shown in Table A6.6, using data from 2015, we find evidence showing that stops conducted in the Central division involving API drivers were more 46.8 percent likely to occur during daylight hours than after dark (p = 0.028) compared to White driver stops. Statistically significant disparities were not present in any of the other eight patrol divisions, or in the aggregated data from above and below Interstate 8.

Appendix 7

Using logistic regression to model post-stop outcomes

What follows are the results of our analysis of post-stop outcomes using multivariate logistic regression. This technique is valuable in that in allows researchers to examine the relationship between a dichotomous variable, like search/no search, and several other variables. The propensity score matching technique is more effective at isolating the effects of driver race/ethnicity and thus has stronger internal validity than do logistic regression models. Logit models allow for use of a larger sub-sample of the traffic stop population and thus have a higher degree of external validity than do the results of the matched pairs analysis.

Table A7.1.

Using logistic regression to model the likelihood that SDPD officers will search Black drivers

	Odds ratio	p-Value	Standard error	95% confidence interval	Number of stops
All searches	2.98	<0.001	0.091	2.81, 3.17	122,547
Consent	3.63	<0.001	0.269	3.14, 4.20	116,745
Fourth waiver	4.48	<0.001	0.254	4.01, 5.01	116,745
Inventory	1.99	<0.001	0.121	1.77, 2.24	116,745
Incident to arrest	1.38	<0.001	0.122	1.17, 1.64	116,745
Other (uncategorized)	2.57	<0.001	0.171	2.26, 2.93	121,704

The results shown in Table A7.1 show clearly that Black drivers are more likely to be searched than are White drivers following discretionary traffic stops, regardless of search type. Table A7.2 shows similar results when the dataset is limited to Hispanic and White drivers. Hispanics drivers were more likely to be searched than are White drivers.

Table A7.2.

Using logistic regression to model the likelihood that SDPD officers will search Hispanic drivers

	Odds ratio	p-Value	Standard error	95% confidence interval	Number of stops
All searches	1.93	<0.001	0.052	1.83, 2.04	163,897
Consent	2.02	<0.001	0.140	1.76, 2.31	156,689
Fourth waiver	1.45	<0.001	0.086	1.29, 1.63	156,689
Inventory	2.56	<0.001	0.118	2.34, 2.81	156,689
Incident to arrest	1.20	0.008	0.084	1.05, 1.38	156,689
Other (uncategorized)	1.64	<0.001	0.097	1.47, 1.85	162,708

Tables A7.3 lists the results of four logistic regression models designed to estimate the effects of race/ethnicity on the discovery of contraband, as well as the decision to issue a citation, initiate a field interview, and make an arrest following the discretionary traffic stops of Black and White drivers. The findings are in line with the results of our matched pairs analysis: Black drivers were less likely to be cited than Whites, and Blacks were also less likely to be found with contraband. According to this analysis, Black drivers faced a greater likelihood of being subjected to a field interview and are substantially more likely to be arrested compared to White drivers.

Table A7.3.

Using logistic regression to model post-stop outcomes for Black drivers

	Odds ratio	p-Value	Standard error	95% confidence interval	Number of stops
Citation	0.59	<0.001	0.009	0.57, 0.60	123,082
Field interview	5.32	<0.001	0.204	4.93, 5.73	123,082
Contraband*	0.68	<0.001	0.071	0.55, 0.83	122,547
Arrest	1.37	<0.001	0.081	1.22, 1.54	123,082

* Includes statistical controls for police search

Table A7.4 lists the results of four logistic regression models evaluating the post-stop outcomes of Hispanic and White drivers. These findings reflect the results of our matched pairs analysis. Hispanic drivers were less likely than White drivers to be found with contraband following a

search and were more likely to be the subject of a field interview. We found no statistical difference in either the arrest or citation rates of Hispanic and White drivers.

Table A7.4.
Using logistic regression to model post-stop outcomes for Hispanic drivers

	Odds ratio	p-Value	Standard error	95% confidence interval	Number of stops
Citation	0.99	0.320	0.011	0.97, 1.01	164,635
Field interview	1.94	<0.001	0.075	1.80, 2.09	164,635
Contraband*	0.58	<0.001	0.054	0.48, 0.70	163,897
Arrest	1.17	0.081	0.103	0.98, 1.39	164,635

* Includes statistical controls for police search

In each case, the results generated by our multiple logistic regression models are consistent with the findings produced by the propensity score matching analysis described in Chapter 5. Taken together, these two sets of results suggest that across most post-stop outcomes, including search, contraband discovery, and field interviews, Black and Hispanic drivers are subject to disparate levels of scrutiny.

Appendix 8

Describing matched and unmatched drivers

Table A8.1 lists by race/ethnicity the outcome of this matching process for Black and White drivers across eight stop characteristics upon which the match was based. These include the reason for and location (police district) of the stop, the day of the week, month, and time of day during which the stop occurred, and the driver's age, gender, and residency status.

The Matched Black Drivers column lists by percentage the distribution of 19,948 stops involving matched Black drivers: 66.0 percent were stopped for moving violations, 9.0 were stopped in the Northern patrol division, 10.1 percent were stopped between noon and 3:00 PM, and so on. The Matched White Drivers column lists similar information for the 19,948 matched White drivers. The Unmatched Black Drivers column describes the 4,150 Black drivers for which a suitable match could not be found. The rightmost column, Unmatched White Drivers, describes the 74,017 White drivers that we could not appropriately match. Table A8.2 lists the same data for Hispanic drivers and their matched (and unmatched) White counterparts.

Table A8.1.

Describing matched and unmatched Black and White drivers

	Matched Black drivers (n=19,948)	Matched White drivers (n=19,948)	Unmatched Black drivers (n=4,088)	Unmatched White drivers (n=73,979)
Reason for stop				
Moving violation	66.0	64.6	31.3	80.6
Equipment violation	32.3	33.4	66.2	18.2
Code violation	0.7	0.7	1.1	0.4
Radio call/citizen contact	0.6	0.7	0.5	0.5
Observation/knowledge	0.3	0.3	0.5	0.1
Suspect information	0.2	0.3	0.5	0.1
Other	<0.1	0.1	0.0	0.1

Table A8.1. Describing matched and unmatched Black and White drivers, cont.

Stop location

Northwestern	3.1	3.5	0.0	9.4
Northern	9.0	9.1	0.0	25.2
Northeastern	9.2	9.2	0.0	15.7
Eastern	14.2	14.2	0.0	15.2
Southeastern	8.4	7.8	82.5	0.0
Central	17.1	17.4	0.4	9.0
Western	11.4	10.8	0.0	19.0
Southern	4.7	5.3	0.1	2.7
Mid-City	22.5	22.7	17.0	3.8

Stop time

12:00–3:00 a.m.	13.3	13.0	14.6	8.0
3:00–6:00 a.m.	3.7	4.0	4.1	1.9
6:00–9:00 a.m.	11.7	11.1	8.6	13.7
9:00 a.m.–12:00 p.m.	17.4	17.0	12.4	23.7
12:00–3:00 p.m.	10.1	10.3	4.6	15.5
3:00–6:00 p.m.	15.5	16.2	24.8	15.4
6:00–9:00 p.m.	10.7	11.5	14.7	9.4
9:00 p.m.–12:00 a.m.	17.6	17.1	16.3	12.3

Stop day

Monday	12.4	13.0	15.4	12.2
Tuesday	16.9	16.5	12.6	19.2
Wednesday	15.6	15.8	11.6	19.5
Thursday	16.0	15.7	14.5	17.6
Friday	15.1	14.6	16.5	13.3
Saturday	13.5	13.6	15.1	10.3
Sunday	10.4	10.8	14.4	8.0

Table A8.1. Describing matched and unmatched Black and White drivers, cont.

Stop month

January	8.9	9.4	10.5	8.7
February	10.5	10.5	11.6	10.0
March	9.4	9.6	8.1	9.0
April	9.6	9.4	9.3	10.0
May	8.6	8.8	7.4	8.9
June	7.8	7.8	8.1	8.3
July	7.5	7.5	8.5	8.5
August	8.9	8.6	9.5	7.9
September	7.5	7.5	6.8	6.9
October	6.9	6.7	7.2	7.3
November	7.6	7.6	6.3	7.8
December	6.7	7.0	6.9	6.8

Driver age

Under 18	0.5	0.7	0.3	1.5
18-25	24.5	24.5	29.2	18.6
26-35	32.4	31.3	30.7	26.2
36-45	17.9	18.3	17.1	18.0
46 and over	24.7	24.3	19.9	34.3

Driver gender

Male	70.0	69.6	77.8	59.5
Female	30.0	30.4	22.2	40.5

Driver residency status

Resident	77.7	77.6	90.1	73.3
Non-resident	22.3	22.4	9.9	36.7

Table A8.2.

Describing matched and unmatched Hispanic and White drivers

	Matched Hispanic drivers (n=39,252)	Matched White drivers (n=39,252)	Unmatched Hispanic drivers (n=24,928)	Unmatched White drivers (n=54,675)
Reason for stop				
Moving violation	69.5	71.1	61.3	82.1
Equipment violation	29.0	27.7	37.6	16.5
Code violation	0.4	0.3	0.3	0.6
Radio call/citizen contact	0.6	0.4	0.3	0.6
Observation/knowledge	0.2	0.2	0.2	0.1
Suspect information	0.2	0.2	0.2	<0.1
Other	0.1	0.1	<0.1	0.1
Stop location				
Northwestern	6.2	5.5	0.0	10.0
Northern	12.4	12.7	0.0	28.3
Northeastern	10.3	9.9	0.0	17.5
Eastern	13.4	13.9	<0.1	15.9
Southeastern	4.5	4.2	22.0	0.0
Central	17.7	17.0	3.2	6.2
Western	13.6	13.5	0.0	20.1
Southern	7.0	7.6	64.5	0.0
Mid-City	15.0	15.8	10.3	2.0
Stop time				
12:00–3:00 a.m.	10.8	10.4	8.3	8.3
3:00–6:00 a.m.	3.5	3.2	3.0	1.6
6:00–9:00 a.m.	13.8	13.4	13.0	13.3
9:00 a.m.–12:00 p.m.	19.3	20.7	19.1	23.6
12:00–3:00 p.m.	11.6	11.8	10.5	16.2
3:00–6:00 p.m.	15.1	15.5	23.0	15.4

Table A8.2. Describing matched and unmatched Hispanic and White drivers, cont.

6:00–9:00 p.m.	10.6	10.0	11.8	9.3
9:00 p.m.–12:00 a.m.	15.3	14.9	11.4	12.4
Stop day				
Monday	12.7	12.4	13.9	12.1
Tuesday	17.5	18.0	15.6	19.2
Wednesday	17.3	17.6	15.0	19.5
Thursday	16.4	16.7	15.2	17.7
Friday	14.4	14.3	16.2	13.2
Saturday	12.2	12.0	12.9	10.2
Sunday	9.5	9.1	11.3	8.1
Stop month				
January	8.8	8.5	8.6	8.9
February	10.2	10.5	10.3	9.8
March	9.2	9.1	9.4	9.0
April	9.8	9.8	9.1	10.1
May	8.9	8.7	8.4	8.9
June	8.2	7.9	8.5	8.3
July	7.6	7.8	9.0	8.6
August	8.2	8.3	8.6	8.0
September	7.1	7.1	7.3	7.0
October	7.4	7.3	7.1	7.1
November	7.8	8.0	6.9	7.6
December	6.9	7.1	6.8	6.6

Table A8.2. Describing matched and unmatched Hispanic and White drivers, cont.

Driver Age				
Under 18	0.9	0.6	0.5	1.9
18-25	24.9	25.0	29.8	16.1
26-35	30.4	30.7	27.5	25.2
36-45	20.5	20.0	19.9	16.5
46 and under	23.4	23.7	22.2	40.3
Driver gender				
Male	66.4	67.3	68.2	57.7
Female	33.6	32.7	31.9	42.3
Driver residency status				
Resident	70.8	70.7	69.0	76.8
Non-resident	29.2	29.3	31.0	23.2

Appendix 9

Modeling driver hit rates after dropping missing contraband cases

As we note in Chapter 3, 93 percent of stops recorded in 2014 and 2015 were missing information about the discovery of contraband. In the analysis discussed in Chapter 5, we interpreted these missing data to mean that no contraband was found. To account for the possibility that this assumption affected the accuracy of our analysis, we dropped the missing data and re-matched Black and Hispanic drivers with White drivers. Though the sample sizes were significantly smaller, the results are consistent with the previous 'hit rate' findings, as is shown in Tables A9.1 and A9.2.

Table A9.1.

Comparing hit rates among matched Black and White drivers after dropping missing and null cases

	Matched Black drivers (%)	Matched White drivers (%)	Difference (%)	p-Value
All searches	10.7	17.9	-50.71	<0.001
Consent	9.9	19.7	-66.25	<0.001
Fourth waiver	6.9	22.6	-106.06	<0.001
Inventory	19.8	18.6	6.17	0.024
Incident to arrest	4.1	9.0	-74.52	0.810
Other (uncategorized)	25.5	39.7	-43.55	0.055

Note: The analysis is based on a total of 1,998 Black drivers and 1,998 matched White drivers. Missing and null cases dropped.

Table A9.2.

Comparing hit rates among matched Hispanic and White drivers after dropping missing and null cases

	Matched Hispanic drivers (%)	Matched White drivers (%)	Difference (%)	p-Value
All searches	9.8	17.1	54.36	<0.001
Consent	9.6	22.2	79.43	<0.001
Fourth waiver	13.6	16.9	22.20	0.258
Inventory	3.9	5.5	33.80	0.222
Incident to arrest	11.0	18.5	51.01	0.021
Other (uncategorized)	35.2	46.1	26.77	0.097

Note: The analysis is based on a total of 3,038 Hispanic drivers and 3,038 matched White drivers. Missing and null cases dropped.

Appendix 10

Modeling driver hit rates after dropping missing contraband cases

The analysis of citation rates discussed in Chapter 5 was based on the assumption that missing and null cases indicated that no citation was issued. To address the possibility that these findings were skewed by the incorporation of ambiguous data, we re-matched drivers after dropping from the sample stop records that included either missing or null citation data. The results are shown in Table A10.1 and A10.2. The results were substantively unchanged: Black drivers remain less likely to receive a citation than White drivers, while Hispanics and Whites are ticketed at nearly identical rates.

Table A10.1.

Comparing citation rates for matched Black and White drivers after dropping missing contraband cases

	Matched Black drivers (%)	Matched White drivers (%)	Difference (%)	p-Value	Matched pairs
Searched drivers included	54.6	60.4	- 5.1	<0.001	19,103
Searched drivers excluded	54.4	60.5	- 6.1	<0.001	18,504

Note: Missing and null cases dropped.

Table A10.2.

Comparing citation rates for matched Hispanic and White drivers after dropping missing contraband cases

	Matched Hispanic drivers (%)	Matched White drivers (%)	Difference (%)	p-Value	Matched pairs
Searched drivers included	63.7	62.7	0.9	0.003	38,059
Searched drivers excluded	63.7	62.9	0.8	0.011	37,203

Note: Missing and null cases dropped.

Appendix 11
SDPD officer training

On November 4, 2016, we received the following statement from the San Diego Police Department regarding their current officer training requirements:

> *SDPD is a recognized leader in officer training. The concepts of de-escalation, non-biased policing, community policing and diversity are embedded in all training at the academy, and all sworn ranks receive ongoing training in these areas. The following highlights specific training courses offered in the past few years.*
>
> - *Academy Training for New Recruits:*
>   - *People with Disabilities & Mental Illness—15 hours*
>   - *Policing in the Community—24 hours (POST only requires 18 hours)*
>   *Includes Community Policing, Media Sensitivity, Community Mobilization, Community Partnerships, Resource Development, Crime Prevention, etc.*
>   - *Cultural Diversity/Discrimination—46 hours (POST only requires 16 hours)*
>   *Includes EEO, Cultural Diversity, Racial Profiling, Spanish, LGBT, Hate crimes*
>   - *Victimology and Victim Assistance—6 hours*
>
> - *New Officer Phase Training after Academy—increased by 5 weeks in 2015:*
>   - *Agency-Specific Training—immediately follows academy graduation*
>   *Includes family wellness day (added in 2012) and one-day bus tour (added in spring 2015)*
>   - *Observation/Community Engagement Phase—one month, provided prior to field training phases (added in summer 2015)*
>   - *Crisis Response Team Training (CRT)—40 hours, provided to all new officers (added in 2015)*
>   *Includes de-escalation, dealing with the mentally ill, slowing down responses, awaiting adequate cover, and supervisory oversight*
>   - *Emotional Intelligence/Effective Interactions—16 hours, after completion of fourth field training phase, just prior to being released on their own (added fall 2015)*
>
> - *Advanced Officer Training (AOT) required for all officers and sergeants every two years—40 hours*
>   - *2015-2016 agenda includes the following topics:*
>   - *Non Biased Based Policing—3.5 hours*
>   - *Tactical Communication—2 hours*
>   - *Defensive Tactics/Use of Force (including de-escalation)—4.5 hours*
>   - *Civil Liabilities—2 hours*

- *Wellness (including emotional intelligence)—2 hours*
  - *2017-2018 planned agenda includes the following topics:*
    - *Non Biased Based Policing—3 hours*
    - *Tactical Communication—2 hours*
    - *Defensive Tactics/Use of Force (including de-escalation)—5 hours*
    - *Emotional Intelligence—5 hours*

- *Command Training required for all sergeants, lieutenants and captains—40 hours (added in summer 2015)*
  - *2015 agenda included the following topics:*
    - *PERF Report and Recommendation Implementation Plan—1.5 hours*
    - *Emotional Intelligence Model—2 hours*
    - *Procedural Justice Model—2 hours*
    - *Tactical De-escalation—1 hour*
    - *Crucial Conversations/ Practical Application of Emotional Intelligence—2 hours*
    - *Employee Wellness/Self Care—1 hour*
    - *Mitigating Liabilities—2 hours*
    - *Captain's Discussion—3 hours*
    - *Non-Bias Based Policing—1.5 hours*
    - *Body Worn Camera Panel (how to enhance accountability, transparency and reduce liability)—2 hours*
    - *Leadership—4 hours*
  - *2016 agenda included the following topics:*
    - *Leadership—2 hours*
    - *Critical Incident Debrief (lessons learned)—2 hours*
    - *Demonstration Management—1 hour*
    - *Tactical Scenario Training—4 hours*

- *Fall 2015 Field Training Officer Refresher—all Field Training Officers, included the following:*
  - *Procedural Justice*
  - *Emotional Intelligence*