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RACIAL PROFILING
PROHIBITION PROJECT

STATE OF CONNECTICUT

TRAFFIC STOP DATA ANALYSIS AND FINDINGS, 2014-15

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FORWARD

> *Racial profiling sends the dehumanizing message to our citizens that they are judged by the color of their skin and harms the criminal justice system by eviscerating the trust that is necessary if law enforcement is to effectively protect our communities.*
>
> US Department of Justice
> June 17, 2003

Over the past fifteen years, racial profiling has been formally recognized as an issue of national, state, and local importance. Members of the public have increasingly questioned whether police officers target individuals based on their race, ethnicity, age, gender, or membership in a protected class. Nationally, disparities found in traffic stops have come under examination by the public, policymakers, and civil rights groups. Large disparities found in traffic enforcement have been long criticized by minority groups. As a result of this evolution of public consciousness, law enforcement agencies face an increased level of scrutiny from the public.

The May 2015 final report of the President's Task Force on 21st Century Policing stated:

> *Trust between law enforcement agencies and the people they protect and serve is essential in a democracy. It is key to the stability of our communities, the integrity of our criminal justice system, and the safe and effective delivery of policing services.*

In Connecticut, law enforcement agencies conduct approximately 600,000 traffic stops each year. Traffic stops are one of the most common encounters the public has with police. The data analysis in this report helps to improve the understanding of routine police interactions with Connecticut citizens. Those routine police interactions have a major effect on the public's view of police legitimacy. Legitimacy can be defined as a feeling of obligation to obey the law and to defer to the decisions made by legal authorities (Tyler and Fegan, 2008). There has been much research conducted over the last three decades on the importance of police legitimacy. The research indicates that the public cares as much about how police interact with them as they do about the outcomes that legal actions produce. People are more likely to obey the law when they believe those who are enforcing it have the legitimate authority to tell them what to do (Tyler, 1990).

Minority groups have historically expressed lower levels of trust and confidence in law enforcement. Conversely, although acknowledging that 'bad actors' do exist, law enforcement often feel as though legitimate police work can be mistakenly perceived as bias, or even overt racism. In order to increase and sustain public trust and confidence in law enforcement we must take a hard look at any existing disparities in traffic stop data and address the causes for the disparities. Recently, the conversation has centered around the impact of unconscious bias on police behavior. The science of implicit bias indicates that it might be a cause of a disproportionate number of stops among minority drivers.

Rice and White (2010) describe unconscious bias in the following passage:

> *Social cognition theorists suggest that the primary way people simplify and manage complex flows of information is by reducing it into social categories. People tend to categorize themselves and others into groups automatically. When we lack unique identifying information about people, we tend to focus on obvious status characteristics such as sex, race, or age. Once people are categorized, racial and*

other stereotypes automatically and often unconsciously become activated and influence behavior.

Training sponsored by the U.S. Department of Justice references early research on the psychology of bias, indicating that prejudice is based on a person's negative attitudes toward groups and that the person with prejudice is aware of it (presented by Fridell, 2014). Bias that exists with the individual's awareness is called "explicit bias." But bias in society has changed over the last several decades and is often more unconscious today. Bias can exist even in the most well intentioned individual because of a person's automatic tendency to categorize individuals. The lack of information about an individual reinforces our tendency to unconsciously rely on our group associations to complete the picture. Research has examined the manifestation of bias in various professional groups such as doctors, educators, prosecutors, and others.

The Justice Department's guidebook, developed for its Fair and Impartial Policing Program describes implicit bias:

> *In policing, implicit bias might lead the line officer to automatically perceive crime in the making when she observes two young Hispanic males driving in an all-Caucasian neighborhood. It may manifest among agency command staff who decide (without crime-relevant evidence) that the forthcoming gathering of African American college students bodes trouble, whereas the forthcoming gathering of white undergraduates does not. Moving beyond racial and ethnic biases, implicit bias might lead an officer to be consistently "over vigilant" with males and low income individuals and "under vigilant" with female subjects or people of means. Where there is a crash with two different versions of what happened, implicit bias might lead the officer to believe the Caucasian man in the white shirt driving the expensive car as opposed to the Hispanic man in jeans driving a less expensive car.*
>
> *So the bad news is that prejudice remains widespread and manifests below consciousness, even in those of us who eschew, at a conscious level, prejudice and stereotypes. The good news comes from the large body of research that has identified how individuals can reduce their implicit biases or, at least, ensure that their implicit biases do not affect their behavior. Scientists have shown that implicit biases can be reduced through positive contact with stereotyped groups and through counter-stereotyping, whereby individuals are exposed to information that is the opposite of the cultural stereotypes about the group. Another set of remedies doesn't require that we rid ourselves of implicit biases that took a lifetime to develop. The social psychologists have shown that, with information and motivation, people can implement "controlled" (unbiased) behavioral responses that override automatic (discrimination promoting) associations and biases.*

The findings in this year's report are an important next step towards fostering a transparent dialogue between law enforcement and the public at large in Connecticut. In addition to another full year of statewide traffic stop data being analyzed, this report contains follow up analyses of those departments or jurisdictions identified in the April 2015 report. To date, traffic stop studies in other states have primarily focused on statewide or department level trends. Aside from formal investigations, there is little precedence for a state to gain a more nuanced understanding of department level enforcement patterns with an eye towards racial and ethnic disparities and

potential biases contained therein. Yet project staff believes it imperative to the success of this project that the conversation not end at the identification of departments with significant racial and ethnic disparities. Indeed, the individual department and troop level follow up proved extremely informative for both researchers and departments. There is, however, always more to build upon in order to achieve the stated goals of the Alvin W. Penn Act. The follow up analyses should be viewed as a part of an ongoing process for the public, law enforcement and policymakers to gain an increasingly enhanced understanding of the factors contributing to racial and ethnic disparities in traffic stops.

This report is evidence that Connecticut remains well positioned to lead the nation in addressing the issue of racial profiling and increasing trust between the public and law enforcement. This achievement is made possible in large part through the participation and cooperation of the Racial Profiling Prohibition Project Advisory Board members. These participants bring a variety of perspectives to the conversation and included members from Connecticut state government, state and local police, researchers, and civil rights advocacy groups.

A major component of the advisory board's work following this report will continue to focus on the impact of implicit bias on modern policing. The information contained in this report provides an expanding foundation for an evolving dialogue around this important issue. Connecticut's data-driven approach allows the conversation to move beyond anecdotal and position-based views on the issue. An atmosphere of open-mindedness, empathy, and honesty remains necessary to successfully engage in a conversation about how to ensure fairness in the criminal justice system that will ultimately lead to sustained police legitimacy and a safer, more just society.

> *When any part of the American family does not feel like it is being treated fairly, that's a problem for all of us. It's not just a problem for some. It's not just a problem for a particular community or a particular demographic. It means that we are not as strong as a country as we can be. And when applied to the criminal justice system, it means we're not as effective in fighting crime as we could be.*
>
> President Barack Obama
> December 2014

EXECUTIVE SUMMARY OF FINDINGS

The Alvin W. Penn Racial Profiling Prohibition Act (Public Act 99-198) was first enacted in 1999 and prohibits racial profiling in the State of Connecticut. The law prohibits any law enforcement agency in the state from stopping, detaining, or searching motorists when the stop is motivated solely by considerations of the race, color, ethnicity, age, gender, or sexual orientation of that individual (Connecticut General Statutes Sections 54-1l and 54-1m). In 2012 and 2013, the Connecticut General Assembly made several changes to this law to create a system to address concerns regarding racial profiling in Connecticut. In accordance with these changes, police agencies began collecting data pertaining to all traffic stops on October 1, 2013.

In 2012, the Racial Profiling Prohibition Project Advisory Board was established to advise the Office of Policy and Management (OPM) in adopting the law's standardized methods and guidelines. The Institute for Municipal and Regional Policy (IMRP) at Central Connecticut State University was tasked to help oversee the design, evaluation, and management of the racial profiling study mandated by Public Act No. 12-74 and Public Act No. 13-75, "An Act Concerning Traffic Stop Information." The project staff worked with the state's Criminal Justice Information System (CJIS) to develop a system to collect consistent and universal traffic stop information and submit it to CJIS electronically on a monthly basis.

E.1: 2014 – 2015 TRAFFIC STOP ANALYSIS

The project staff enlisted the Connecticut Economic Resource Center, Inc. (CERC) to conduct an advanced statistical analysis of the data. The authors from CERC applied the statistical tests presented in Sections I.D, I.E, and I.F of the report. The authors from IMRP conducted the analyses contained in Section I.C of the report on the estimated driving population, resident only stops, and state average. The body of the report represents collaboration between members from both organizations.

The statistical evaluation of policing data in Connecticut is an important step toward developing a transparent dialogue between law enforcement and the public at large. The release of this report is evidence that Connecticut is well positioned to lead the nation in addressing the issue of racial profiling and increasing trust between the public and law enforcement. Although the analysis and findings presented in this report were conducted through a collaboration between IMRP and CERC, the ability to conduct such an analysis is primarily attributable to the efforts of state policy makers and the Racial Profiling Prohibition Project Advisory Board. The advisory board brought a variety of perspectives to the conversation and included members from Connecticut state government, state and local police, researchers, and civil rights advocacy groups.

There are a total of 92 municipal police departments: 29 departments employing more than 50 officers, 50 employing between 20 and 50 officers, and 13 with fewer than 20 officers. State police are comprised of 11 distinct troops. Although there are an additional 81 jurisdictions that do not have organized police departments and are provided police services by the state police, either directly or through provision of resident troopers, these stops were categorized with their overarching state police troops. Additionally, a total of 13 special agencies have the authority to conduct traffic stops. This report presents the results from an analysis of the 586,000 traffic stops conducted by the aforementioned agencies during the 12-month study period from October 1, 2014 through September 30, 2015.

E.1A: THE METHODOLOGICAL APPROACH OF THE ANALYSIS

Assessing racial disparities in policing data has been used for the last two decades as a policy tool to evaluate whether there exists the possibility that racial bias is occurring within a given jurisdiction. Although there has always been widespread public support for the equitable treatment of individuals across racial demographics, recent national headlines have brought this issue to the forefront of American consciousness and created a national debate about policing practices. The statistical evaluation of policing data in Connecticut is one important step towards developing a transparent dialogue between law enforcement and the public at large. As such, it is the goal of this report to present the results of that evaluation in the most transparent and unbiased manner possible.

The research strategy underlying the statistical analysis presented in this report was developed with three guiding principles in mind. Each principle was considered throughout the research process and when selecting the appropriate results to display publicly. A better understanding of these principles helps to frame the results presented in the technical portions of the analysis. In addition, by presenting these principles at the onset of the report, readers have a better context to understand the framework of the approach.

> *Principle 1: Acknowledge that statistical evaluation is limited to finding racial and ethnic disparities that are indicative of racial and ethnic bias but that, in the absence of a formal procedural investigation, cannot be considered comprehensive evidence.*
>
> *Principle 2: Apply a holistic approach for assessing racial and ethnic disparities in Connecticut policing data by using a variety of approaches that rely on well-respected techniques from existing literature.*
>
> *Principle 3: Outline the assumptions and limitations of each approach transparently so that the public and policy makers can use their judgment in drawing conclusions from the analysis.*

The structure of the report is organized to lead the reader through a host of descriptive and statistical tests that vary in their assumptions and level of scrutiny. The idea behind this approach is to apply multiple tests as a screening filter for the possibility that any one test is producing inaccurate results.

- Section I.A provides general background and the methodological approach used in the study.
- Section I.B: The analysis begins by first presenting the stop characteristics from the Connecticut policing data for October 1, 2014 – September 30, 2015.
- Section I.C: This section leads the reader through three descriptive measures that evaluate racial and ethnic disparities. There were six distinct analytical tools used to evaluate whether racial and ethnic disparities exist in the policing data. The three techniques contained in Section I.C are descriptive in nature and should be viewed with a degree of caution.[1] These intuitive measures are less stringent than more sophisticated statistical tests, but provide a useful context from which to view the data. These techniques are extremely useful in helping to identify irregularities in the data and create a context that helps to better understand the results of the more advanced statistical techniques.
- Section I.D: This section analyzes racial and ethnic disparities in the rate of motor vehicle stops by applying a well-respected methodology known as the *Veil of Darkness*. The *Veil of*

[1] The justification behind this cautionary note is presented in the introduction to Section I.D.

Darkness is a statistical technique that was developed by Jeffery Grogger and Greg Ridgeway (2006) and published in the *Journal of the American Statistical Association*. The *Veil of Darkness* examines a restricted sample of stops occurring during the "intertwilight window" and assesses relative differences in the ratio of minority to non-minority stops that occur in daylight as compared to darkness; the assumption being that if police officers wished to profile motorists, they would be more likely to do so during daylight hours when race and ethnicity are more easily discernible. The analysis described in this section is considered to be the most rigorous and broadly applicable of all the tests presented in this analysis.

- Section I.E: This section illustrates the application of the synthetic control analysis that has the same intuitive appeal as traditional population-based benchmarks but remains grounded in rigorous statistical theory. A synthetic control is a unique benchmark constructed for each individual department using various stop-specific and town-level demographic characteristics as captured through inverse propensity score weighting. The synthetic control is then used to assess the effect of treatment on an outcome variable(s). In the present context, treatment is defined as a traffic stop made by a specific municipal police department and the outcome variable(s) indicates whether a motorist is a racial or ethnic minority.
- Section I.F: This section assesses post-stop behavior, particularly the incidence of vehicular searches, by applying two estimation strategies. This section illustrates the application of an analysis of hit rates using the classic approach developed by Knowles, Persico and Todd (2001). Although some criticism has arisen concerning the technique, it contributes to an understanding of post-stop police behavior in Connecticut.

E.1B: FINDINGS FROM THE ANALYSIS OF POLICING DATA, 2014-15

This section summarizes the findings from the analysis conducted in Sections I.C, I.D, I.E and I.F of the main report.

Aggregate Findings for Connecticut

A total of 14.1% of motorists stopped during the analysis period were observed to be Black. A comparable 12.5% of stops were of motorists from a Hispanic descent. The results from the *Veil of Darkness* analysis indicated that minority stops were more likely to have occurred during daylight hours than at night. These results were robust to the addition of a variety of controls including time of day, day of the week, state traffic volume, department level fixed-effects, and department volume controls. The results from the post-stop analysis confirm that the disparity carries through to post-stop behavior across all racial and ethnic groups.

Although there is evidence of a disparity at the state level, it is important to note that it is likely specific departments that are driving these statewide trends. In an effort to better identify the source of these racial and ethnic disparities, each analysis was repeated at the department level. The departments that were identified as having a statistically significant disparity are likely to be having the largest effect on the statewide results. Although it is possible that specific officers within departments that were not identified may be engaged in racial profiling, these behaviors were not substantial enough to influence the department level results. It is also possible that a small number of individual officers within the identified departments are driving the department level trends.

The five municipal departments and one state police troop identified to exhibit a statistically significant racial or ethnic disparity that may indicate the presence of racial and ethnic bias include:

Bloomfield

The Bloomfield municipal police department was observed to have made 62% minority stops of which 7.2% were Hispanic and 52.0% were Black motorists. The results from the *Veil of Darkness* indicated that minority motorists, across all racial and ethnic categories except for Hispanic motorists alone, were more likely to have been stopped during daylight relative to darkness. The results were robust to the inclusion of a variety of controls and sample restriction that excluded equipment violations. The synthetic control analysis also produced statistically significant results and the disparity was sufficiently large across all racial and ethnic categories. The post-stop analysis did not produce statistically significant estimates possibly because of an insufficient sample of minority searches. The results of these analyses indicate that further investigation into the source of the observed statistical disparity in Bloomfield is warranted.

New Milford

The New Milford municipal police department was observed to have made 15.1% minority stops of which 9.7% were Hispanic and 4.3% were Black motorists. The results from the *Veil of Darkness* indicated that minority motorists, across all racial and ethnic categories except for Black motorists alone, were more likely to have been stopped during daylight relative to darkness. The results were robust to the inclusion of a variety of controls and sample restriction that excluded equipment violations. The synthetic control analysis and post-stop analysis did not reveal a statistically significant disparity. The results of these analyses indicate that further investigation into the source of the observed statistical disparity in New Milford is warranted.

Norwalk

The Norwalk municipal police department was observed to have made 42.6% minority stops of which 20.8% were Hispanic and 20.2% were Black motorists. The results from the *Veil of Darkness* indicated that minority motorists, for aggregate non-Caucasians and Black motorists alone, were more likely to have been stopped during daylight relative to darkness. The results were robust to the inclusion of a variety of controls and sample restriction that excluded equipment violations. The synthetic control analysis also produced statistically significant results but the disparity did not meet the threshold of ten percentage points and was not highlighted in that requisite section. The post-stop analysis did not produce statistically significant estimates possibly because of an insufficient sample of minority searches. The results of these analyses indicate that further investigation into the source of the observed statistical disparity in Norwalk is warranted.

West Hartford

The West Hartford municipal police department was observed to have made 37.5% minority stops of which 17.7% were Hispanic and 14.8% were Black motorists. The results from the *Veil of Darkness* indicated that minority motorists, across all racial and ethnic groups, were more likely to have been stopped during daylight relative to darkness. The results were robust to the inclusion of a variety of controls and sample restriction that excluded equipment violations. The synthetic control analysis also produced statistically significant results but the disparity did not meet the threshold of ten percentage points and was not highlighted in that requisite section. The post-stop analysis did, however, reveal that minorities were also searched significantly more frequently than Caucasian motorists. The results of these analyses indicate that further investigation into the source of the observed statistical disparity in West Hartford is warranted.

Wethersfield

The Wethersfield municipal police department was observed to have made 47.4% minority stops of which 27.2% were Hispanic and 18.5% were Black motorists. The results from the *Veil of Darkness* indicated that minority motorists, across all racial and ethnic groups, were more likely to have been stopped during daylight relative to darkness. The results were robust to the inclusion of a variety of controls and sample restriction that excluded equipment violations. The synthetic control analysis also produced statistically significant results and the disparity was sufficiently large across all racial and ethnic categories. The post-stop analysis did not produce statistically significant estimates possibly because of an insufficient sample of minority searches. The results of these analyses indicate that further investigation into the source of the observed statistical disparity in Wethersfield is warranted.

State Police- Troop H

Connecticut State Police Troop H was observed to have made 42.4% minority stops of which 15.4% were Hispanic and 22.1% were Black motorists. The results from the *Veil of Darkness* indicated that minority motorists were more likely to have been stopped during daylight relative to darkness especially after restricting the sample to moving violations. As mentioned, the synthetic control analysis was not run for any of the State Police troops. The post-stop analysis did, however, also reveal that Hispanic motorists were searched significantly more frequently than Caucasian motorists. The results of these analyses indicate that further investigation into the source of the observed statistical disparity in State Police Troop H is warranted.

Departments Identified from Descriptive Analysis

In addition to the five departments and one state police troop identified to exhibit statistically significant racial or ethnic disparities that may indicate the presence of racial and ethnic bias, six departments were identified using descriptive tests. The descriptive tests are designed as a screening tool to identify the jurisdictions where consistent disparities that exceed certain thresholds have appeared in the data. They compare stop data to three different benchmarks: (1) statewide average, (2) a driving population estimation that is applied to stops made during morning and evening peak commutation periods, and (3) resident-only stops. Although it is understood that certain assumptions have been made in the design of each of the three measures, it is reasonable to believe that departments with consistent data disparities that separate them from the majority of other departments should be subject to further review and analysis with respect to the factors that may be causing these differences.

The screening process shows stop data for six municipal departments that exceeded the disparity threshold levels in at least two of the three benchmark areas as well as in a majority of the nine possible measures. Those departments are (1) Wethersfield, (2) Stratford, (3) Meriden, (4) New Britain, (5) Newington, and (6) Trumbull. In addition to these six departments, 42 others were identified with racial and ethnic disparities for at least one of the nine possible measures in the three benchmarks. While the results for these 42 departments do not warrant further assessment of their data at this time, it would be beneficial for departments with smaller disparities to evaluate their own data to better understand any relevant patterns.

A total of 11 departments were identified with statistically significant disparities in the synthetic control analysis. Although identification in this test is not, in and of itself, sufficient to be identified for further analysis in the absence of significant results in any of the other five tests, three of the departments: (1) Waterbury, (2) East Hartford, and (3) Windsor were also identified in tier 2 of the

descriptive benchmark analysis. When these analyses are taken as a whole, the results appear to justify further review of the stop data for these three departments.

The Ansonia municipal police department was also identified initially as having a statistical disparity for the initial Veil of Darkness test. However, when the sample was restricted to only moving violations, the results dropped substantially in terms of statistical significance. Given the change in the Ansonia data, the disparity is not persistent enough to conclude that a disparity exists in the rate at which minority motorists were stopped during daylight. Therefore, the overall results did not warrant a further analysis at this time.

E.1C: CONCLUSIONS AND NEXT STEPS

The reporting elements included in the 2012 and 2013 revisions to the Alvin W. Penn Racial Profiling Prohibition Act represent one of the largest and most comprehensive efforts to collect policing data in any state in the nation or individual jurisdiction to date. The analysis in this report represents the application of a series of well-respected statistical techniques and the development of several useful descriptive statistics that help to better contextualize those findings. The data made available through this project, however, creates an opportunity to develop increasingly sophisticated statistical tests that build on those applied in this analysis and take advantage of the unique variables available in the dataset. This analysis of racial and ethnic disparities in Connecticut policing data is not the end of the process but should be considered the foundation for an ongoing dialogue.

This report makes it clear that racial and ethnic disparities do not, by themselves, provide conclusive evidence of racial profiling. Statistical disparities do, however, provide significant evidence of the presence of idiosyncratic data trends that warrant further analysis. The analysis conducted in this report at the department level will serve as an initial step towards the identification of racial and ethnic disparities in policing data. The statistical disparities identified in the department level analysis could be driven by specific department-wide practices or by individual officers.

Therefore, an in-depth follow-up analysis will be conducted for the following departments based on our analytical results for traffic stops performed from October 1, 2014 through September 30, 2015: **(1) Bloomfield, (2) Meriden, (3) New Milford, (4) Newington, (5) Norwalk, (6) Trumbull, (7) West Hartford, (8) Wethersfield, (9) Windsor, and (10) Troop H**. New Britain, Stratford, Wethersfield and Troop H were identified last year and an in-depth follow-up analysis of the first year data that led to that identification is presented in Part II of this report. Based on the results of that analysis and our further understanding of traffic stop enforcement in New Britain and Stratford, we do not believe a full follow-up analysis is necessary. However, we will conduct a limited analysis to verify our previous conclusions with regard to these two municipalities. Although a follow-up analysis was conducted for Wethersfield and Troop H based on Year 1 data, additional disparities were identified in Year 2 that warrant another full analysis.

Three departments (1) Waterbury, (2) East Hartford, and (3) Windsor were identified in the Synthetic Control Analysis and were also identified in Tier 2 of the descriptive benchmark analysis. While neither of these results taken individually would be sufficient to identify these departments for further analysis in the absence of any other results, when they are considered together they would appear to make a sufficient case for follow-up. Like New Britain and Stratford, Waterbury and East Hartford have undergone a full follow-up based on their Year 1 data and we intend to conduct only a limited analysis to verify our conclusions from Year 1. Windsor will undergo a full follow-up analysis based on its composite Synthetic Control and descriptive benchmark test results and its status as a

Tier 3 town in Year 1 (Tier 3 towns were those that fell just below the threshold for a follow-up analysis in Year 1 and were being monitored for changes in Year 2).

The follow-up analysis will include propensity score matching, a sophisticated analytical technique that has been used to identify racial and ethnic disparities at the officer level. This analysis will help both to identify if individual officers are driving department level disparities and to provide department administrators with a tool to better assess the factors that may be influencing their stop data. In addition to an officer level analysis, researchers will attempt to map traffic stops and analyze traffic enforcement patterns by neighborhood. This analysis will incorporate additional factors such as, accident, crime and call for service information. As was the case for the follow-up analyses resulting from the Year 1 data, the identified departments will be invited to be an integral part of this process.

Last year it was highly recommended that all departments make a commitment to the Department of Justice's, Community Oriented Policing Services Division-sponsored training program on "Fair and Impartial Policing (FIP)." The FIP program was established to train police officers and supervisors on fair and impartial policing by understanding both conscious and unconscious bias. This program has been offered to police agencies throughout the state on an ongoing basis. To date, well over 1,000 law enforcement officers have gone through this training. The Police Officers Standards and Training Council also incorporated the FIP curriculum into supervisor and recruit training. We continue to encourage departments to offer this training to all police professionals.

Although further analysis and training are important, a major component of addressing concerns about the possibility of racial profiling in Connecticut is bringing law enforcement officials and community members together in an effort to build trust by discussing relationships between police and the community. The project staff has conducted several public forums throughout the state to bring these groups together and will continue these dialogues into the foreseeable future. They serve as an important tool to inform the public of their rights and the role of law enforcement in serving their communities. Through its ongoing work with OPM in implementing the Alvin Penn Act, the IMRP is committed to working with all law enforcement agencies to make improvements that will lead to enhanced relationships between the police and community.

E.2: 2013 – 2014 TRAFFIC STOP FOLLOW-UP ANALYSIS

Last year's report analyzed Connecticut traffic stop data from October 1, 2013 – September 30, 2014. On the statewide level, the report found that a total of 13.5% of motorists stopped during the study period were observed to be Black. A comparable 11.7% of stops were of motorists from a Hispanic descent. The results from the "Veil of Darkness" analysis indicated that minority stops were more likely to have occurred during daylight hours than at night. The results from the post-stop analysis confirmed that the disparity carried through to post-stop behavior for Hispanic motorists.

In addition to the state level results, a total of nine municipal police departments and two state police troops were identified as having statistically significant disparities in the conditional probability of a minority motorist being stopped. The agencies identified were: East Hartford, Granby, Groton Town, Hamden, Manchester, New Britain, Stratford, Waterbury, Wethersfield, State Police Troop C and Troop H. As noted in the report, these nine municipal departments and two state police troops were identified across multiple statistical and descriptive tests. Although it is impossible to draw any direct inference about racial profiling itself, the findings presented compelling statistical evidence that warranted further investigation.

A main goal for the investigation was to better understand whether statistical disparities identified in the department level analysis could be driven by specific department-wide practices or by individual officers. As a method for determining this had not yet been developed in Connecticut or elsewhere, project staff began by constructing an approach to achieve their objective. Ultimately the approach included a mix of previously utilized and newly developed statistical and descriptive analyses, coupled with an on-going dialogue with each department.

The first section of the follow-up analysis outlines additional descriptive measures that were applied to department-level data for the nine municipal departments. Traffic stop policy can be influenced by factors as diverse as the location of accidents, high call for service volume areas, high crime rate areas, and areas with major traffic generators such as shopping and entertainment districts. In order to understand the factors that might be contributing to traffic enforcement decisions in the identified departments, project staff sought to understand where their respective traffic enforcement patterns occurred and why. Mapping the traffic stops for each identified community was a primary means to begin this part of the analysis. (Due to the relatively low number of stops that could be adequately identify longitude and latitude coordinates for in the case of Granby and Wethersfield, we decided to analyze data by roadway.)

After completing the mapping exercise on the town or jurisdiction wide level, project staff proceeded with a descriptive analysis of traffic stops at the census tract level for all departments except Granby and Wethersfield. A census tract analysis not only provided a more nuanced understanding of population demographics, but also allowed researchers to focus on the unique attributes of a subsection of a community such as major traffic generators, accident rates, local crime problems, and calls for service. The findings from the descriptive analysis vary greatly from department to department and are presented in-depth in Part II of this report.

The second section of the follow-up analysis focuses on the two state police troops and supplements the initial findings using the "Veil of Darkness" method by conducting several additional robustness checks on the initial findings. The results of this more detailed analysis indicate that the racial and ethnic disparities found in State Police Troops C and H are robust to the inclusion of additional controls. The results persist even after the sample of stops is restricted by infraction type, enforcement pattern, and driver's residency. Controls for geography and officer heterogeneity were also shown to have little impact on the overall results. Additionally, an extremely restrictive specification that focused on stops having occurred within a month before and after the daylight savings time (DST) adjustment in clock-time showed the same consistent disparity in both troops.

Although the source of the disparity in Troops C and H remains unknown, the findings confirm that it is extremely persistent and unaffected by controls using the 2013-14 data. One avenue of explanation relates to the fact that infractions differ in their level of severity and, as a result, so does the discretion exercised by an officer. Specifically, it is reasonable to assume that severe infractions warrant a less discretionary decision to make a traffic stop than minor violations. If differences in infraction severity vary across racial and ethnic groups, it might be possible that these factors are contributing to the statistical disparity identified in the 2013-14 data. It seems likely that these factors play an extremely important role in the observed troop-level disparities and represent an important element currently missing from the analysis.

The final section moves beyond examining disparities at the department level and examines individual officer information. The officer analysis was developed and utilized as a tool to better

understand if disparities in data were driven by individual officers or groups of officers. A total of 935 unique officer identifiers were listed in the traffic stop database for the 9 municipal departments and two state police troops that were part of the follow-up analysis. After limiting the sample to officers with 50 or more traffic stops, a total of 370 officers were examined. Of the officers examined, 38 were identified as being statistically more likely to stop a minority motorist relative to their benchmark. These officers were then examined using a balancing test that directly compared the distribution of observable traffic stop characteristics with those of each officer's benchmark. The balancing test revealed that only 25 of the 38 identified officers had a benchmark that convincingly captured the distribution of observable traffic stops. As part of this process, law enforcement administrators were requested to review the findings in conjunction with additional officer information not available to researchers. Included in this section are the official responses from the two jurisdictions that provided written replies to project staff.

To date, traffic stop studies in other states have primarily focused on statewide or department level trends. Aside from formal investigations, there is little precedence for a state to gain a more nuanced understanding of department level enforcement patterns with an eye towards racial and ethnic disparities contained therein. Yet project staff believes it imperative to the success of this project that the conversation not end at the identification of departments with significant racial and ethnic disparities. Indeed, the individual department and troop level follow up proved enlightening for both researchers and departments. There is, however, always more to build upon in order to achieve the stated goals of the Alvin W. Penn Act. The follow up analysis should be viewed as a part of an ongoing process for the public, law enforcement and the law's implementing agency to gain an increasingly enhanced understanding of the factors contributing to racial and ethnic disparities in traffic stops.

BACKGROUND

First enacted in 1999, Connecticut's anti-racial profiling law entitled, the Alvin W. Penn Racial Profiling Prohibition Act (Public Act 99-198), prohibits any law enforcement agency from stopping, detaining, or searching any motorist when the stop is motivated solely by considerations of the race, color, ethnicity, age, gender or sexual orientation of that individual (Connecticut General Statutes Sections 54-1l and 54-1m). In 2012 and 2013, the Connecticut General Assembly made several changes to this law to create a system to address racial profiling concerns in Connecticut.

Through September 30, 2013, police agencies collected traffic stop information based on requirements outlined in the original 1999 Alvin W. Penn law. Beginning October 1, 2013, police agencies had to submit traffic stop data for analysis under the new methods outlined by the Office of Policy and Management (OPM), as required by the amended racial profiling prohibition law. The law also authorized the OPM secretary to order appropriate penalties (i.e., the withholding of state funds) when municipal police departments, the Department of Emergency Services and Public Protection (DESPP), and other police departments fail to comply.

In 2012, the Racial Profiling Prohibition Project Advisory Board was established to advise OPM in adopting the law's standardized methods and guidelines. The Institute for Municipal and Regional Policy (IMRP) at Central Connecticut State University was tasked to help oversee the design, evaluation, and management of the racial profiling study mandated by PA 12-74 and PA 13-75, "An Act Concerning Traffic Stop Information." The IMRP worked with the advisory board and all appropriate parties to enhance the collection and analysis of traffic stop data in Connecticut.

The National Highway Traffic and Safety Administration (NHTSA) provided resources for this project through a grant administered by the Connecticut Department of Transportation. The Racial Profiling Prohibition Project Advisory Board and the project staff have been meeting since May 2012 in an effort to outline a plan to successfully implement the requirements of the 2012 and 2013 legislation. The focus of the project's early phase was to better understand traffic stop data collection in other states. After an extensive review of best practices, working groups were formed and met monthly to discuss the different aspects of the project. These working groups included Data and System, Public Awareness, and Training work groups. The full advisory board held more than 20 meetings and the working groups met approximately 50 times.

The advisory board and IMRP also worked with law enforcement officials to create a data collection system that is efficient, not burdensome to the police collecting it, and provides information that is easy to work with when it is submitted. Police agencies in Connecticut vary in their levels of sophistication and technological capacity with respect to how they collect and report data. The project staff worked with the state's Criminal Justice Information System (CJIS) to develop a system to collect consistent and universal traffic stop information and submit it to CJIS electronically on a monthly basis.

The IMRP developed and maintains a project website (www.ctrp3.org) that informs the public of the advisory board's activities, statewide informational forums, and related news items on racial profiling. The website includes meeting agendas and minutes, press releases, and links to register for events. The website is updated weekly. In addition to the project website, the IMRP partnered with the Connecticut Data Collaborative to publish all traffic stop data on a quarterly basis. The public can download the information in its original form or view summary tables for easy use. A full set of analytical tools will be available for more advanced users who are interested in data analysis.

Although much of the initial focus of this project was to develop a standardized method for data collection and analysis, there are other important components. The initiatives include a public awareness and education campaign, effective training for officers and departments, and a rigorous complaint process. Information about all of these initiatives is provided on the project website. These initiatives collectively represent different tools available for education and the prevention of racial profiling in policing. These tools were implemented in the hope of building and enhancing trust between communities and law enforcement in Connecticut.

In February 2014, the U.S. Department of Justice, Community Oriented Policing Services Division, sponsored a train-the-trainer program in Connecticut on "Fair and Impartial Policing (FIP)." The FIP program was established to train police officers and supervisors on fair and impartial policing by understanding both conscious and unconscious bias. This program was offered to police agencies throughout the state over the next year.

Lastly, a major component of addressing concerns about the possibility of racial profiling in Connecticut is bringing law enforcement officials and community members together to discuss relationships between police and the community. The project staff has conducted several public forums throughout the state to bring these groups together and will continue these dialogues in the foreseeable future. They serve as an important tool to inform the public of their rights and the role of law enforcement in serving their communities.

PART I: OCTOBER 1, 2014 – SEPTEMBER 30, 2015
TRAFFIC STOP ANALYSIS

I.A: METHODOLOGICAL APPROACH UNDERLYING THE ANALYSIS

Assessing racial disparities in policing data has been used for the last two decades as a policy tool to evaluate whether racial bias exists within a given jurisdiction. Although there has always been widespread public support for the equitable treatment of individuals of all races, recent national headlines have brought this issue to the forefront of American consciousness and prompted a contentious national debate about policing practices. The statistical evaluation of policing data in Connecticut is one important step towards developing a transparent dialogue between law enforcement and the public at large. As such, this report's goal is to present the results of that evaluation in the most transparent and unbiased manner possible.

As the number of jurisdictions that have passed laws mandating the collection of policing data has increased, economists and statisticians have become involved in the process by providing new and increasingly sophisticated analytical techniques. Prior to the development of these empirical methods, traditional policing data assessments were based on population-based benchmarks. Although population-based benchmarks are still frequently applied in practice because of their intuitive appeal and inherent cost-effectiveness, these test statistics cannot withstand strict scrutiny as the only way to identify disparities. In an effort to achieve the goal of a transparent and unbiased evaluation, the analysis in this report applies a series of sophisticated econometric estimation methods as the primary diagnostic mechanism.

The research strategy underlying this statistical analysis was developed with three guiding principles in mind. Each principle was considered throughout the research process and when selecting the appropriate results to disseminate to the public. A better understanding of these principles helps to frame the results presented in the technical portions of the analysis. In addition, presenting these principles at the outset of the report gives readers a better context within which to understand the framework of the approach.

> *Principle 1: Acknowledge that statistical evaluation is limited to finding racial and ethnic disparities that are indicative of racial and ethnic bias but that, in the absence of a formal procedural investigation, cannot be considered comprehensive evidence.*
>
> *Principle 2: Apply a holistic approach for assessing racial and ethnic disparities in Connecticut policing data by using a variety of approaches that rely on well-respected techniques from existing literature.*
>
> *Principle 3: Outline the assumptions and limitations of each approach transparently so that the public and policy-makers can use their judgment in drawing conclusions from the analysis.*

This report is organized to lead the reader through a host of descriptive and statistical tests that vary in their assumptions and level of scrutiny. The intent behind this approach is to apply multiple tests as a screening filter for the possibility that any one test (1) produces false positive results or (2) indicates existing disparities. The analysis begins by first presenting the descriptive statistics from the Connecticut policing data along with several intuitive measures that evaluate racial and ethnic disparities. These intuitive measures are considered less stringent tests, but provide a useful context for viewing the data.

Section I.D of this report analyzes racial and ethnic disparities in the rate of motor vehicle stops by applying a well-respected methodology colloquially known as the "Veil of Darkness." Section I.E of this report illustrates the application of the synthetic control analysis that has the same intuitive appeal as traditional population-based benchmarks but remains grounded in rigorous statistical theory. The last section assesses post-stop behavior, particularly the incidence of vehicular searches, by applying two estimation strategies. We conclude the report by summarizing our analysis of disparities in the rate of motor vehicle stops and post-stop behavior at the state and department levels. The findings presented in the conclusion draw from each of our evaluation mechanisms and identify only those departments where statistically significant racial and ethnic disparities across multiple tests are observed.

In short, we move forward with the overall goal of identifying the statistically significant racial and ethnic disparities in Connecticut policing data. A variety of statistical tests are applied to the data in the hope of providing a comprehensive approach based on the lessons learned from academic and policy applications. Our explanations of the mechanisms and assumptions that underlie each of the tests are intended to provide policymakers and the public with enough information to assess the data and draw their own conclusions from the findings.

Finally, we emphasize the message that any statistical test is only truly capable of identifying racial and ethnic disparities. Such findings provide a mechanism to signal the potential of racial profiling; but they cannot, without further investigation, lead to the conclusion that racial profiling exists.

I.B: CHARACTERISTICS OF TRAFFIC STOP DATA

This section examines general patterns of traffic enforcement activities in Connecticut for the study period of October 1, 2014 to September 30, 2015. Statewide and agency activity information can be used to identify variations in traffic stop patterns to help law enforcement and local communities understand more about traffic enforcement. Although some comparisons can be made between similar communities, we caution against comparing agencies' data in this section of the report.
Please note that the tables included in this report present information from only a limited number of departments. Complete tables for all agencies are included in the technical appendix.

In Connecticut, more than 585,000 traffic stops were conducted during the 12-month study period. Almost 60% of the total stops were conducted by the 92 municipal police departments, 38% of the total stops were conducted by state police, and the remaining 2% of stops were conducted by other miscellaneous policing agencies. Figure 1 shows the aggregate number of traffic stops by month along with each demographic category. As can be seen below, the volume of traffic stops has a seasonal variation pattern. However, the proportion of minority stops remained relatively consistent across the year.

Figure 1: Aggregate Traffic Stops by Month of the Year

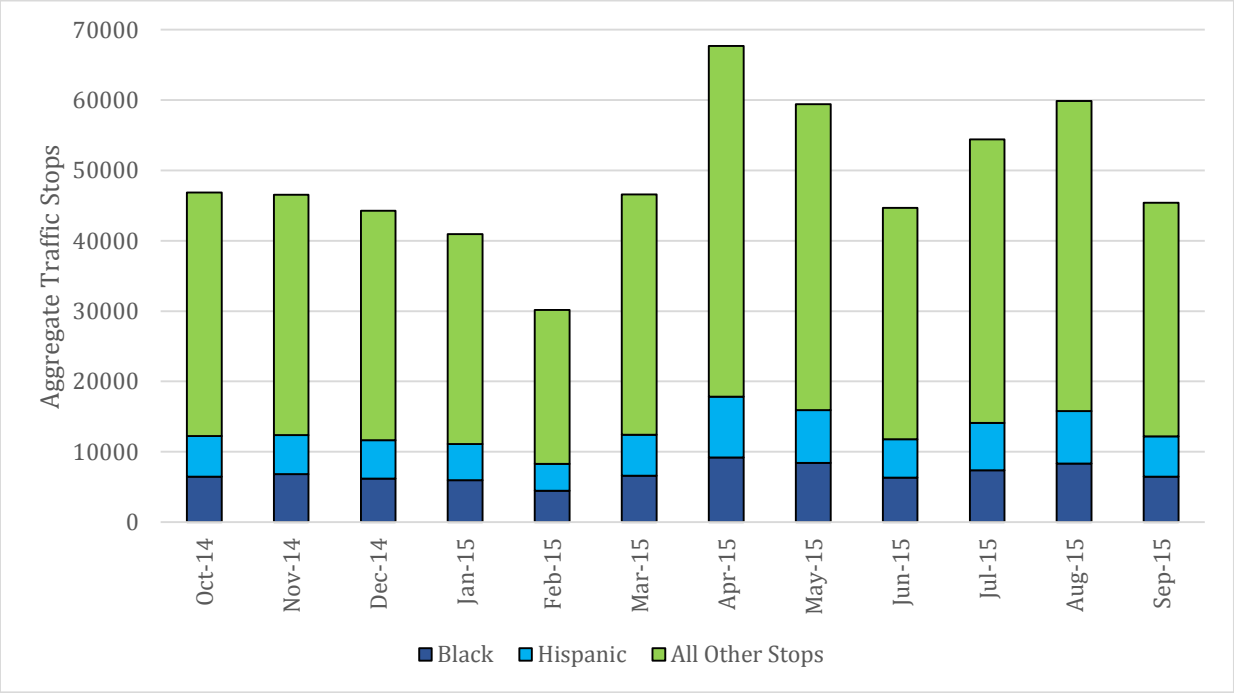
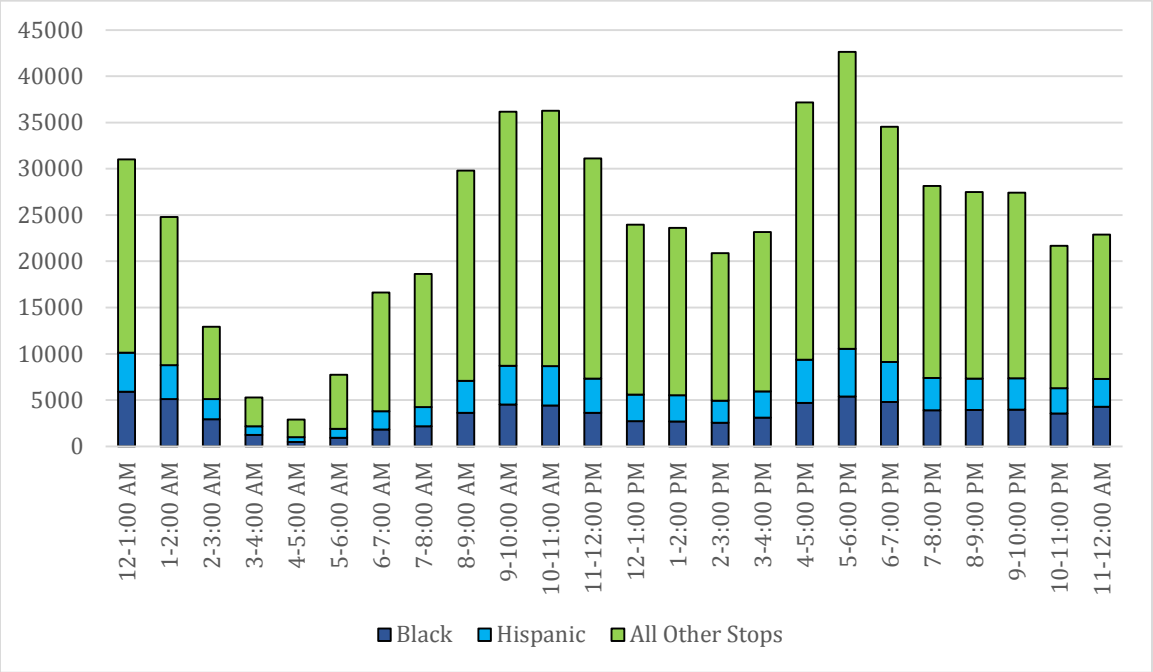


Figure 2 displays traffic stops by time of day for the entire analysis period. As can be seen from the figure, the total volume of traffic stops fluctuates significantly across different times of the day. The highest hourly volume of traffic stops in the sample occurred from five to six in the evening and accounted for 7.3% of all stops. It is not surprising that the volume of traffic stops increases between these hours as this is a peak commuting time in Connecticut. The lowest volume of traffic stops occurred between four and five in the morning and continued at a suppressed level during the morning commute. The low level of traffic stops during the morning commute is likely due to an

interest in maintaining a smooth flow of traffic during these hours. Discretionary traffic stops might be less likely to be made during these hours relative to others in the sample.

Figure 2: Aggregate Traffic Stops by Time of Day



The evening commute, in contrast to the morning commute, represents a period when a significant proportion of traffic stops are made. The surge seen between the hours of four and seven at night represents the most significant period of traffic enforcement. In aggregate, stops occurring between these hours represented 19.5% of total stops. Interestingly, there seems to be a significant correlation between the proportion of minority stops and the overall volume of stops. In particular, the share of Hispanic and Black stops increase when the total volume of stops increase.

Figure 3: Average Number of Traffic Stops by Month for Police Agencies

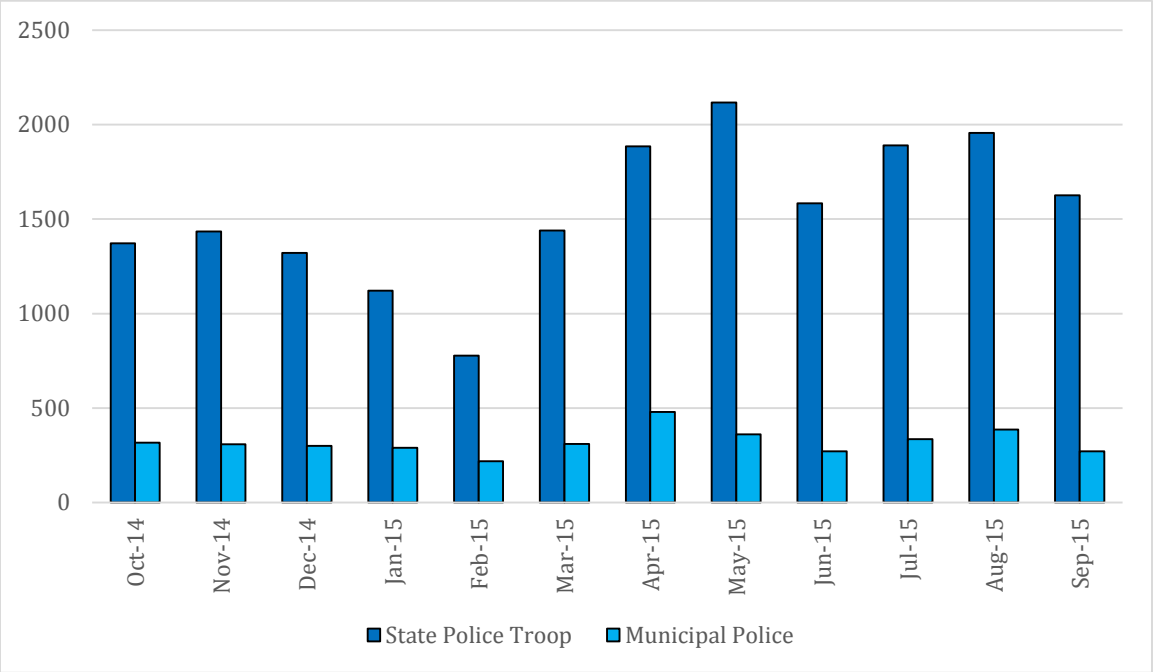


Figure 3 illustrates the average number of traffic stops by month for municipal police agencies and the state police. The data illustrates a fairly stable pattern of municipal traffic stop enforcement with the average number of traffic stops ranging from 219 to 480 each month for each agency. State police traffic stops are less stable by month relative to the municipal departments and range from a low of 777 to a high of 2,118. This may be due to the nature of state police traffic enforcement activity that fluctuates for a variety of reasons including enforcement campaigns around the holidays.

The level of and reason for traffic stop enforcement varies greatly across agencies throughout the state for a number of reasons. For example, some enforcement is targeted to prevent accidents in dangerous areas, combat increased criminal activity, or respond to complaints from citizens. Those agencies with active traffic units produce a higher volume of traffic stops. The rate of traffic stops per 1,000 residents in the population helps to compare the stop activity between agencies. The five municipal police agencies with the highest stop rate per 1,000 residents are Newtown, Ridgefield, Orange, Old Saybrook, and Monroe. Conversely, Shelton, Portland, Wolcott, Waterbury and Middlebury have the lowest rate of stops per 1,000 residents. Table 1 shows the distribution of stops for the highest and lowest level of enforcement per 1,000 residents for police agencies.

Table 1: Municipal Police, Highest and Lowest Rates of Traffic Stops

Town Name	16+ Population*	Traffic Stops	Stops per 1,000 Residents
Connecticut	2,825,946	586,849	208
Municipal Departments with the Highest Rate of Traffic Stops			
Newtown	20,171	9,956	494
Ridgefield	18,111	7,713	426
Orange	11,017	4,601	418
Old Saybrook	8,330	3,402	408
Monroe	14,918	5,800	389
New Canaan	14,138	5,355	379
Wilton	12,973	4,773	368
Berlin	16,083	5,783	360
Bloomfield	16,982	5,241	309
Ansonia	14,979	4,574	305
Municipal Departments with the Lowest Rate of Traffic Stops			
Shelton	32,010	579	18
Portland	7,480	178	24
Wolcott	13,175	371	28
Waterbury	83,964	2,408	29
Middlebury	5,843	177	30
East Hampton	10,255	457	45
Weston	7,255	361	50
Bridgeport	109,401	5,603	51
Meriden	47,445	2,700	57
Winchester	9,133	555	61

* The population 16 years of age and older was obtained from the United States Census Bureau 2010 Decennial Census.

Table 2 presents some basic demographic data on persons stopped in Connecticut between October 1, 2014 and September 30, 2015. Nearly two-thirds (63.2%) of drivers stopped were male and the vast majority of drivers (87.2%) were Connecticut residents. Of the stops conducted by police departments other than state police, 92.2% were Connecticut residents. Of the stops made by state police, 78.8% were Connecticut residents. About one-third (38%) of drivers stopped were under the age of 30 compared to 23% over 50. The vast majority of stops in Connecticut were White Non-Hispanic drivers (70.6%);14.1% were Black Non-Hispanic drivers; 12.5% were Hispanic drivers; and

2.8% were Asian/Pacific Islander Non-Hispanic and American Indian/Alaskan Native Non-Hispanic drivers.

Table 2: Statewide Driver Characteristics

Race and Ethnicity		Gender		Residency		Age	
White	70.6%	Male	63.2%	Connecticut Resident	87.2%	16 to 20	8.1%
						21 to 30	29.7%
Black	14.1%					31 to 40	20.8%
All Other Races	2.8%	Female	36.8%	Nonresident	12.8%	41 to 50	18.6%
						51 to 60	14.4%
Hispanic	12.5%					Older than 61	8.4%

Table 3 presents data on the characteristics of the traffic stops in the state. Most traffic stops were made for a violation of the motor vehicle laws (88%) as opposed to a stop made for an investigatory purpose. The most common violation drivers were stopped for was speeding (26.1%). After a driver was stopped, almost half (47.1%) were given a ticket while most of the remaining drivers received some kind of a warning (45%). The rate of tickets versus warnings differs greatly among communities and is a topic that is discussed later in this report. Statewide, less than 1% of traffic stops resulted in a Uniform Arrest Report and only 2.9% of stops resulted in a vehicle search.

Table 3: Statewide Stop Characteristics

Classification of Stop		Basis for Stop	
Motor Vehicle Violation	88.6%	Speeding	26.1%
Equipment Violation	9.4%	Cell Phone	10.4%
Investigatory	2.0%	Registration	9.5%
Outcome of Stop		Defective Lights	8.4%
Uniform Arrest Report	0.9%	Misc. Moving Violation	7.3%
Misdemeanor Summons	5.4%	Traffic Control Signal	6.7%
Infraction Ticket	47.1%	Stop Sign	5.8%
Written Warning	16.1%	Seatbelt	3.7%
Verbal Warning	28.9%	Display of Plates	2.6%
No Disposition	1.6%	Suspended License	1.4%
Vehicles Searched	2.9%	All Other	18.1%

In addition to the difference in the volume of traffic stops across communities, agencies stopped drivers for a number of different reasons. Police record the statutory reason for stopping a motor vehicle for every stop. Those statutes are then sorted into 13 categories from speeding to registration violation to stop sign violation. For example, all statutory violations that are speed related are categorized as speeding. Although speeding is the most often cited reason for stopping a motor

vehicle statewide, the results vary by jurisdiction. Table 4 shows the top 10 departments where speeding (as a percentage of all stops) was the most common reason for the traffic stop.

Table 4: Highest Speeding Stop Rates across All Departments

Department Name	Total Stops	Speed Related
Portland	178	69.1%
Suffield	1,272	61.8%
Newtown	9,956	53.8%
New Milford	3,895	53.6%
Ridgefield	7,713	52.6%
Weston	361	49.0%
Simsbury	3,301	48.7%
Redding	1,942	48.2%
Easton	581	47.2%
CSP Headquarters*	15,296	46.3%

The average municipal police department stops for speeding violations was 25.5% compared to the state police average of 31%. Due to the nature of state police highway operations, it is reasonable that its average for speeding is higher. In Portland, Suffield, Newtown, New Milford, and Ridgefield, more than 50% of the traffic stops were for speeding violations. On the other hand, Yale University, and the State Capitol Police stopped drivers for speeding less than 5% of the time. The two special police agencies (Yale and State Capitol Police) have limited jurisdiction and it is reasonable that they are not stopping a high percentage of drivers for speeding violations. Registration violations have been cited as a low discretion reason for stopping a motor vehicle, particularly due to the increased use of license plate readers to detect registration violations. Statewide, 9.5% of all traffic stops are for a registration violation. Table 5 presents the top 10 departments with the highest percentage of stops for registration violations.

Table 5: Highest Registration Violation Rates across All Departments

Department Name	Total Stops	Registration Violations
North Branford	1,002	31.4%
Trumbull	2,876	28.0%
Branford	5,025	24.4%
Troop L	11,441	20.2%
Farmington	4,910	18.7%
Troop A	19,544	18.1%
Woodbridge	1,602	17.7%
Greenwich	7,165	17.3%
Stratford	3,144	17.2%
Norwalk	5,322	17.2%

The Connecticut Department of Transportation and the National Highway Safety Administration work together every year to fund a variety of different driver safety campaigns. Some of the campaigns that we are most familiar with include: "Click it or Ticket," "Drive Sober or get Pulled Over," and "Move Over." Each year law enforcement agencies receive federal grants to fund targeted traffic safety campaigns. Over the past few years there has been an increase in federal funding for distracted driver campaigns. This past year, Connecticut saw a significant increase in distracted driving related traffic stops. Stops as the result of a cell phone violation are the second most common reason for stopping a driver. Statewide, 10.4% of all stops were the result of a cell phone violation and this rate varies across departments. Table 6 presents the top 10 departments with the highest percentage of stops for cell phone violations.

Table 6: Highest Cell Phone Violation Rates across All Departments

Department Name	Total Stops	Cell Phone Violations
Middlebury	177	37.9%
Hartford	5,887	34.3%
Danbury	5,312	29.9%
Brookfield	2,026	28.0%
Bridgeport	5,603	26.0%
Waterbury	2,408	24.5%
Groton Long Point	74	24.3%
West Hartford	8,639	24.2%
Norwalk	5,322	23.8%
Wolcott	371	23.7%

Some Connecticut residents have expressed concern about the stops made for violations that are perceived as more discretionary in nature; therefore potentially making the driver more susceptible to possible police bias. Those stops are typically referred to as pretext stops and might include stops for defective lights, excessive window tint, or a display of plate violation each of which, though a possible violation of state law, leaves the police officer with considerable discretion with respect to actually making the stop. A statewide combined average for stopping drivers for any of these violations is 11.9%. Sixty-two municipal police departments exceeded that statewide average. The departments with the highest percentage of stops conducted for these violations are Newington (36%), Torrington (35%), South Windsor (33%), Wethersfield (32%), and Windsor (31%). None of the state police troops exceeded the statewide average.

In communities with a larger proportion of stops due to these violations, it is recommended that the departments be proactive in discussing the reasons for these stops with members of the community and examine for themselves whether or not such stops produce disparate enforcement patterns.

Many have argued that it is difficult for police to determine the defining characteristics about a driver prior to stopping and approaching the vehicle. Similar to variations found across departments for the reason for the traffic stop, there are variations that occur with the outcome of the stop. These variations illustrate the influence that local police departments have on the enforcement of state traffic laws. Some communities may view infraction tickets as the best method to increase traffic safety, while others may consider warnings to be more effective. This analysis should help police departments and local communities understand their level and type of traffic enforcement when compared to other communities.

Table 7: Highest Infraction Rates across All Departments

Department Name	Total Stops	Infraction Ticket
Highest Municipal Departments		
Danbury	5,312	76.13%
Hartford	5,887	73.33%
Derby	2,799	66.10%
Department of Motor Vehicle	2,368	65.63%
Bridgeport	5,603	64.98%
Norwalk	5,322	61.74%
Branford	5,025	61.33%
Meriden	2,700	61.19%
Trumbull	2,876	60.15%
Western CT State Univ.	79	59.49%
Highest State Police Troops		
CSP Headquarters	15,296	84.96%
Troop F	24,896	78.23%
Troop G	25,473	75.97%
Troop H	19,540	73.12%
Troop C	26,860	72.73%

Almost half (47.1%) of drivers stopped in Connecticut received an infraction ticket, while 45% received either a written or verbal warning. Individual jurisdictions varied in their post-stop enforcement actions. Danbury issued infraction tickets in 86.1% of all traffic stops, which is the highest in the state. Putnam only issued infraction tickets in 2.7% of all traffic stops, which is the lowest rate in the state. For state police, officers not assigned to a troop issued the highest infractions (85%) and Troop L issued the lowest number of infractions (45%). Table 7 presents the highest infraction rates across all departments.

On the other hand, Putnam issued warnings 93% of the time (the highest rate) and Hartford issued warnings 11.82% of the time (the lowest rate). For state police, Troop L issued the highest percentage of warnings (44%) and the group of officers not assigned to a troop issued the lowest percentage of warnings (9.8%). Table 8 presents the highest warning rates across all departments.

Table 8: Highest Warning Rates across All Departments

Department Name	Total Stops	Resulted in Warning
Highest Municipal Departments		
Putnam	1,049	92.5%
Eastern CT State Univ.	198	91.4%
Plainfield	1,694	86.7%
Middlebury	177	85.9%
Torrington	5,394	85.2%
Thomaston	706	85.0%
Central CT State Univ.	3,029	84.9%
Suffield	1,272	82.7%
West Haven	5,854	82.6%
Guilford	2,954	81.4%
Highest State Police Troops		
Troop L	11,441	43.4%
Troop B	8,212	41.6%
Troop D	17,124	29.0%
Troop K	18,810	28.4%
Troop A	19,544	27.8%

Statewide, less than 1% of all traffic stops resulted in the driver being arrested. As with infraction tickets and warnings, municipal departments varied in the percentage of arrests associated with traffic stops. The Waterbury Police Department issued the most uniform arrest reports from a traffic stop, with 4.9% of all stops resulting in an arrest. West Hartford, Wallingford and New London arrested more than 4% of all drivers stopped. The variation in arrest rates for state police is much smaller across troop levels. Table 9 presents the highest arrest rates across all departments.

Table 9: Highest Arrest Rates across All Departments

Department Name	Total Stops	Arrests
Waterbury	2,408	4.9%
West Hartford	8,639	4.5%
Wallingford	10,044	4.3%
New London	1,499	4.2%
Yale University	1,081	2.7%
Hartford	5,887	2.6%
Putnam	1,049	2.4%
Groton Town	5,899	2.3%
Farmington	4,910	2.0%
Milford	3,177	1.9%

Rarely do traffic stops in Connecticut result in a vehicle being searched. During the study period, only 2.9% of all traffic stops resulted in a search. Although searches are rare in Connecticut, they do vary across jurisdictions and the data provides information about enforcement activity throughout the state. When they search a vehicle, officers must report the supporting legal authority, and whether contraband was found. Forty-two departments exceeded the statewide average for searches, but the largest disparity was found in Waterbury (18.1%), Stratford (9.5%), and Derby (9.3%). Of the remaining departments, 19 searched vehicles more than 5% of the time, 37 searched vehicles between 2% and 5% of the time, and 53 searched vehicles less than 2% of the time. No state police

troops exceeded the statewide average for searches. The highest search rate was in Troop A (2.7%). Table 10 presents the highest search rates across all departments.

Table 10: Highest Searches Rates across All Departments

Department Name	Total Stops	Resulted in Search
Highest Municipal Departments		
Waterbury	2,408	18.1%
Stratford	3,144	9.5%
Derby	2,799	9.3%
Yale University	1,081	9.0%
Wilton	4,773	8.7%
Bridgeport	5,603	8.5%
Milford	3,177	8.4%
Vernon	3,637	8.1%
West Hartford	8,639	7.8%
New London	1,499	7.7%
Highest State Police Troops		
Troop A	19,544	2.7%
Troop L	11,441	2.5%
Troop C	26,860	2.4%
Troop H	19,540	2.4%
Troop D	17,124	1.9%

I.C: DESCRIPTIVE STATISTICS AND INTUITIVE MEASURES

This section presents a comparison between the department-level data and the state average, and describes two benchmarks (Estimated Driving Population and Resident Population) that enhance existing population-based methods. Although any one of these benchmarks cannot provide by itself a rigorous enough analysis to draw conclusions regarding racial profiling, if taken together they highlight those jurisdictions where disparities are significant enough to justify further analysis. Bias could be one explanation for such disparities, but not the only reason. As will be discussed in more detail, any benchmark approach contains implicit assumptions that must be recognized and understood. These benchmarks help to provide additional context to compare and contrast our findings using more advanced econometric methods explained later in this report.

I.C (1): PROBLEMS WITH APPROACHES USING TRADITIONAL BENCHMARKS

A traditional approach to evaluating racial and ethnic disparities in policing data has been to apply population-based benchmarks. Although these benchmarks vary in their construction, the general methodology is consistent. Typically, the approach amounts to using residential data from the U.S Census Bureau to compare with the rate of minority traffic stops in a given geographic jurisdiction. In recent years, researchers have refined this approach by adjusting the residential census data to account for things like commuter sheds, access to vehicles, and temporal data discontinuities. The population-based benchmark is an appealing approach for researchers and policymakers both because of its ease of implementation and intuitive interpretation. There are, however, numerous implicit assumptions that underlie the application of these benchmarks and are seldom presented in a transparent manner.

The goal of this analysis is to evaluate racial and ethnic disparities in the Connecticut policing data using (1) intuitive measures that compare the data against uniformly applied benchmarks and (2) sophisticated econometric techniques that compare the data against itself without relying on benchmarks. The goal of this section is to clearly outline the assumptions that often accompany traditional benchmarks. We do, however, present two nontraditional benchmarks in this chapter that develop a more convincing approximation and can be used to descriptively assess the data. By presenting these benchmarks alongside our more econometric methods, we provide the context for our findings. In addition, the descriptive data presents jurisdictional information in cases where samples may be too small to provide statistically meaningful results from the more stringent tests.

Although there are a number of examples, the most prominent application of a population-based benchmark is a study by the San Jose Police Department (2002) that received a great deal of criticism. A more recent example is a report by researchers from Northeastern University (McDevitt et al. 2014) using Rhode Island policing data. Although adjusted and unadjusted population-based benchmarks can be intuitively appealing, they have drawn serious criticism from academics and policymakers alike because of the extent to which they are unable to account for all of the possible unobserved variables that may affect the driving population in a geography at any given time (Walker 2001; Fridell 2004; Persico and Todd 2004; Grogger and Ridgeway 2006; Mosher and Pickerill 2012). In an effort to clarify the implicit assumptions that underlie these approaches, an informal discussion of each is presented.

The implicit assumption that must be made when comparing the rate of minority stops in policing data to a population-based (or otherwise constructed) benchmark include the following.

Destination Commuter Traffic

The application of population-based benchmarks does not account for drivers who work but do not live in a given geography. Again, the application of population-based benchmarks implicitly assumes that the demographic distribution of destination commuter traffic, on average, matches the population-based benchmark. This assumption is trivial for geographies with low levels of industrial or commercial development where destination commuter traffic is small. On the other hand, areas with a high level of industrial or commercial development attract workers from neighboring geographies and this assumption becomes more tenuous. This differential impact creates a non-random distribution of error across geographies. While this shortcoming is impossible to avoid using population-based analysis, McDevitt et al. made a notable effort to promote this concept in 2004 by attempting to adjust static residential population demographics to create "estimated driving populations" for jurisdictions in Rhode Island. This study attempts to build on those earlier efforts to improve this approach.

Pass-through Commuter Traffic

A small but not insubstantial amount of traffic also comes from pass-through commuters. Although most commuter traffic likely occurs via major highways that form the link between origin and destination geographies, the commuter traffic in some towns likely contains a component of drivers who do not live or work in a given geography but must travel through the area on their way to work. As in the previous case, the application of a population-based benchmark must implicitly assume that the demographic distribution of these drivers matches the population-based benchmark. The distribution of error associated with this assumption is, again, very likely non-random. Specifically, it seems likely that a town's proximity to a major highway may impact the level of pass-through commuter traffic from geographies further away from the major highway and, as a result, affect the magnitude of the potential error. Unfortunately, little useful data exists to quantify the extent to which this affects any particular jurisdiction. Alternatives that survey actual traffic streams are prohibitively expensive and time-consuming to conduct on a statewide basis and, unfortunately, are subject to their own set of implicit assumptions that can affect distribution of error.

Recreational Traffic

Surges in recreational traffic are not accounted for in evaluation methods that utilize population-based benchmarks. In order to apply population-based benchmarks as a test statistic, it must be implicitly assumed that the demographic distribution of recreational traffic, on average, matches the population-based benchmark. Although these assumptions are not disaggregated as with commuter traffic above, this assumption must apply to both destination and pass-through commuter traffic. Although the assumption is troublesome on its face, it becomes more concerning when considering the distribution of the associated error. Specifically, recreational traffic likely has a differential effect across geographies and the error term is, as a result, non-random.

Differential Exposure Rates

The exposure rate can be defined as the cumulative driving time of an individual on the road. The application of a population-based benchmark must implicitly assume that exposure rates are, on average, equivalent across the demographic groups being examined. Although exposure rates may

differ across demographic groups based on cultural factors that exclude quantification, there are also many more factors that play an important role. An example might be the differences in age distribution across racial demographics. If a specific minority population is, on average, younger, and younger drivers have a greater exposure rate than older drivers; then one might falsely attribute a racial or ethnic disparity across these groups when there is simply a difference in the aggregate exposure rate. Although census-based estimation methods exist to apply these demographically based exposure differences to a given population, they are best suited to situations where a single or very limited number of jurisdictions must be analyzed.

Temporal Controls

The lack of temporal controls in population-based benchmarks does not account for differences in the rate of stops across different times and days in the week. Assuming, that the above four assumptions hold and the population-based benchmark is representative of the demographic distribution of the driving population, then temporal controls are not an issue. However, if any of these assumptions do not hold, the lack of temporal controls may further magnify potential bias. Imagine that we believe the only assumption pertaining to exposure rates is invalid. It seems plausible that younger drivers are more likely to drive on weekend evenings than older drivers. If more stops were being made on weekend evenings than during the week and, as described above, minority groups were more prevalent in younger segments of the population, we might observe a racial or ethnic disparity simply because population-based benchmarks do not allow us to control for these temporal differences in policing patterns.

When one or more of the implicit assumptions associated with a population-based benchmark is violated, it can become a biased test statistic of racial disparities in policing data. Furthermore, since the source and direction of any such bias may be unknown, it can become difficult to determine if the possible bias is upward or downward, thus creating the potential for both false positive or false negative results. The bias might also be non-random across different geographies. Specifically, it becomes unclear how the magnitude or distribution of the non-random bias was distributed across the state. It might be that the bias disproportionately impacts urban areas compared to rural areas, tourist destinations compared to non-tourist destinations, geographies closer to highways, or based on similar policing patterns.

The question then becomes: If the assumptions inherent in population-based benchmarks make them less than ideal as indicators of possible bias, why include them in a statewide analysis of policing data? One answer is that excluding them as part of a multi-level analysis guarantees only that when others inevitably use them as a way to interpret the data, it is highly likely to be done inappropriately. Comparing a town's stop percentages to its resident populations in the same demographic groups may not be a good way to draw conclusions about its performance but, in the absence of better alternatives, it inevitably becomes the default method for making comparisons. Providing an enhanced way to estimate the impact commuters have on the driving population and primarily analyzing the stops made during the periods of the day when those commuters are the most likely to be a significant component of the driving population improves the comparisons that will be made beyond the default level and avoids some, though not all, of the implicit assumptions described earlier in this section.

Another answer to the question is that the population-based and other benchmarks are not used as indicators of bias, but rather as descriptive indicators for differentiating one town's data from another town's data. Since the purpose of this study is to uniformly apply a set of descriptive measures and statistical tests to all towns in order to identify possible candidates for more targeted

analysis, having a broad array of possible applicable measures enhances the robustness of the screening process. Relying solely on benchmarking to accomplish this would not be effective, but using these non-statistical methods to complement and enhance the more technical statistical treatments of the policing data results in a screening product that examines the data from the most possible angles.

The third answer to the question is that the benchmarks and intuitive measures developed for this study can be useful in cases where insufficient sample sizes make it difficult to draw meaningful conclusions from the statistical tests. The descriptive measures can serve a supportive role in this regard.

I.C (2): STATEWIDE AVERAGE COMPARISON

Although it is relatively easy to compare individual town stop data to the statewide average, this can be misleading if done without regard to differences in town characteristics. If, for example, the statewide average for a particular racial category of drivers stopped was 10% and the individual data for two towns was 18% and 38% respectively, a superficial comparison of both towns to the statewide average might suggest that the latter town, at 38%, could be performing less satisfactorily. However, that might not actually be the case if the town with the higher stop percentage also had a significantly higher resident population of driving age people than the statewide average. It is important to establish a context within which to make the comparisons when using the statewide average as a descriptive benchmark.

Comparing town data to statewide average data is frequently the first thing the public does when trying to understand and assess how a police department may be conducting traffic stops. Although these comparisons are inevitable and have a significant intuitive appeal, the reader is cautioned against basing any conclusions about the data exclusively upon this measure. In this section, a comparison to the statewide average is presented alongside the context necessary to understand the pitfall of interpreting these statistics on face value.

The method chosen to make the statewide average comparison is as follows:

- The towns that exceeded the statewide average for the three racial categories being compared to the state average were selected.
- The amount that each town's stop percentage exceeded the state average stop percentage was determined.
- The amount that each town's resident driving age population exceeded the state average for the racial group being measured was determined.
- The net differences in these two measures were determined and used to assess orders of magnitude differences in these factors.

While it is clear that a town's relative proportion of driving age residents in a racial group is not, in and of itself, capable of explaining differences in stop percentages between towns, it does provide a simple and effective way to establish a baseline for all towns from which the relative differences between town stop numbers become more apparent. To provide additional context, two additional factors were identified: (1) if the town shares a border with one or more towns whose age 16 and over resident population for that racial group exceeds the state average and (2) the percentage of nonresident drivers stopped for that racial group, in that town.

In the sections that follow, there are identifications for each of the three categories (Black, Hispanic, and Minority) in the towns for which this process indicated the largest distances between the net stop percentage and net resident population using 10 or more points as a threshold. Tables showing the calculations for all of the towns, rather than just those showing distance measures of more than 10 points, can be found in the Appendix to this report. Readers should note that this section focuses entirely on towns that exceeded the statewide average for stops in these racial groups.

Comparison of Black Drivers to the State Average

For the study period from October 1, 2014 through September 30, 2015, the statewide percentage of drivers stopped by police who were identified as Black was 14.1 %. A total of 36 departments stopped a higher percentage of Black drivers than the state average, 13 of which exceeded the statewide average by more than 10 percentage points. Ten towns exceeded the statewide average by very small margins (1.5 percentage points or less). The statewide average for Black residents (16+) is 9.1%. Of the 36 towns that exceeded the statewide average for Black drivers stopped, 21 also have Black resident populations (16+) that exceeded the statewide average.

After the stop and resident population percentages were adjusted using the method described above, a total of five towns were found to have a relative distance between their net Black driver stop percentage and net Black population percentage of more than 10 points. These were Woodbridge, Stratford, Trumbull, Orange and Wethersfield. Table 11 shows the data for these five towns. East Hartford fell just below the 10-point threshold at 9.9 points. It is not included in Table 11 but the data can be found along with the rest of the towns in the Appendix of this report.

Each of the five towns has at least one contiguous town with a resident Black population that exceeds the state average. Stratford and Trumbull border Bridgeport; Woodbridge borders three such towns (New Haven, Hamden, and Ansonia); Wethersfield borders Hartford and East Hartford; and Orange borders New Haven and West Haven.

In four of the five towns-- Woodbridge, Trumbull, Orange and Wethersfield-- more than 90% of the Black drivers who were stopped were not residents of the town. The statewide average for stopped Black drivers who were not residents of the town in which they were stopped was 59.81%.

Table 11: Statewide Average Comparisons for Black Drivers for Selected Towns

Municipal Department	Black Stops	Difference Between Town and State Average	Black Residents Age 16+	Difference Between Town and State Average	Distance Between Net Differences	Nonresident Black Stops
Woodbridge	23.35%	9.29%	1.94%	-7.18%	16.47%	97.06%
Stratford	32.60%	18.54%	12.76%	3.64%	14.91%	62.15%
Trumbull	20.41%	6.35%	2.90%	-6.22%	12.57%	93.36%
Orange	18.30%	4.24%	1.31%	-7.81%	12.05%	97.98%
Wethersfield	18.51%	4.45%	2.75%	-6.37%	10.82%	94.10%
Connecticut	14.1%	0.0%	9.1%	0.0%	NA	59.81%

Comparison of Hispanic Drivers to the Statewide Average

For the study period from October 1, 2014 through September 30, 2015, the statewide percentage of drivers stopped by police who were identified as Hispanic was 12.5%. A total of 29 towns stopped a higher percentage of Hispanic drivers than the state average, nine of which exceeded the statewide

average by more than 10 percentage points. Nine of the 29 departments exceeded the statewide average by 1.5 percentage points of less.

The statewide Hispanic resident population (16+) is 11.9%. The ratio of stopped Hispanic drivers to Hispanic residents (16+) on a statewide basis was slightly higher (12.5% Hispanic drivers' stopped/11.9% Hispanic residents). Of the 29 towns that exceeded the statewide average for Hispanic drivers stopped, 15 also have Hispanic resident populations (16+) that exceeded the statewide average, although Stratford's Hispanic population exceeded the average by only 0.01%.

After the stop and resident population percentages were adjusted using the method described above, a total of four towns were found to have a relative distance between their net Hispanic driver stop percentage and net Hispanic population percentage of more than 10 points. The four towns were Wethersfield, Newington, Darien, and Berlin. Six additional towns, Fairfield, Wilton, Orange, Trumbull, Meriden and New Britain, fell just below the 10-point threshold. Table 12 shows the data for the ten towns named above. All agency data can be found in the Appendix of this report.

All four towns that have a relative difference between their net Hispanic driver stop percentage and net Hispanic population percentage of more than 10 points have at least one contiguous town with a resident Hispanic population (16 +) that exceeds the state average. Each of the following four towns borders two such towns: Wethersfield (Hartford and East Hartford), Newington (Hartford and New Britain), Darien (Stamford and Norwalk) and Berlin (New Britain and Meriden).

In three of the top four towns- Wethersfield, Darien, and Berlin- more than 90% of the Hispanic drivers stopped were not residents of the town. The nonresident stop rate for Hispanic drivers in Newington was 85%. The statewide average for stopped Hispanic drivers who were not residents of the town in which they were stopped was 59.65%.

Table 12: Statewide Average Comparisons for Hispanic Drivers for Selected Towns

Municipal Department	Hispanic Stops	Difference Between Town and State Average	Hispanic Residents Age 16+	Difference Between Town and State Average	Distance Between Net Differences	Non-Residents Hispanic Stops
Wethersfield	27.22%	14.76%	7.10%	-4.81%	19.56%	90.92%
Newington	21.63%	9.17%	6.39%	-5.52%	14.69%	85.41%
Darien	15.93%	3.47%	3.49%	-8.42%	11.88%	95.35%
Berlin	13.35%	0.89%	2.67%	-9.24%	10.13%	94.04%
Connecticut	12.5%	0.0%	11.9%	0.0%	NA	59.65%

Comparison of Minority Drivers to the State Average

The final category involves all drivers classified as "Minority." This Minority category includes all racial classifications except for white drivers. Specifically it covers Blacks, Hispanics, Asian/Pacific Islander, American Indian/Alaskan Native, and Other Race classifications included in the census data.

For the study period from October 1, 2014 through September 30, 2015, the statewide percentage of stopped drivers who were identified as Minority was 29.4%. A total of 31 towns stopped a higher percentage of Minority drivers than the state average, 17 of which exceeded the state average by more than 10 percentage points.

The statewide average for Minority residents (16+) was 25.2%. Of the 31 towns that exceeded the statewide average for Minority drivers stopped, 20 also have Minority resident populations (16 +) that exceeded the statewide average.

After the stop resident population percentages were adjusted using the method described above, a total of 12 towns were found to have a relative distance between their net Minority driver stop percentage and net Minority driving age population percentage of more than 10 points. Table 13 shows the data for these 12 towns. The complete data for all towns can be found in the Appendix to this report.

All but three of the towns have at least one contiguous town with a resident Minority driving age population that exceeds the state average, including West Hartford and Woodbridge with three such towns and South Windsor with four. Wethersfield, Newington, Trumbull, Orange, and Darien border two such towns. Stratford and Fairfield border one such town. New Britain and Meriden have no such contiguous towns.

Eight of the 12 towns reported more than 80% of the stops of Minority drivers involved nonresidents. Two towns, Meriden and New Britain, reported approximately 25% nonresidents among the Minority drivers stopped. The statewide average for stopped Minority drivers who were not residents of the town in which they were stopped was 59.98%.

Table 13: Statewide Average Comparisons for Minority Drivers for Selected Towns

Municipal Department	Minority Stops	Difference Between Town and State Average	Minority Residents Age 16+	Difference Between Town and State Average	Distance Between Net Differences	Non-Residents Minority Stops
Wethersfield	47.42%	18.06%	12.47%	-12.76%	30.82%	91.59%
Trumbull	38.35%	8.99%	11.91%	-13.32%	22.31%	91.75%
Stratford	52.93%	23.57%	27.20%	1.97%	21.60%	63.58%
Newington	39.50%	10.14%	14.51%	-10.72%	20.86%	84.12%
Orange	33.95%	4.59%	10.75%	-14.48%	19.07%	96.03%
Woodbridge	36.02%	6.66%	12.82%	-12.41%	19.06%	94.97%
Darien	29.79%	0.43%	7.17%	-18.06%	18.49%	94.51%
Fairfield	31.83%	2.47%	10.00%	-15.23%	17.70%	91.71%
West Hartford	37.54%	8.18%	21.79%	-3.44%	11.62%	85.41%
Meriden	50.50%	21.14%	34.86%	9.63%	11.51%	25.22%
New Britain	60.21%	30.85%	45.00%	19.77%	11.08%	23.02%
South Windsor	29.54%	0.18%	14.60%	-10.63%	10.80%	79.98%
Connecticut	29.4%	0.0%	25.2%	0.0%	NA	59.98%

Special Police Departments

This section briefly discusses the data from those special police departments whose stop data exceeded the statewide averages for Black, Hispanic, or Minority drivers. It is important to note that currently there is no effective method for benchmarking the data from these special departments due to their operations' unique characteristics. However, since many of these departments are situated in urban environments, the population demographics for the municipalities which host them can serve as a proxy benchmark, provided it is viewed with caution. Conclusions should not be drawn for these departments until appropriate benchmarks have been determined.

In the following five special departments, stops for Black drivers exceeded the statewide average: (1) Department of Motor Vehicles (17.4%), (2) Central Connecticut State University (16.54%), (3) State Capitol Police (25.5%), (4) Yale University (36.1%), and (5) Southern Connecticut State University (55.5%). The State Capitol Police made only 231 stops which is marginal with respect to yielding valid percentage distributions. The remaining three agencies made a sufficient number of stops to yield valid percentage distributions.

With regard to Hispanic drivers, four special departments exceeded the statewide average for Hispanic stops: (1) Western Connecticut State University (27.9%), (2) State Capitol Police (22.9%), (3) Central Connecticut State University (13.5%), and (4) Yale University (13.8%). Western Connecticut State University did not conduct a sufficient number of stops to yield a valid percentage. Central Connecticut State University and Yale University exceeded the statewide average by an insignificant amount (less than 1.5%) and none of the agencies yielded disparities when applied to the host town's population.

Lastly, six special departments exceeded the statewide average for all Minority stops: (1) Department of Motor Vehicles (31.4%), (2) Southern Connecticut State University (65.0%), (3) Yale University (54.6%), (4) State Capitol Police (52.4%), (5) Western Connecticut State University (43.0%), and (6) Central Connecticut State University (32.5%). Western Connecticut State University did not conduct a significant number of stops to yield a valid percentage. When compared to the demographics of the host town the results show no disparities.

While several special departments exceeded the statewide stop average for drivers in one or more of the three demographic categories, only the stops made by the Southern Connecticut State University (SCSU) police department involving Black drivers is worth noting. While this data shows a disparity above the 10-point threshold applied to municipal departments when using the New Haven demographics as a proxy benchmark, it should be viewed differently due to the relatively small number of stops made by SCSU and the comparison to the New Haven demographic data. This finding is consistent with the results of last year's analysis. It is suggested that the SCSU data involving Black stops continue to be monitored and that the department review its data to determine any factors that may be influencing these numbers.

I.C (3): ESTIMATED DRIVING POPULATION COMPARISON

Adjusting "static" residential census data to approximate the estimated driving demographics in a particular jurisdiction provides a more accurate benchmark method than previous census-based approaches. At any given time, nonresidents may use any road to commute to work or travel to and from entertainment venues, retail centers, tourist destinations, etc. in a particular town. It is impossible to account for all driving in a community at any given time, particularly for the random, itinerant driving trips sometimes made for entertainment or recreational purposes. However, residential census data can be modified to create a reasonable estimate of the possible presence of many nonresidents likely to be driving in a given community because they work there and live elsewhere. This methodology is an estimate of the composition of the driving population during typical commuting hours.

Previously, the most significant effort to modify census data was conducted by Northeastern University's Institute on Race and Justice. The institute created the estimated driving population (EDP) model for traffic stop analyses in Rhode Island and Massachusetts. A summary of the steps used in the analysis is shown below in Table 14.

Table 14: Northeastern University Institute on Race and Justice Methodology for EDP Models in Rhode Island and Massachusetts

Step 1	Identify all the communities falling within a 30 mile distance of a given target community. Determine the racial and ethnic breakdown of the resident population of each of the communities in the contributing pool.
Step 2	Modify the potentially eligible contributing population of each contributing community by factoring in (a) vehicle ownership within the demographic, (b) numbers of persons within the demographic commuting more than 10 miles to work, and (c) commuting time in minutes. The modified number becomes the working estimate of those in each contributing community who may possibly be traveling to the target community for employment.
Step 3	Using four factors, (a) percentage of state employment, (b) percentage of state retail trade, (c) percentage of state food and accommodation sales, and (d) percentage of average daily road volume, rank order all communities in the state. Based on the average of all four ranking factors, place all communities in one of four groups thus approximating their ability to draw persons from the eligible nonresident pool of contributing communities.
Step 4	Determine driving population estimate for each community by combining resident and nonresident populations in proportions determined by which group the community falls into as determined in Step 3. (Range: 60% resident/40% nonresident for highest category communities to 90% resident/10% nonresident for lowest ranking communities)

Although the EDP model created for Rhode Island and Massachusetts is a significant improvement in creating an effective benchmark, limitations of the census data at the time required certain assumptions to be made about the estimated driving population. They used information culled from certain transportation planning studies to set a limit to the towns they would include in their potential pool of nonresident commuters. Only those towns located within a 30 minute driving time of a target town were included in the nonresident portion of the EDP model. This approach assumed only those who potentially could be drawn to a community for employment, and did not account for how many people actually commute. Retail, entertainment, and other economic indicators were used to rank order communities into groups to determine the percentage of nonresident drivers to be included in the EDP. A higher rank would lead to a higher percentage of nonresidents being included in the EDP.

Since development of the Rhode Island and Massachusetts model, significant enhancements were made to the U.S. Census Bureau data. It is now possible to get more nuanced estimates of those who identify their employment location as somewhere other than where they live. Since the 2004 effort by Northeastern University to benchmark Rhode Island and Massachusetts' data, the Census Bureau has developed new tools that can provide more targeted information that can be used to create a more useful estimated driving population for analyzing weekday daytime traffic stops.

The source of this improved data is a database known as the LEHD Origin-Destination Employer Statistics (LODES). LEHD is an acronym for "Local Employer Household Dynamics" and is a partnership between the U.S. Census Bureau and its partner states. LODES data is available through an online application called *OnTheMap* operated by the Census Bureau. The data estimates where people work and where workers live. The partnership's main purpose is to merge data from workers with data from employers to produce a collection of synthetic and partially synthetic labor market statistics including LODES and the Quarterly Workforce Indicators.

Under the LEHD Partnership, states agree to share Unemployment Insurance earnings data and the Quarterly Census of Employment and Wages data with the Census Bureau. The LEHD program combines the administrative data, additional administrative data, and data from censuses and surveys. From these data, the program creates statistics on employment, earnings, and job flows at detailed levels of geography and industry. In addition, the LEHD program uses this data to create workers' residential patterns. The LEHD program is part of the Center for Economic Studies at the U.S. Census Bureau.

It was determined that the data available through LODES, used in conjunction with data available in the 2010 census, could provide the tools necessary to create an advanced EDP model. The result was the creation of an individualized EDP for each of the 169 towns in Connecticut that reflects, to a certain extent, the estimated racial and ethnic demographic makeup of all persons identified in the data as working in the community but residing elsewhere. Table 15 shows the steps in this procedure.

Table 15: Central Connecticut State University Institute for Municipal and Regional Policy Methodology for EDP Model in Connecticut

Step 1	For each town, LODES data was used to identify all those employed in the town but residing in some other location regardless of how far away they lived from the target community.
Step 2	ACS* five-year average estimated data was used to adjust for individuals commuting by some means other than driving, such as those using public transportation.
Step 3	For all Connecticut towns contributing commuters, racial and ethnic characteristics of the commuting population were determined by using the jurisdictions' 2010 census demographics.
Step 4	For communities contributing more than 10 commuters who live outside of Connecticut, racial and ethnic characteristics of the commuting population were determined using the jurisdictions' 2010 census demographics.
Step 5	For communities contributing fewer than 10 commuters who live outside of Connecticut, racial and ethnic characteristics of the commuting population were determined using the demographic data for the county in which they live.
Step 6	The numbers for all commuters from the contributing towns were totaled and represent the nonresident portion of the given town's EDP. This was combined with the town's resident driving age population. The combined nonresident and resident numbers form the town's complete EDP.
Step 7	To avoid double counting, those both living and working in the target town were counted as part of the town's resident population and not its commuting population.

*American Community Survey, U.S. Census Bureau

Structured in this way, each town's EDP should reflect an improved estimate of the racial and ethnic makeup of the driving population who might be on a municipality's streets at some time during a typical weekday/daytime period. The more sophisticated methodology central to the LODES data should make this EDP, even with its inherent limitations, superior to previous uses of an EDP model. To an extent, it mirrors the process used by the Census Bureau to develop from ACS estimates the commuter-adjusted daytime populations (estimates of changes to daytime populations based on travel for employment) for minor civil divisions in several states, including Connecticut. This type of data is subject to a margin of error based on differing sample sizes and other factors. For the estimated daytime populations the Census Bureau calculated for 132 Connecticut communities, it

reported margins of error ranging from 1.1% (Bridgeport) to 9.6% (East Granby). The average margin of error for all 132 towns was 3.7%.

It is important to understand that the EDPs used in this report are a first attempt to use this tool in assessing traffic stop data. Much of the data used to create the EDPs comes from the same sources the Census Bureau used to create its commuter-adjusted daytime population estimates so it is reasonable to expect a similar range in the margins of error in the EDP. While the limitations of the model must be recognized, its value as a new tool to help understand some of the traffic stop data should not be dismissed. It represents a significant improvement over the use of resident census demographics as an elementary analytical tool and can hopefully be improved as the process of analyzing stop data progresses.

It was determined that a limited application of the EDP can be used to assess stops that occur during typical morning and evening commuting periods, when the nonresident workers have the highest probability of actually being on the road. Traffic volume and populations can change significantly during peak commuting hours. For example, Bloomfield has a predominately Minority resident population (61.5%). According to *OnTheMap*, 17,007 people work in Bloomfield, but live somewhere else and we are estimating that about 73% of those people are likely to be white. The total working population exceeds the driving age resident population of 16,982 and it is reasonable to assume that the daytime driver population would change significantly due to workers in Bloomfield. According to the ACS Journey to Work survey, 73% of Connecticut residents travel to work between 6:00am and 10:00am. The census currently does not have complete state level data on residents' travel from work to home. In the areas where evening commute information is available, it is consistently between the hours of 3:00pm and 7:00pm. In addition to looking at census information to understand peak commuting hours, the volume of nonresident traffic stops in several Connecticut communities was also reviewed, based on our theory that the proportion of nonresidents stopped should increase during peak commuting hours.

The only traffic stops included in this analysis were stops conducted Monday through Friday from 6:00am to 10:00am and 3:00pm to 7:00pm (peak commuting hours). Overall, when compared to their respective EDP, 71 departments had a disparity between the Minorities stopped and the proportion of non-whites estimated to be in the EDP. For many of these departments the disparity was very small (less than five percentage points). In the remaining 22 communities, the disparity was negative, meaning that more whites were stopped than expected in the EDP numbers. However, the negative disparities were also very small in most communities. There were 85 departments with a disparity for Black drivers stopped and 61 departments with a disparity for Hispanic drivers stopped when compared to the respective EDPs.

Due to the margins of error inherent in the EDP estimates, we established a reasonable set of thresholds for determining if a department shows a disparity in its stops when compared to its EDP percentages. Departments that exceed their EDP percentages by greater than 10 percentage points in any of the three categories: (1) Minority (all race/ethnicity), (2) Black non-Hispanic, and (3) Hispanic, were identified in our tier one group. In addition, departments that exceeded their EDP percentage by more than five but less than 10 percentage points were identified in our tier two group for this benchmark if the ratio of the percentage of stops for the target group compared to the baseline measure for that group also was 1.75 or above (percentage of stops divided by benchmark percentage equals 1.75 or more) in any of the three categories: (1) Minority (all race/ethnicity), (2) Black non-Hispanic, or (3) Hispanic.

Table 16: Highest Ratio of Stops to EDP (Tier I)

Department Name	Number of Stops	Stops	EDP	Absolute Difference	Ratio
Minority (All Non-White)					
Wethersfield	1,310	42.44%	16.54%	25.90%	2.57
East Hartford	3,805	64.10%	40.28%	23.82%	1.59
Stratford	577	49.05%	27.72%	21.33%	1.77
New Britain	2,916	57.44%	38.57%	18.87%	1.49
Woodbridge	620	35.81%	17.29%	18.52%	2.07
Trumbull	953	35.68%	18.53%	17.14%	1.92
Meriden	1,054	46.39%	30.95%	15.44%	1.50
Fairfield	3,403	32.18%	16.94%	15.23%	1.90
Newington	1,283	33.13%	18.45%	14.67%	1.80
Windsor	1,849	47.76%	33.23%	14.52%	1.44
Darien	1,045	28.23%	15.27%	12.96%	1.85
New Haven	4,564	58.39%	46.49%	11.90%	1.26
Norwich	2,217	36.27%	24.54%	11.73%	1.48
Orange	1,724	30.22%	18.84%	11.38%	1.60
Waterbury	1,002	50.90%	40.06%	10.83%	1.27
West Hartford	3,030	34.75%	24.25%	10.50%	1.43
Black					
East Hartford	3,805	37.16%	17.09%	20.07%	2.17
Woodbridge	620	23.39%	4.72%	18.67%	4.96
Windsor	1,849	36.83%	20.40%	16.43%	1.81
Stratford	577	27.38%	12.06%	15.33%	2.27
New Haven	4,564	36.64%	22.73%	13.91%	1.61
Hartford	2,805	34.33%	21.02%	13.31%	1.63
Hamden	2,040	28.87%	16.12%	12.75%	1.79
Trumbull	953	17.52%	6.02%	11.50%	2.91
Wethersfield	1,310	15.95%	4.90%	11.05%	3.26
Norwich	2,217	18.40%	7.47%	10.94%	2.46
Fairfield	3,403	15.90%	5.03%	10.86%	3.16
Waterbury	1,002	25.05%	14.33%	10.72%	1.75
Hispanic					
Wethersfield	1,310	25.19%	8.59%	16.60%	2.93
New Britain	2,916	39.81%	25.89%	13.92%	1.54
Meriden	1,054	33.68%	20.74%	12.94%	1.62

Table 17: High Ratio of Stops to EDP (Tier II)

Department Name	Number of Stops	Stops	EDP	Absolute Difference	Ratio
Minority (All Non-White)					
Redding	815	15.71%	6.93%	8.77%	2.27
Easton	172	16.28%	7.88%	8.40%	2.07
Black					
Weston	152	11.18%	2.09%	9.10%	5.35
Orange	1,724	14.91%	5.84%	9.07%	2.55
Manchester	1,613	18.10%	9.72%	8.38%	1.86
South Windsor	1,332	13.59%	5.56%	8.03%	2.44
Darien	1,045	10.62%	3.29%	7.33%	3.23
Derby	836	14.00%	6.77%	7.22%	2.07
Windsor Locks	713	13.46%	7.14%	6.33%	1.89
Newington	1,283	11.38%	5.19%	6.19%	2.19
Waterford	1,280	10.08%	3.90%	6.17%	2.58
West Hartford	3,030	13.76%	7.77%	5.99%	1.77
Westport	1,989	10.66%	5.21%	5.44%	2.04
Berlin	2,167	8.77%	3.47%	5.30%	2.53
Cromwell	519	10.60%	5.33%	5.27%	1.99
North Haven	638	11.44%	6.38%	5.06%	1.79
Milford	1,000	10.50%	5.47%	5.03%	1.92
Hispanic					
Newington	1,283	17.07%	8.66%	8.41%	1.97
Darien	1,045	15.41%	7.65%	7.76%	2.01
Trumbull	953	16.05%	8.51%	7.54%	1.89
Fairfield	3,403	14.52%	7.92%	6.59%	1.83
Easton	172	9.30%	3.68%	5.63%	2.53
Berlin	2,167	11.72%	6.49%	5.23%	1.81

The above EDP analysis was confined to the 92 municipal police departments in Connecticut. There are 80 municipalities in Connecticut that either (1) do not have their own departments and rely upon the state police for their law and traffic enforcement services or (2) have one or more resident state troopers who either provide their police services or supervise local constables or law enforcement officers. Most of these communities are smaller and located in Connecticut's more rural areas. Once the state police stops made on limited access highways were removed from the data, we found that these towns generally had too few stops during the 6am to 10am and 3pm to 7pm periods to yield meaningful comparisons. Consequently, these towns were not considered appropriate candidates for the EDP analysis.

I.C (4): RESIDENT ONLY STOP COMPARISON

Some questioned the accuracy of the estimated driving population. As a result, we have limited the following analysis to stops involving only residents of the community and compared them to the community demographics based on the 2010 decennial census for residents age 16 and over.

Overall, when compared to the census, 64 departments stopped more Minority resident drivers than white drivers. Again, the disparity for many of these departments was very small. In the remaining 28 communities, the disparity was negative, meaning that more whites were stopped than expected based on the population numbers. However, the negative disparities were also very small in most

communities. Almost all departments (85 of 92) had a disparity for Black drivers stopped and 50 departments had a disparity for Hispanic drivers stopped when compared to the resident driving age population.

While comparing resident-only stops to resident driving age population eliminates the influence out-of-town drivers on the roads at any given time may be having on a town's stop data, the mere existence of a disparity is not in and of itself significant unless it does so by a significant amount. Such disparities may exist for several reasons including high police presence on high crime areas.

We established a reasonable set of thresholds for determining if a department shows a significant enough disparity in its resident stops compared to its resident population to be identified. Departments with a difference of 10 percentage points or more between the resident stops and the 16+ resident population in any of the three categories: (1) Minority (all race/ethnicity), (2) Black non-Hispanic, and (3) Hispanic, were identified in our tier one group. In addition, departments that exceeded their resident population percentage by more than five but less than 10 percentage points were identified in our tier two group for this benchmark if the ratio of the percentage of resident stops for the target group compared to the baseline measure for that group also was 1.75 or above(percentage of stopped residents divided by resident benchmark percentage equals 1.75 or more) in any of three categories: (1) Minority (all race/ethnicity), (2) Black non-Hispanic, and (3) Hispanic.

Table 18: Highest Ratio of Resident Population to Resident Stops (Tier I)

Department Name	Number of Residents	Residents	Resident Stops	Minority Resident Stops	Difference	Ratio
Minority (All Non-White)						
Meriden	47,445	34.86%	1,782	57.24%	22.38%	1.64
East Hartford	40,229	51.63%	4,159	73.29%	21.66%	1.42
New Britain	57,164	45.00%	5,843	66.06%	21.06%	1.47
Bloomfield	16,982	61.51%	1,717	81.07%	19.56%	1.32
Stratford	40,980	27.20%	1,319	45.94%	18.75%	1.69
Norwich	31,638	29.09%	2,980	46.41%	17.32%	1.60
New London	21,835	43.57%	714	60.78%	17.22%	1.40
New Haven	100,702	62.82%	7,039	79.95%	17.14%	1.27
Derby	10,391	20.56%	498	37.15%	16.59%	1.81
Waterbury	83,964	48.10%	1,772	64.45%	16.35%	1.34
Windsor	23,222	43.92%	2,079	59.45%	15.53%	1.35
Willimantic	20,176	34.55%	1,623	47.87%	13.32%	1.39
Manchester	46,667	27.95%	2,552	40.87%	12.92%	1.46
Norwalk	68,034	40.80%	1,990	53.37%	12.57%	1.31
Hamden	50,012	30.92%	2,044	42.91%	11.99%	1.39
Vernon	23,800	14.05%	1,461	25.87%	11.82%	1.84
Middletown	38,747	23.49%	1,595	34.98%	11.49%	1.49
Bristol	48,439	12.71%	2,855	22.80%	10.10%	1.79
Danbury	64,361	38.64%	1,022	48.73%	10.09%	1.26
Black						
New Haven	100,702	32.16%	7,039	52.19%	20.03%	1.62
Bloomfield	16,982	54.76%	1,717	74.78%	20.02%	1.37
East Hartford	40,229	22.52%	4,159	41.12%	18.60%	1.83
Windsor	23,222	32.20%	2,079	50.51%	18.31%	1.57
Hamden	50,012	18.28%	2,044	35.08%	16.80%	1.92
Stratford	40,980	12.76%	1,319	29.42%	16.66%	2.31
Waterbury	83,964	17.37%	1,772	32.28%	14.91%	1.86
Norwich	31,638	8.96%	2,980	23.32%	14.36%	2.60
Middletown	38,747	11.68%	1,595	24.51%	12.84%	2.10
Hartford	93,669	35.80%	2,383	48.38%	12.59%	1.35
Norwalk	68,034	13.13%	1,990	25.33%	12.20%	1.93
Manchester	46,667	10.15%	2,552	22.26%	12.10%	2.19
New London	21,835	15.18%	714	26.19%	11.01%	1.73
Hispanic						
Meriden	47,445	24.86%	1,782	41.98%	17.11%	1.69
New Britain	57,164	31.75%	5,843	47.48%	15.72%	1.50
Danbury	64,361	23.25%	1,022	37.08%	13.83%	1.59
Willimantic	20,176	28.88%	1,623	40.85%	11.97%	1.41

Table 19: High Ratio of Resident Population to Resident Stops (Tier II)

Department Name	Number of Residents	Residents	Resident Stops	Minority Resident Stops	Difference	Ratio
Minority (All Non-White)						
Enfield	33,218	8.65%	3,418	15.16%	6.50%	1.75
Black						
Ansonia	14,979	9.74%	1,700	19.41%	9.67%	1.99
Derby	10,391	6.03%	498	15.66%	9.63%	2.60
Vernon	23,800	4.70%	1,461	14.24%	9.54%	3.03
Groton City	7,960	7.70%	792	16.79	9.09	2.18
Meriden	47,445	7.80%	1,782	14.70%	6.91%	1.89
Bristol	48,439	3.24%	2,855	8.65%	5.41%	2.67
Enfield	33,218	2.63%	3,418	7.93%	5.30%	3.01
Cromwell	11,357	3.69%	622	8.84%	5.15%	2.40
Windsor Locks	10,117	4.27%	697	9.33%	5.06%	2.18
Hispanic						
Wethersfield	21,607	7.10%	826	13.44%	6.33%	1.89
Newington	24,978	6.39%	1,489	11.62%	5.23%	1.82

I.C (5): CONCLUSIONS FROM THE DESCRIPTIVE COMPARISONS

The descriptive tests outlined in the above sections are designed to be used as a screening tool to identify those jurisdictions with consistent data disparities that exceed certain thresholds. The tests compare stop data to three different benchmarks: (1) statewide average, (2) the estimated driving population, and (3) resident-only stops that each cover three driver categories: Black, Hispanic, and Minority. Town data is then measured against the resulting total of nine descriptive measures for evaluation purposes.

Although the design of each of the three measures is based on certain assumptions, it is reasonable to conclude that departments that consistently show data disparities separating them from the significant majority of other departments can be recommended for further review and analysis to determine the potential cause for these differences. However, the descriptive benchmarks will also be viewed in conjunction with the statistical tests presented in the next sections.

Another important factor is the relative size of the disparities. For this portion of the study a department's data was considered sufficient for identification if a department had either (1) a disparity of 10 percentage points or more or (2) a disparity of more than five, but less than 10 percentage points as well as a disparity ratio of greater than 1.75 when compared to the descriptive benchmark. In a number of instances, the disparities were significantly above the threshold.

In order to weight the disparities within the descriptive benchmarks, any disparity greater than 10 percentage points for a measure was given a weight of one (1) point. Any disparity of more than five, but less than 10 percentage points accompanied by a disparity ratio of 1.75 or above was given a weight of 0.5 points. Therefore, a department could score no more than nine (9) total points.

Table 20 identifies the 13 towns with significant disparities divided into two tiers. The first tier includes the six jurisdictions whose stop data was found to exceed the disparity threshold levels in at least two of the three benchmark areas and a weighted total score of 4.5 or more. This designation

warrants additional study to further review the data and attempt to understand the factors that may be causing these differences. It is also recommended that these departments, as well as those included in the second tier of the table, evaluate their own data to try and better understand any patterns.

The second tier of Table 20 shows the seven departments that exceeded the disparity threshold in two of the three benchmark areas, but only scored a four (4) out of a possible nine (9) points. In all of these departments there were disparities in at least two of the three benchmark areas. Going forward, the data for these eight departments will continue to be monitored for changes over time relative to the descriptive benchmarks that may indicate the need for further analysis. All of the 42 departments that were identified in the descriptive analysis with benchmark disparities and the actual values that exceeded the threshold level are included in the Appendix of the report.

Table 20: Departments with the Greatest Number of Disparities Relative to Descriptive Benchmarks

Department Name	Statewide Average			Estimated Driving Population			Resident Population			Point Total
	M	B	H	M	B	H	M	B	H	
Tier 1										
Wethersfield	30.8	10.8	19.6	25.9	11.1	16.6			6.33	6.5
Stratford	21.6	14.9		21.3	15.3		18.8	16.7		6
Meriden	11.5			15.4		12.9	22.4	6.9	17.1	5.5
New Britain	11.1			18.9		13.9	21.1		15.7	5
Newington	20.9		14.7	14.7	6.2	8.4			5.2	4.5
Trumbull	22.3	12.6		17.1	11.5	7.5				4.5
Tier 2										
Darien	18.5		11.9	13.0	7.3	7.8				4
East Hartford				23.8	20.1		21.7	18.6		4
New Haven				11.9	13.9		17.1	20.0		4
Norwich				11.7	10.9		17.3	14.4		4
Waterbury				10.8	10.7		16.4	14.9		4
Windsor				14.5	16.4		15.5	18.3		4
Woodbridge	19.1	16.5		18.5	18.7					4

Note 1: M=Minority, B=Black, H=Hispanic (Numbers of 10 or above yield one point, numbers less than 10 equal 0.5 points)

I.C (6): MOVING FROM BENCHMARKS TO FORMAL EVALUATION

The descriptive statistics and benchmarks presented in this section are an excellent first step to understand patterns in Connecticut policing data. Although these simple statistics present an intriguing story, conclusions should not be drawn from these measures. The three statistical tests of racial and ethnic disparities in the policing data are based solely on the policing data itself and rely on the construction of a theoretically derived identification strategy and a natural experiment. These results have been applied by academic and police researchers in numerous areas across the country and are generally considered to be the most current and relevant approaches to assessing policing data.

I.D: ANALYSIS OF TRAFFIC, VEIL OF DARKNESS

Alternative methods to traditional benchmark-based approaches have become increasingly popular because they do not require as restrictive a set of assumptions. The most notable of these approaches draws from a 2006 article published in the *Journal of the American Statistical Association* by Jeffrey Grogger and Greg Ridgeway. In the article, Grogger and Ridgeway set forth a unique and statistically sound methodology for testing racial disparities in the rate of minority traffic stops. The central assumption of their paper, known as the *Veil of Darkness,* is that police officers have an impaired ability to determine the race of a driver at night and therefore cannot racially profile during night traffic stops. The police officers, however, can tell the race of drivers during the day and can, if they wish, racially profile motorists. To test for disparities in the rate of minority traffic stops, the authors developed a sophisticated and intuitive statistical model.

The *Veil of Darkness* method evaluates whether there exist statistically significant disparities in the likelihood of a minority being stopped by law enforcement relative to their non-minority counterparts. The *Veil of Darkness* utilizes a quasi-natural experiment to evaluate the existence of racial disparities that centers principally on seasonal patterns of solar variation. Specifically, the *Veil of Darkness* asks whether there is a higher likelihood of a minority being stopped by police in the presence of daylight than in darkness relative to non-minorities. Although a larger sample size would increase the power of this test, the seasonal nature of solar visibility and fluctuations in driving patterns allow for an analysis of the second years' worth of data, from October 2013 to October 2015.

Identification comes from the idea that police officers are better able to detect the race and ethnicity of a motorist before making a stop during daylight hours. If they are inclined to exhibit discriminatory behavior, they will be better able to do so in the presence of daylight. The advantage of the *Veil of Darkness* methodology relative to population-based benchmarks is that it does not require such strong assumptions about the underlying risk-set of motorists. In addition, the framework allows for differential rates of traffic stops to exist across races..

Grogger and Ridgeway (2006) propose that the parameter K_{ideal} captures the true level of disparate treatment and takes the following form:

$$K_{ideal} = \frac{P(S|V=1, m=1)P(S|V=0, m=0)}{P(S|V=1, m=0)P(S|V=0, m=1)} \quad (1)$$

The parameter presented in Equation 1 is composed of a binary random variable S indicating an officer's decision to stop a vehicle, a variable m representing whether the motorist is of minority descent, and a continuous variable V representing an unobservable measure of signal noise (i.e. a lack of visibility). In the context of the present analysis, we consider treatment as invisibility or signal noise rather than visibility. It can be seen in Equation 3 that $K_{ideal} = 1$ in the absence of disparate treatment. This occurs because the probability of a minority motorist being stopped relative to a nonminority motorist is constant whether or not race or ethnicity of the motorist is visible prior to the stop.

Following Grogger and Ridgeway, Baye's rule is applied to Equation 1 such that:

$$K_{ideal} = \frac{P(m=1|V=1,S)P(m=0|V=0,S)}{P(m=0|V=1,S)P(m=1|V=0,S)} * \frac{P(m=1|V=0)P(m=0|V=1)}{P(m=0|V=0)P(m=1|V=1)} \quad (2)$$

The first term in K_{ideal} is the odds ratio that a motorist is of minority descent conditional on their being stopped and visibility. Unlike Equation 1, the odds ratio in Equation 2 can be estimated using data on stop outcomes as long as certain additional assumptions hold. The second term in K_{ideal} is a measure of the relative risk-set of motorists on the roadway. Specifically, this second term captures any differences in the demographic composition of motorists associated with visibility. One would expect that this second term would equal unity if the composition of motorists were independent of solar visibility.

Assuming that the risk-set of motorists is invariant to changes in solar visibility, a test statistic can be formalized such that:

$$K_{vod} = \frac{P(m=1|S,\delta=1)P(m=0|S,\delta=0)}{P(m=0|S,\delta=1)P(m=1|S,\delta=0)} \quad (3)$$

The test statistic K_{vod} is a ratio of the odds that a minority is stopped during daylight hours relative to darkness. In Equation 3, the variable m is a binary indicator if a motorist is observed to be a racial or ethnic minority. The variable δ is a binary indicator that captures the ability of an officer to discern the race or ethnicity of a motorist before making a stop. This indicator, in the absence of a better suited variable, is used to proxy for a true continuous measure of visibility that is unobservable to the econometrician.

As is explained in Grogger and Ridgeway (2006), the test statistic K_{vod} will be greater than or equal to the parameter K_{ideal} and exceed unity if the following conditions hold:

1) $K_{ideal} < 1$; The true parameter shows that there is a racial or ethnic disparity in the rate of minority police stops.
2) $P(V|\delta=0) < P(V|\delta=1)$; Darkness reduces the ability of officers to discern the race and ethnicity of motorists.
3) $\frac{P(m=1|V=0)P(m=0|V=1)}{P(m=0|V=0)P(m=1|V=1)} = 1$; The relative risk-set is constant across the analysis window.

Estimating the test statistic K_{vod} does not provide a quantitative measure for evaluating disparate treatment in policing data. As illustrated by Grogger and Ridgeway, the test statistic K_{vod} can provide a qualitative measure that identifies the presence of disparate treatment. More concretely, the *Veil of Darkness* identifies the presence of a racial or ethnic disparity if the test statistic K_{vod} is less than one. Given the restrictive nature of the test statistic, it is reasonable (but not conclusive) to attribute the existence of this disparity to racially biased policing practices.

Assuming that the assumptions outlined above hold, Equation 4 can be estimated using a logistic regression in the following form:

$$log\frac{P(m|\delta)}{1-P(m|\delta)} = \beta_0 + \delta + \mu \quad (4)$$

In practice, it is unlikely that the third assumption (a constant relative risk-set) will hold without including additional controls in Equation 4. Grogger and Ridgeway (2006) amend Equation 4 by

including neighborhood fixed-effects and a spline for time of day. Ridgeway (2009) applies the *Veil of Darkness* in Cincinnati, OH and includes additional controls for the calendar month. In addition, Ridgeway includes a more restrictive specification that focuses on the month before and after Daylight Savings Time (DST). Worden et al. (2010) applies the *Veil of Darkness* to policing data in Syracuse, NY and includes time of day fixed-effects as well as day of the week controls.

Motivated by these contributions, Equation 1 is amended to include additional controls that help ensure a constant relative risk-set of motorists:

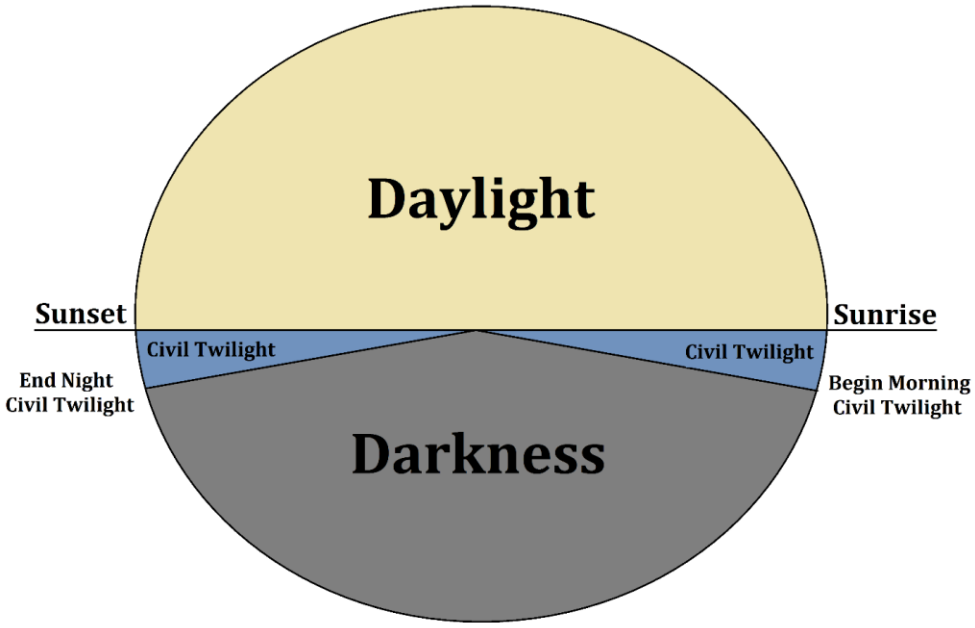
$$log\frac{P(m|\delta,X)}{1-P(m|\delta,X)} = \beta_0 + \beta_1\delta + X'\beta_2 + \mu \quad (5)$$

The estimation equation presented in Equation 5 includes a vector X of fixed-effects for day of week, police department, statewide stop volume, and a spline for time of day. In addition, Equation 5 includes interactions for all of these terms with the department fixed-effects. As discussed previously, the magnitude of the coefficient should not be used to quantitatively evaluate relative differences in disparate treatment. The sign and level of significance, however, are sufficient indicators that can be used to identify a disparity.

I.D (1): CONSTRUCTING THE INTER-TWILIGHT SAMPLE

The *Veil of Darkness* analysis requires that periods of darkness and daylight be properly identified. Following Grogger and Ridgeway (2006), the analysis is restricted to stops made within the inter-twilight period. As is shown in Figure 4, civil twilight is defined as the period when the sun is between zero and six degrees below the horizon and where its luminosity is transitioning from daylight to darkness. The motivation for limiting the analysis to the inter-twilight period is to help control for possible differences in the driving population. Specifically, it is asked whether there is a disparity in the odds that a minority motorist is stopped in daylight relative to darkness.

Figure 4: Diagram of Civil Twilight and Solar Variation



The analysis was conducted using three distinct inter-twilight periods: the dawn, dusk, and a combined inter-twilight period. The dawn inter-twilight period is constructed from astronomical data and occurs in the morning hours. The dusk inter-twilight period, on the other hand, is constructed from the same astronomical data but occurs in the evening hours. The combined inter-twilight period relies on a sample that is created by pooling these timeframes. Previous analyses have relied solely on the dusk inter-twilight period due to a significantly reduced sample size in the dawn inter-twilight period. This analysis, however, has a sufficiently large sample and can consider these additional periods as an alternative mechanism to scrutinize the findings.

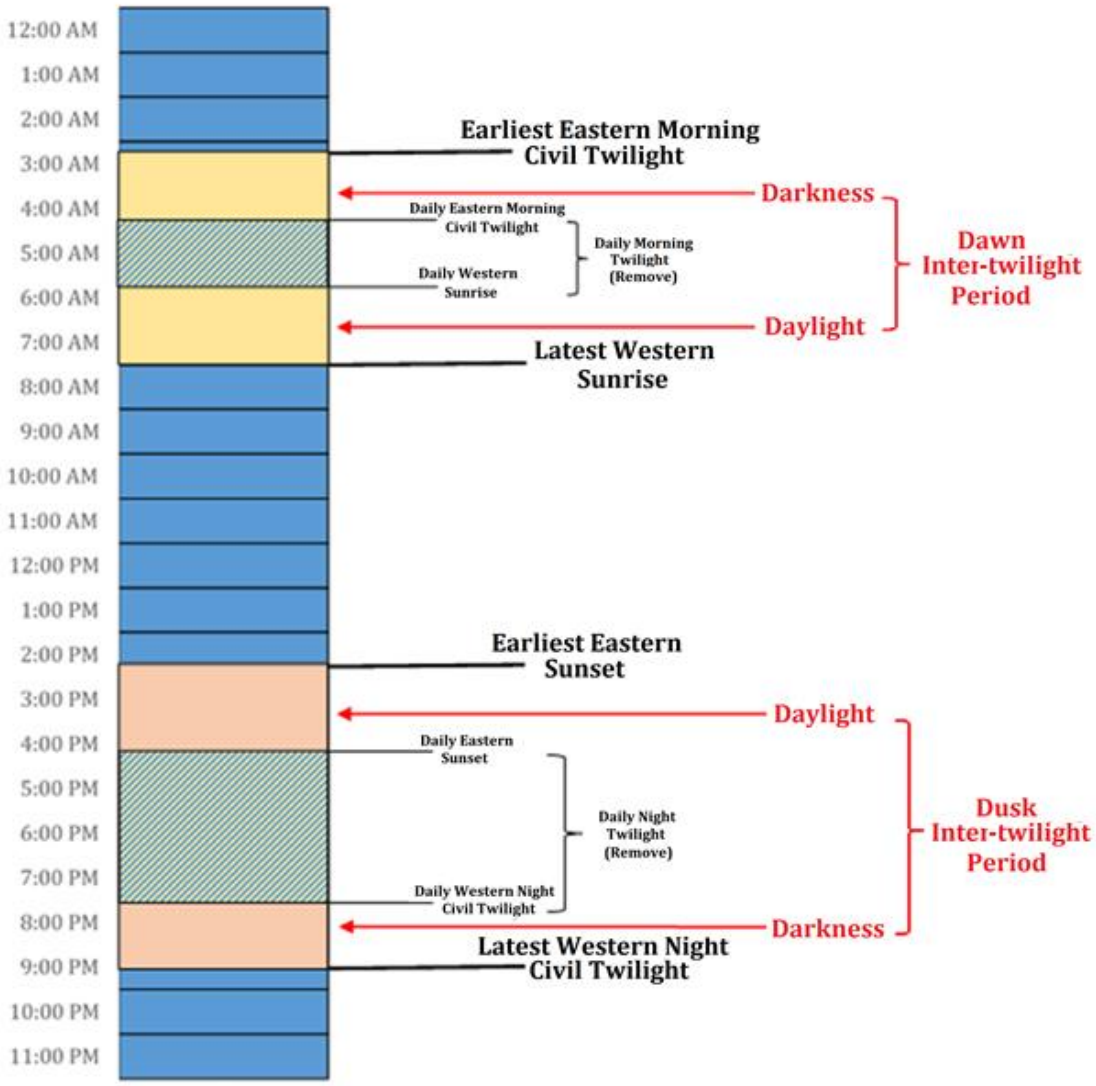
The inter-twilight period was constructed using Astronomical data collected from the United States Naval Observatory (USNO). The dawn inter-twilight period was constructed to capture the period spanning from the earliest start of civil twilight observed throughout the year through the latest sunrise. In contrast, the dusk inter-twilight period spanned the period from the earliest sunset observed to occur throughout the year to the latest end of civil twilight. As discussed previously, past applications of the *Veil of Darkness* have focused on single large urban geographies and have had no need to consider the possibilities of differential astronomical impacts.

The definition for both the dawn and dusk inter-twilight periods was amended to accommodate cross-municipal variation in astronomical impact by utilizing data from the easternmost (Sterling, CT) and westernmost (Stamford, CT) points available in the USNO data. The dawn inter-twilight period was identified as the time period between 4:38 AM when the earliest eastern start of civil twilight occurred on June 11, 2014 and 7:25 AM when the latest western sunrise occurred on November 1, 2014. Conversely, the dusk inter-twilight period was identified as the time period between 4:17 PM when the earliest eastern sunset occurred on December 12, 2014 and 9:04 PM when the latest western end to civil twilight occurred on July 2, 2014. The combined inter-twilight period, as the name indicates, simply pools these two periods. Only observations from the policing

data that occurred within either the dawn or dusk inter-twilight period were included in the *Veil of Darkness* analysis.

The USNO data was merged with the policing data and used to identify the presence of darkness. Again, the presence of darkness was the primary explanatory variable used to identify the presence of racial disparities in the Connecticut policing data. As a result, any observation in the data that occurred during twilight on any given day was dropped from the analysis because luminosity inherently varies within this period. The twilight period varied on a daily basis throughout the year and was also identified using the USNO data. Twilight was defined in the dawn inter-twilight period as the time between the daily eastern start of civil twilight and western sunrise. Similarly, twilight was defined in the dusk inter-twilight period as the time between the daily eastern sunset and western end to civil twilight. The full delineation of the policing data is displayed graphically in Figure 5.

Figure 5: Delineation of Inter-twilight Periods



I.D (2): STATE LEVEL RESULTS FOR THE VEIL OF DARKNESS

Equation 5 is first estimated at the state level by aggregating all traffic stops across departments. It is important to note that the findings from this estimation should be considered an average effect for the state. It is impossible to attribute any disparity to a specific department in this specification. The presentation of more detailed findings, disaggregated by department, are presented in a later section. These results should only be considered descriptive and as a formal specification test for results at the department level.

Table 21 presents the results from the *Veil of Darkness* applied at the state level during the dusk inter-twilight period. These results were estimated using Equation 5 with the standard errors being clustered at the department level. The estimates presented in Table 21 include fixed-effects for day of week, police department, statewide stop volume, a spline for time of day, and an interaction of each of these terms with the department fixed-effects. The estimates were creating using four distinct definitions of minority status and are annotated accordingly.

Table 21: Statewide *Veil of Darkness* Analysis, Dusk Inter-twilight

LHS: Minority Status		(1) Non-Caucasian	(2) Black	(3) Hispanic	(4) Black or Hispanic
Darkness	Coefficient	-0.033	-0.039	-0.129***	-0.081**
	Standard Error	(0.047)	(0.053)	(0.026)	(0.033)
Psuedo-R2		0.111	0.138	0.092	0.115
Effective Sample Size		121,795	116,892	116,138	135,056

Note 1: The coefficients are presented along with their level of significance. A coefficient concatenated with * represents a p-value of .1, ** represents a p-value of .05, and *** represents a p-value of .01 significance.
Note 2: Standard errors are clustered at the department-level and presented in parentheses below coefficient estimates.
Note 3: The control group in each specification is white non-Hispanic motorists.
Note 4: All specifications include controls for time of the day (a linear spline with seven knots), day of the week, state traffic volume, police department, an interaction between time of day and police department fixed-effects, an interaction between day of the week and police department fixed-effects, and an interaction between volume and police department fixed-effects.

The results for the first specification in Table 21 show that, at the state level, there is no evidence of Non-Caucasian motorists (as an aggregate group) being stopped disproportionately during daylight in the dusk inter-twilight period. The second specification, includes only Black motorists, and also shows little evidence of a statewide disparity. The third specification, includes both minority and Caucasian individuals identified as Hispanic. Unlike the first two specifications, the third finds strong evidence of a statewide disparity in the rate that Hispanic motorists are stopped during daylight hours. The fourth specification includes both Black and Hispanic motorists and finds a less significant effect than the third specification. Although only the specifications including Hispanic motorists indicate the presence of a disparity in the rate of traffic stops in the state, it is impossible to discern the specific geographies where these disparities exist or whether they pertain to additional minority groups.

Table 22: Statewide *Veil of Darkness* Analysis, Dawn Inter-twilight

LHS: Minority Status		(1)	(2)	(3)	(4)
		Non-Caucasian	Black	Hispanic	Black or Hispanic
Darkness	Coefficient	-0.165***	-0.201***	-0.196***	-0.196***
	Standard Error	(0.063)	(0.063)	(0.066)	(0.052)
Psuedo-R2		0.103	0.114	0.062	0.080
Effective Sample Size		23,511	22,512	21,962	26,209

Note 1: The coefficients are presented along with their level of significance. A coefficient concatenated with * represents a p-value of .1, ** represents a p-value of .05, and *** represents a p-value of .01 significance.
Note 2: Standard errors are clustered at the department-level and presented in parentheses below coefficient estimates.
Note 3: The control group in each specification is white non-Hispanic motorists.
Note 4: All specifications include controls for time of the day (a linear spline with seven knots), day of the week, state traffic volume, police department, an interaction between time of day and police department fixed-effects, an interaction between day of the week and police department fixed-effects, and an interaction between volume and police department fixed-effects.

The results presented in Table 22 are estimated using the dawn inter-twilight period. The dawn, unlike the dusk, inter-twilight period is less apt to be subject to changes in the risk-set due to recreational driving. All of these specifications indicate the presence of a disparity in the rate of traffic stops across minority groups in the state. As discussed previously, however, it is impossible to discern the specific geographies within the state where these disparities exist. In contrasting our estimates in Table 22 with those from Table 21, it seems possible that the dusk inter-twilight results could be driven by heterogeneous seasonal driving patterns.

Table 23: Statewide *Veil of Darkness* Analysis, Combined Inter-twilight

LHS: Minority Status		(1)	(2)	(3)	(4)
		Non-Caucasian	Black	Hispanic	Black or Hispanic
Darkness	Coefficient	-0.055	-0.069	-0.136***	-0.100***
	SE	(0.042)	(0.046)	(0.026)	(0.031)
Psuedo-R2		0.106	0.131	0.083	0.106
Effective Sample Size		146,388	141,131	139,632	162,007

Note 1: The coefficients are presented along with their level of significance. A coefficient concatenated with * represents a p-value of .1, ** represents a p-value of .05, and *** represents a p-value of .01 significance.
Note 2: Standard errors are clustered at the department-level and presented in parentheses below coefficient estimates.
Note 3: The control group in each specification is white non-Hispanic motorists.
Note 4: All specifications include controls for time of the day (a linear spline with seven knots), day of the week, state traffic volume, police department, an interaction between time of day and police department fixed-effects, an interaction between day of the week and police department fixed-effects, and an interaction between volume and police department fixed-effects.

Table 23 presents the results from the *Veil of Darkness* applied at the state-level during the combined dusk and dawn inter-twilight period. As before, these results were estimated using Equation 5 with the standard errors being clustered at the department level. All of these specifications indicate the presence of a disparity in the rate of traffic stops across minority groups in the state. As discussed previously, however, it is impossible to discern the specific geographies within the state where these disparities exist. As mentioned in the context of Table 21 and 22, the estimates in Table 23 may be conflated due to heterogeneous seasonal driving patterns across racial and ethnic groups.

As mentioned, a variety of controls that accommodate any potential changes to the underlying risk-set are included. The results for the first specification indicate that, in aggregate, there is no evidence of a disparity for Non-Caucasian motorists. The second specification includes only Black motorists and also identifies no aggregate disparity. The third specification includes only individuals identified as Hispanic and regains statistical significance. The fourth specification includes motorists identified as Black or Hispanic and indicates a highly statistically significant disparity in the rate that minority

motorists are stopped during daylight. As mentioned, these estimates aggregate all traffic stops in the state and should be considered an average effect across all departments.

The three sets of estimates are reasonably consistent across the dusk, dawn, and combined inter-twilight periods. The combined inter-twilight period adequately replicates the results using the dusk inter-twilight period but is advantageous when assessing disparities in smaller police departments because of the increased sample size. As a result, the departmental analysis proceeds by using the combined sample. Although the results from this section find a statistically significant disparity in the rate of minority traffic stops in Connecticut, these results do not identify the geographic source of this variation or rule out the possibility of issues within specific departments. The results of a department level analysis are presented in a later section and better identify the source of specific department-wide disparities.

I.D (3): STATE LEVEL ROBUSTNESS CHECKS ON THE VEIL OF DARKNESS

The purpose of this section is to present robustness checks on these initial specifications conducted at the state level. The first robustness check pertains to the existence of possible unobserved covariates related to specific violations that are potentially correlated with solar visibility and minority status (e.g. equipment, seatbelt, and cellphone violations). The second robustness check relies on a sample of stops concentrated around the discrete Daylight Savings Time (DST) shift and better accommodates the assumption of a constant relative risk-set of motorists on the roadway. The conclusion from both of these robustness checks is that the initial findings withstand a stricter level of scrutiny.

As mentioned, the analysis presented above could conceivably suffer from bias driven by specific violations that are correlated with solar visibility or minority status. To see why this might be a problem, imagine that minority motorists are more likely to have a head or taillight out and that these violations are only observable to police officers during darkness. In that instance, comingling these equipment violations with the other violations could conflate the overall estimates. The opposite effect is possible if minority motorists were more likely to use their cellphone or not wear a seatbelt and police officers are better able to detect these violations during daylight. In an effort to account for these potential threats to identification, the sample is restricted to moving violations (e.g. speed and other moving violations) and estimated in Table 24.

Table 24: Statewide *Veil of Darkness* Analysis, Combined Dusk and Dawn Inter-twilight and Moving Violations

LHS: Minority Status		(1)	(2)	(3)	(4)
		Non-Caucasian	Black	Hispanic	Black or Hispanic
Darkness	Coefficient	-0.134**	-0.112	-0.088***	-0.093**
	SE	(0.064)	(0.069)	(0.031)	(0.041)
Psuedo-R2		0.122	0.152	0.101	0.128
Effective Sample Size		52,166	49,149	48,901	56,909

Note 1: The coefficients are presented along with their level of significance. A coefficient concatenated with * represents a p-value of .1, ** represents a p-value of .05, and *** represents a p-value of .01 significance.
Note 2: Standard errors are clustered at the department-level and presented in parentheses below coefficient estimates.
Note 3: The control group in each specification is white non-Hispanic motorists.
Note 4: All specifications include controls for time of the day (a linear spline with seven knots), day of the week, state traffic volume, police department, an interaction between time of day and police department fixed-effects, an interaction between day of the week and police department fixed-effects, and an interaction between volume and police department fixed-effects.

The results presented in Table 24 are estimated using only moving violations occurring in the combined inter-twilight period. As can be seen by comparing the sample sizes in Table 23 and Table 24, moving violations are a substantially smaller share of the overall stops. However, the results presented in Table 24 align with those estimates from the entire sample in terms of sign and level of statistical significance. The third and fourth specifications, pertaining to Hispanic and the combined group of Black and Hispanic motorists does not change substantially. However, the specification that includes all Non-Caucasian motorists is stronger (in terms of statistical significance) in the restricted sample. This finding indicates the possibility that these visibility variant violations may be conflating the original results and suggests that the departmental analysis should also apply this sample restriction.

Another threat to identification comes from possible violations in the assumption of a constant relative risk-set of motorists. Although all of the previous estimates include a number of controls that help mitigate any possible violations of that assumption, we include an additional robustness check that utilizes a 30 day window surrounding DST. This specific robustness check is, unfortunately, not possible at the department level analysis because of a substantially reduced sample size for most departments. The results presented using the restricted DST window illustrate that, at the aggregate state level, the assumption of a relative risk-set does appear to hold. As can be seen in Table 25 the results align, in terms of magnitude and statistical significance, with those estimated in Table 23.

Table 25: Statewide *Veil of Darkness* Analysis, Combined Inter-twilight and DST Sample

LHS: Minority Status		(1)	(2)	(3)	(4)
		Non-Caucasian	Black	Hispanic	Black or Hispanic
Darkness	Coefficient	-0.054	-0.064	-0.121**	-0.093**
	SE	(0.057)	(0.063)	(0.051)	(0.045)
Psuedo-R2		0.122	0.143	0.093	0.117
Effective Sample Size		42,715	40,676	40,181	47,680

Note 1: The coefficients are presented along with their level of significance. A coefficient concatenated with * represents a p-value of .1, ** represents a p-value of .05, and *** represents a p-value of .01 significance.
Note 2: Standard errors are clustered at the department-level and presented in parentheses below coefficient estimates.
Note 3: The control group in each specification is white non-Hispanic motorists.
Note 4: All specifications include controls for time of the day (a linear spline with seven knots), day of the week, state traffic volume, police department, an interaction between time of day and police department fixed-effects, an interaction between day of the week and police department fixed-effects, and an interaction between volume and police department fixed-effects.

I.D (4): VEIL OF DARKNESS ANALYSIS, DEPARTMENT RESULTS

The analysis presented at the state level shows that a statistically significant disparity exists in the rate of minority traffic stops in daylight relative to darkness. That analysis does not further investigate disparities occurring within specific police departments. The analysis presented in this section seeks to better identify the source of the observed aggregate disparity and to further investigate individual police departments. Each individual municipal police department and State Police troop is examined independently by estimating the effect of visibility during the combined inter-twilight window.

The analysis begins by amending Equation 5 to accommodate an analysis conducted at the department level:

$$log\frac{P(m_d|\delta_d, X_d)}{1-P(m_d|\delta_d, X_d)} = \beta_{d,0} + \beta_{d,1}\delta + X_d{}'\beta_{d,2} + \mu_d \quad (6)$$

The estimation equation presented in Equation 6 includes a vector X_d of town-specific fixed-effects for day of week, police department, statewide stop volume, and a spline for time of day. Equation 6 is estimated independently for each municipal police department as well as State Police troop. The test statistic estimated in this model represents a department-level disparity rather than a statewide average. As before, the magnitude of the coefficient should not be used to quantitatively evaluate relative differences in racial disparities across departments. The sign and level of significance, however, are sufficient indicators that can be used to identify the existence of a racial or ethnic disparity.

The *Veil of Darkness* test statistic was estimated during the combined inter-twilight window individually for each department and State Police troop. A subset of departments that were found to have a statistically significant disparity in the rate that minority motorists were stopped during daylight hours is presented in Table 26.[2] The six municipal police departments and one State police troop represent the only jurisdictions that had a statistically significant disparity in either Black or Hispanic motorists alone. These two specifications were considered to be the most restrictive groups and were considered a baseline for identifying individual departments. As mentioned throughout this report, the results of this test provide evidence of a racial or ethnic disparity that indicates the possible existence of disparate treatment at the department level. Determining whether there is disparate treatment occurring within these departments, however, is beyond the scope of this report and requires additional investigation.

Table 26: Department *Veil of Darkness* Analysis, Combined Inter-twilight

LHS: Minority Status		(1) Non-Caucasian	(2) Black	(3) Hispanic	(4) Black or Hispanic
Ansonia	Coefficient	-0.102	-0.063	-0.614***	-0.299**
	SE	(0.17)	(0.176)	(0.195)	(0.139)
	ESS	1,658	1,628	1,563	1,858
Bloomfield	Coefficient	-0.539***	-0.571***	-0.49	-0.567***
	SE	(0.187)	(0.19)	(0.328)	(0.187)
	ESS	1,116	1,080	552	1,150
New Milford	Coefficient	-0.997*	-0.618	-1.432***	-1.204***
	SE	(0.525)	(0.519)	(0.444)	(0.349)
	ESS	979	964	1,025	1,057
Norwalk	Coefficient	-0.435**	-0.424**	0.211	-0.125
	SE	(0.195)	(0.201)	(0.213)	(0.164)
	ESS	1,107	1,082	1,040	1,318
West Hartford	Coefficient	-0.326**	-0.304*	-0.332**	-0.284**
	SE	(0.155)	(0.175)	(0.154)	(0.126)
	ESS	2,232	2,103	2,232	2,603
Wethersfield	Coefficient	-0.288	-0.394**	-0.233	-0.277*
	SE	(0.192)	(0.198)	(0.17)	(0.145)
	ESS	1,023	1,004	1,128	1,380
State Police- Troop H	Coefficient	-0.249**	-0.211	-0.218	-0.187*
	SE	(-0.12)	(-0.13)	(-0.147)	(-0.108)
	ESS	3,678	3,468	3,237	4,066

[2] The comprehensive results for all departments are contained in the Appendix.

Note 1: The coefficients are presented along with their level of significance. A coefficient concatenated with * represents a p-value of .1, ** represents a p-value of .05, and *** represents a p-value of .01 significance.
Note 2: Standard errors are clustered at the department-level and presented in parentheses below coefficient estimates.
Note 3: The control group in each specification is white non-Hispanic motorists.
Note 4: All specifications include controls for time of the day (a linear spline with seven knots), day of the week, and state traffic volume.

There still exists the potential threat from unobserved covariates that was discussed in the state level analysis in the context of specific violations correlated with solar visibility and minority status. In an effort to assuage this concern, the sample is further restricted to moving violations and the results are presented in Table 27. In some cases the results became relatively stronger while in other cases they became weaker in terms of statistical significance. Ansonia, in particular, dropped substantially in terms of statistical significance which may be due to a reduced sample size. Given the change to the results for Ansonia, the disparity is not persistent enough to conclude that there exists a disparity in the rate at which minority motorists are stopped during daylight. On the other hand, the original results for the five remaining municipal departments and single State Police troop are only strengthened by the restricted sample.

Table 27: Department *Veil of Darkness* Analysis, Combined Inter-twilight and Moving Violations

LHS: Minority Status		(1) Non-Caucasian	(2) Black	(3) Hispanic	(4) Black or Hispanic
Ansonia	Coefficient	-0.255	-0.220	-0.481*	-0.332*
	SE	(0.213)	(0.220)	(0.251)	(0.177)
	ESS	1,005	988	932	1,105
Bloomfield	Coefficient	-0.599***	-0.588**	-0.265	-0.579**
	SE	(0.231)	(0.235)	(0.391)	(0.229)
	ESS	727	703	381	749
New Milford	Coefficient	-0.841	-0.486	-1.308***	-1.105***
	SE	-0.594	-0.641	-0.482	-0.387
	ESS	642	632	680	705
Norwalk	Coefficient	-0.918**	-0.943**	-0.24	-0.593*
	SE	(0.378)	(0.398)	(0.394)	(0.316)
	ESS	302	294	288	359
West Hartford	Coefficient	-0.549*	-0.691**	0.133	-0.196
	SE	(0.300)	(0.345)	(0.312)	(0.246)
	ESS	647	615	644	734
Wethersfield	Coefficient	-1.182***	-1.249***	-0.225	-0.628**
	SE	(0.428)	(0.452)	(0.348)	(0.288)
	ESS	319	311	339	391
State Police- Troop H	Coefficient	-0.669***	-0.693***	-0.465**	-0.542***
	SE	-0.184	-0.204	-0.223	-0.164
	ESS	1,718	1,619	1,518	1,884

Note 1: The coefficients are presented along with their level of significance. A coefficient concatenated with * represents a p-value of .1, ** represents a p-value of .05, and *** represents a p-value of .01 significance.
Note 2: The standard errors are presented in parentheses.
Note 3: All specifications include controls for time of the day, day of the week, and volume fixed-effects.
Note 4: The daily volume control used in each model are calculated at the requisite inter-twilight period.

The results presented in the state level analysis provide strong evidence that a disparity exists in the rate of minority traffic stops in each of the departments in Table 27 with the exception of Ansonia. The results from Tables 26 and 27 indicate that these five departments and Troop H are probably playing a more substantial role in the state level disparity. Although it is impossible to clearly identify

the cause of these disparities from within the individual departments, it is clear that an unobserved factor (potentially disparate treatment) is creating a disparity in the rate at which minority motorists are stopped by police during daylight. As mentioned previously, a shortcoming of this methodology is that any large racial disparities at the officer level may be diluted when traffic stops are aggregated by department.

I.E. ANALYSIS OF TRAFFIC STOPS, SYNTHETIC CONTROL

Traditional approaches that rely on population-based benchmarks to evaluate policing data must make a variety of very strong assumptions about the underlying risk-set of motorists. These approaches, despite their flaws, are intuitively appealing because they offer tangible descriptive measures of racial and ethnic disparities. This section presents the results of a synthetic control analysis that has the same intuitive appeal as traditional population-based benchmarks but remains grounded in rigorous statistical theory. A synthetic control is a unique benchmark constructed for each individual department using various stop-specific and town-level demographic characteristics as captured through inverse propensity score weighting. The synthetic control is then used to assess the effect of treatment on an outcome variable(s). In the present context, treatment is defined as a traffic stop made by a specific municipal police department and the outcome variable(s) indicates whether a motorist is a racial or ethnic minority.[3] As more data is collected there is an increased ability to apply these tests. Thus, for the analysis in Section I.E, the Connecticut stop data is aggregated from October 2013 to October 2015 to include both study years.

In observational studies, as opposed to randomized control trials, it is difficult to estimate the causal effect of treatment. The difficulty emerges because assignment to treatment occurs on a non-random basis and is often confounded with other variables. Regression analysis can accurately estimate the effect of treatment if all possible factors driving treatment are available to the analyst and the model is specified correctly. In reality, however, there are both observed as well as unobserved variables that confound the effect of treatment. These confounding variables create bias that hides the true impact of treatment on the outcome variable. As a result, it becomes difficult to disentangle the effect of treatment from compositional differences in the observed and unobserved variables.

The problem of estimating treatment effects arises because unobserved variables affect both selection into treatment and outcome. Weighting the observations by the inverse of the propensity score ensures that the distribution of observable characteristics is consistent between the synthetic control and the department of interest. As long as these observed variables are predictive of unobserved confounders, inverse propensity score weighting allows for an unbiased estimate of the effect of treatment on the outcome variable. In the present context, constructing a synthetic control using inverse propensity score weights allows for an assessment of the whether specific departments are disproportionately stopping minority motorists. This methodology follows a rich and extensive literature spanning the fields of statistics, economics, and public policy. The application of similar methodologies to policing data have recently entered the criminal justice literature through notable applications by McCaffrey et al. (2004), Ridgeway (2006), Ridgeway and MacDonald (2009), and Saunders et al. (2014).

I.E (1): CONSTRUCTING THE SYNTHETIC CONTROL

Rosenbaum and Rubin (1983) characterize the propensity score as the probability of assignment to treatment conditional on pretreatment variables. The key insight is that conditional on this scalar function, assignment to treatment will be independent of the outcome variable. Simply put, given some *observed* pretreatment variables, it is possible to identify the conditional probability of

[3] In the proceeding methodological discussion the details of the estimation procedure are presented as if a single treatment effect were estimated using a single outcome variable. However, the estimates were constructed for each municipal department using four different outcome variables.

treatment. Correctly adjusting for this conditional probability allows for the bias associated with *observed* covariates to be statistically controlled. If these observed covariates are correlated with unobserved variables, these confounding factors will also be controlled for statistically. This methodology allows for a causal interpretation of the difference between outcomes associated with treatment and control.

Hirano and Imbens (2001) note that a useful adjustment is to weight observations according to their propensity scores. This adjustment effectively creates a balanced sample among treatment and control observations. Conveniently, when the estimate of interest is the treatment effect on the treated, only potential control observations need to be weighted. In this context, the weight that balances the sample and removes bias associated with pretreatment confounding factors is exactly the inverse of the propensity score. Ridgeway and MacDonald (2009) apply this technique in the context of policing data by matching the joint distribution of a particular officer's stop features to those by other officers. Motivated by Saunders et al. (2014) the analysis proceeds by extending this technique for the purposes of developing synthetic controls of municipal police departments using microdata on police stops in combination with U.S. Census Bureau data on demographic and employment characteristics.

Ridgeway and MacDonald (2009) estimate the propensity scores using a boosted logistic regression technique. Boosted regression [see McCaffrey et al. 2004] has two benefits over standard logistic regression when it comes to the computation of propensity scores. The first is that it is not limited to a set parametric or semi-parametric specification of covariates. The method searches over a wide range of interactions and higher-order polynomials. The second benefit, closely related to the first, is that boosted regression incorporates a penalty function on the size of the coefficients. Together, these two features allow for much greater predictive power through a dynamic functional form, while contemporaneously constraining and removing unimportant coefficients.

Following Ridgeway and MacDonald (2009), propensity scores are estimated using a boosted logistic regression such that the log-likelihood function is:

$$\ell(\alpha) = \sum_{i=1}^{n} t_i \alpha' h(x_i) - log\left(1 + exp\big(\alpha' h(x_i)\big)\right) - \lambda \sum_{j=1}^{J} |\alpha_j| \qquad (7)$$

The variable t_i is a dichotomous binary indicator of treatment that, in this case, represents stops made by the department of interest. The function $h(x)$ is the collection of piecewise constant functions of x_j variables, their third order polynomials, and three-way interactions. The variables used in the estimate of the propensity to treat include all pre-stop observable characteristics in the traffic stop data. The set of variables x_j contains stop-specific microdata including: indicator variables representing the reason for the stop, whether the motorist was a state or town resident, calendar month, day of the week, and a cubic spline with seven knots for time of day. This set of variables also contains town-level characteristics including: the racial and ethnic composition of the town, age and gender demographics, population size, land area, population density, housing characteristics, commuter patterns, employment in retail and entertainment sectors, and the aggregate racial and ethnic composition of all contiguous towns. A detailed list of the stop-specific and town-level characteristics can be found in Appendix C, Table 28a.

The shrinkage parameter λ reduces the effect of each successive regression tree so that the impact of an incorrectly specified branch is minimized. In estimating the propensity score, the shrinkage

parameter is set such that $\lambda = .01$ which is consistent with existing applications. As noted by Friedman (2001), selecting a random sample of the residuals at each iteration of the regression tree is thought to reduce variation in the outcome variable without affecting bias. Following the related literature, a subsample that is composed of 50 percent of the residual is selected at each iteration. Similarly, the size of the training set used in the algorithm is also set at 80 percent.

The propensity score p_i is estimated using the boosted logistic regression outlined in Equation 7. A weighting variable w_i is constructed such that the stops made by the department of interest are set to unity and those made by all other departments in the department are set to $w_i = p_i/(1 - p_i)$. Applying a propensity score weight to stops made by other departments in the state creates a synthetic control group with a comparable distribution of stop-specific and town-level characteristics. The propensity score and resulting weight for those stops with characteristics that are drastically different than stops made by the department of interest will approach zero. As a result, the synthetic control will consist of the stops that are similar, in terms of stop-specific and town-level characteristics, to those made by the department of interest. The construction of a synthetic control group using propensity scores allows the comparison to reflect the average treatment effect on the treated and abstract from potential bias in so far as the observable covariates control for selection into treatment.

I.E (2): SYNTHETIC CONTROL ANALYSIS, DEPARTMENT RESULTS

Hirano and Imbens (2001) extend the weighting framework to what Robins and Ritov (1997) refer to as doubly robust estimation. That is, including additional covariates to a semi-parametric least-squares regression model enables capture of a more precise estimate of the treatment effect. It is shown in both of these discussions that such an estimator is consistent if either of the models is specified correctly. Ridgeway and MacDonald (2009) further extend the doubly robust propensity score framework to policing data. Specifically, the authors look at whether the department of interest deviates from the synthetic control along the outcome dimension.

Treatment effects are estimated using a logistic regression approach such that the log-likelihood function is:

$$\ell(\beta) = \sum_{i=1}^{n} w_i \left(y_i(\beta_0 + \beta_1 t_i) - log\big(1 + exp(\beta_0 + \beta_1 t_i)\big)\right) \quad (8)$$

If a particular department is designated as a treatment to a group of stops, it follows that the outcome of interest would be motorist race. Simply, does the intervention by a particular department result in a relatively higher stop rate of minority motorists, controlling for all observable factors? Mixing propensity score weighting with regression analysis allows for a more precise answer to this question. In the circumstance where the synthetic control and individual department do not perfectly match along all dimensions of stop features, there is potential for bias in any comparison, especially if those features by which they differentiate relate to a motorist's race. Doubly robust estimation helps to remove this source of potential bias by controlling for these features, resulting in a much more accurate department effect.

The share of minority motorists stopped within a department was evaluated through a direct comparison with a unique synthetic control.[4] Synthetic controls were generated by weighting stops outside of the department of interest using inverse propensity score weights. As mentioned above, propensity scores were estimated using the boosted logistic regression outlines Equation 1 and treatment effects were estimated with Equation 2. Eleven departments were found to have a statistically significant disparity of fifteen percentage points or more relative to their synthetic control for either Black or Hispanic motorists alone. These two specifications were considered to be the most restrictive groups and were considered a baseline for identifying individual departments. The results of the doubly-robust estimation are presented in Table 28 along with the overall share of minority stops.

[4] It was not possible to create a synthetic control for any of the State Police troops due to both conceptual and practical limitations.

Table 28: Department Synthetic Control Analysis

Sample: Propensity Score Weighted		(1)	(2)	(3)	(4)
		Non-Caucasian	Black	Hispanic	Black or Hispanic
Bloomfield	Coefficient	2.569***	2.425***	0.283***	1.890***
	SE	-0.035	-0.033	-0.052	-0.03
	Treatment (Raw)	56.10%	54.00%	7.30%	60.80%
	Control	16.50%	14.60%	13.40%	27.50%
	ESS	698,295			
Bridgeport	Coefficient	1.388***	1.332***	1.249***	1.284***
	SE	-0.04	-0.039	-0.042	-0.035
	Treatment (Raw)	39.70%	37.60%	28.60%	65.20%
	Control	16.80%	14.80%	13.10%	27.50%
	ESS	698,731			
East Hartford	Coefficient	1.929***	1.804***	1.476***	1.708***
	SE	-0.022	-0.022	-0.024	-0.019
	Treatment (Raw)	38.90%	37.20%	26.10%	62.70%
	Control	16.60%	14.60%	13.00%	27.30%
	ESS	693,019			
Hamden	Coefficient	1.150***	1.035***	-0.133***	0.714***
	SE	-0.026	-0.026	-0.044	-0.024
	Treatment (Raw)	36.40%	35.40%	8.60%	43.70%
	Control	16.80%	14.90%	13.40%	27.80%
	ESS	698,757			
Hartford	Coefficient	2.154***	2.040***	1.785***	1.884***
	SE	-0.048	-0.046	-0.051	-0.039
	Treatment (Raw)	39.50%	38.30%	27.20%	64.90%
	Control	15.50%	13.70%	14.80%	28.10%
	ESS	211,227			
Meriden	Coefficient	0.271***	0.227***	1.143***	0.726***
	SE	-0.047	-0.046	-0.039	-0.035
	Treatment (Raw)	17.60%	16.60%	32.60%	48.20%
	Control	16.60%	14.70%	12.80%	27.10%
	ESS	675,578			
New Britain	Coefficient	0.699***	0.637***	1.553***	1.181***
	SE	-0.026	-0.025	-0.022	-0.02
	Treatment (Raw)	20.10%	18.80%	42.70%	60.20%
	Control	17.00%	15.10%	12.70%	27.40%
	ESS	695,190			
Waterbury	Coefficient	1.415***	1.522***	0.985***	1.167***
	SE	(0.0615)	(0.0634)	(0.0570)	(0.0478)
	Treatment (Raw)	30.6%	30.1%	29.8%	58.7%
	Control	13.9%	13.0%	26.6%	38.8%
	ESS	5,170			
Wethersfield	Coefficient	0.613***	0.659***	1.255***	0.968***
	SE	(0.0273)	(0.0283)	(0.0250)	(0.0213)
	Treatment (Raw)	20.5%	18.9%	29.2%	47.7%
	Control	16.6%	14.7%	12.6%	26.9%
	ESS	241,215			
Windham	Coefficient	-0.314***	-0.310***	1.260***	0.661***
	SE	(0.0449)	(0.0480)	(0.0292)	(0.0257)
	Treatment (Raw)	8.4%	7.3%	25.7%	32.6%
	Control	13.3%	11.5%	9.2%	20.4%
	ESS	209,981			
Windsor	Coefficient	1.900***	2.058***	0.397***	1.508***
	SE	(0.0229)	(0.0237)	(0.0364)	(0.0213)
	Treatment (Raw)	45.8%	43.8%	9.5%	52.8%
	Control	12.5%	10.3%	11.0%	21.1%
	ESS	96,026			

I.F. ANALYSIS OF VEHICULAR SEARCHES, KPT HIT-RATE

In this section the results of two models that rely on vehicular searches to identify racial and ethnic disparities is detailed. Analysis conducted using post-stop variables has historically been seen as favorable to benchmarks because it does not rely on any assumptions about the underlying risk-set. The focus on post-stop analysis has, however, decreased since the *Veil of Darkness* was developed to accomplish these same feats with pre-stop data. The disadvantage of post-stop analysis is the small sample size when considering vehicular searches. In many cases, one is unable to estimate the model at the department level because of this issue. As a result, the *Veil of Darkness* is considered to be the primary test mechanism but these results are included as supporting evidence. In addition, as more data is collected there is an increased ability to apply these tests. Thus, for the analysis in Section I.F, the Connecticut stop data is aggregated from October 2013 to October 2015 to include both study years.

Knowles, Persico, and Todd (2001) present a behavior-based model for testing and identifying disparate treatment in police searches. The model incorporates rational motorist behavior, with respect to driving with contraband, and optimal officer response. The testable implication derived from this model is that the equilibrium search strategy, in the absence of group bias, will result in an equalization of the rate of contraband that is found relative to the total number of searches (i.e. the hit-rate) across motorist groups. Knowles et al. (2001) outline a testable hypothesis and use a nonparametric test, the Pearson X^2 test, to evaluate their hypothesis. Since its initial presentation in the *Journal of Political Economy*, the test outlined by Knowles et al. that has subsequently become known as a test of the KPT hit-rate, has been applied widely across the nation.

The logic of the KPT hit-rate follows from a simplified game theoretic exposition. In the absence of disparate treatment, the costs of searching different groups of motorists are equal. Police officers make decisions to search in an effort to maximize their expectations of finding contraband. The implication being that police will be more likely to search a group that has a higher probability of carrying contraband, i.e. participate in statistical discrimination. In turn, motorists from the targeted demography understand this aspect of police behavior and respond by lowering their rate of carrying contraband. This iterative process continues within demographic groups until, in equilibrium, it is expected that an equalization of hit-rates across groups is found.

Knowles et al. introduce disparate treatment via search costs incurred by officers that differ across demographic groups. An officer with a lower search cost for a specific demographic group will be more likely to search motorists from that group. The result of this action will be an observable increase in the number of targeted searches for that group. As above, the targeted group will respond rationally and reduce their exposure by carrying less contraband. Eventually, the added benefit associated with a higher probability of finding contraband in the non-targeted group will offset the lower cost of search for that group. As a result, one would expect the hit-rates to differ across demographic groups in the presence of disparate treatment.

Knowles et al. (2001) developed a theoretical model with testable implications that can be used to evaluate statistical disparities in the rate of searches across demographic groups. Following Knowles et al. an empirical test of the null hypothesis (that no racial or ethnic disparity exists) in Equation 9 is presented.

$$P(H = 1 \mid m, S) = P(H = 1|S\ ) \ \forall\ r, c \tag{9}$$

Equation 9 computes the probability of a search resulting in a hit across different demographic groups. If the null hypothesis was true and there was no racial or ethnic disparity across these groups, one would expect the hit-rates across minority and non-minority groups to reach equilibrium. As discussed previously, this expectation stems from a game-theoretic model where officers and motorists optimize their behaviors based on knowledge of the other party's actions. In more concrete terms, one would expect motorists to lower their propensity to carry contraband as searches increase while officers would raise their propensity to search vehicles that are more likely to have contraband. Essentially, the model allows for statistical discrimination but finds if there is bias-based discrimination.

I.F (1): KPT HIT RATE ANALYSIS, STATE AND DEPARTMENT RESULTS

The analysis begins by aggregating all search data for Connecticut by demography and performing the non-parametric test of the KPT hit-rate. The results of this test can be seen in Table 29 for four distinct minority definitions. Although the results show significance across all the specifications, only all of the specifications find a disparity that indicates a bias towards searching minority groups. The differential presented in Table 29 represents the spread between the non-minority and minority hit-rates. A positive differential indicates that the hit-rate for non-minorities is higher in magnitude than for minority groups or that non-minority individuals are searched less frequently relative to their propensity to carry contraband. The results from Table 29 indicate that, in aggregate, Connecticut police departments exhibit a tendency to be less successful in motorist searches for all minority groups.

Table 29: Statewide KPT Hit-rate Analysis

Sample: Discretionary Searches	(1)	(2)	(3)	(4)
	Non-Caucasian	Black	Hispanic	Black or Hispanic
Chi2 P-Value	0.000***	0.000***	0.000***	0.000***
Effective Sample Size	10,350	10,243	9,470	12,741
Hit-Rate Differential	0.098	0.096	0.09	0.094

Note 1: The p-value of a chi squared tests has been concatenated for ease of use with * represents a p-value of .1, ** represents a p-value of .05, and *** represents a p-value of .01 significance.

As mentioned in the context of the *Veil of Darkness*, any analysis conducted at the state level does little to identify the geographic source of those disparities. In an effort to better identify the individual departments and troops that are driving the state level disparity seen in Table 29, the results from the same analysis conducted at the department and troop level is presented in Table 30.[5] The ten departments presented in Table 30 were found to have a statistically significant disparity in the hit-rate of minority groups relative to their nonminority counterparts. Interestingly, West Hartford and Willimantic appear to have a disparity in the hit-rate for Hispanic motorists that is driving the remainder of the results. Likewise, the hit-rate disparity in Cheshire and New Haven seems to be focused entirely on Black motorists. Waterbury has strong statistical significance across all included minority groups. The KPT hit-rate test results for State Police troops are far more mixed than the results for the individual departments. The tests suggest that there is a disparity among hit-rates for black motorists in Troop I and Troop F, and for Hispanic motorists in Troop H and Troop C. Troop F

[5] The comprehensive results for all departments are contained in Appendix ____.

has some statistical significance across all minority groups indicating it is a combination of race and ethnicity driving the disparity.

Table 30: Department KPT Hit-rate Analysis

Sample: Discretionary Searches		(1)	(2)	(3)	(4)
		Non-Caucasian	Black	Hispanic	Black or Hispanic
Cheshire	Differential	0.345**	0.345**	0.352	0.343***
	ESS	71	71	63	79
New Haven	Differential	0.087***	0.087***	0.053	0.078**
	ESS	723	722	332	888
Waterbury	Differential	0.343***	0.343***	0.273***	0.316***
	ESS	89	89	87	131
West Hartford	Differential	0.139*	0.128*	0.152***	0.143***
	ESS	456	454	520	573
Willimantic	Differential	0.147	0.129	0.192***	0.174***
	ESS	176	174	231	261
State Police- Troop F	Differential	0.222**	0.241**	0.239*	0.233***
	ESS	159	158	140	178
State Police- Troop H	Differential	0.046	0.045	0.113**	0.073
	ESS	255	254	229	356
State Police- Troop C	Differential	0.05	0.029	0.193***	0.107**
	ESS	477	463	468	556
State Police- Troop A	Differential	-0.001	0.005	0.141**	0.067
	ESS	328	327	293	414
State Police- Troop I	Differential	0.265***	0.254***	0.03	0.145*
	ESS	127	123	121	169

Note 1: The p-value of a chi squared tests has been concatenated for ease of use with * represents a p-value of .1, ** represents a p-value of .05, and *** represents a p-value of .01 significance.

An important cautionary note about the KPT hit-rate is necessary before a conclusive inference from this analysis alone is drawn. Firstly, it is acknowledged in the brief theoretical exposition that this test allows for statistical discrimination across minority groups and is only capable of identifying bias-based discrimination. Although this same assumption implicitly underlies the *Veil of Darkness,* it is an important consideration when assessing KPT's validity because it is outlined explicitly in the theoretical model. Several papers have explored generalizations and extensions of the framework and found that, in certain circumstances, empirical testing using the KPT hit-rate can suffer from the infra-marginality problem (Antonovics and Knight 2004; Anwar and Fang 2006; Dharmapala and Ross 2003). Knowles and his colleagues responded to their critics with further refinements of their model that provide additional evidence of its validity (Persico and Todd 2004). Although the results from the KPT hit-rate analysis help contextualize post-stop activity within departments, the results should only be considered as supplementary evidence.

I.G: FINDINGS AND CONCLUSIONS

The statistical evaluation of policing data in Connecticut is an important step towards developing a transparent dialogue between law enforcement and the public at large. The release of this report is evidence that Connecticut is well positioned to lead the nation in addressing the issue of disparate treatment and in increasing trust between the public and law enforcement. Although the analysis and findings presented in this report were conducted by IMRP, the ability to conduct such an analysis is wholly attributable to the efforts of state policy makers and the Racial Profiling Prohibition Project Advisory Board. The advisory board brought a variety of perspectives to the conversation and included members from Connecticut state government, the legislature, state and local police, researchers, and civil rights advocacy groups.

In Connecticut, there are a total of 92 municipal police departments: 29 departments employing more than 50 officers, 50 employing between 20 and 50 officers, and 13 with fewer than 20 officers. State police are comprised of 11 distinct troops. Although there are an additional 81 jurisdictions that do not have organized police departments and are provided police services by the state police, either directly or through provision of resident troopers, these stops were categorized with their overarching state police troops. Additionally, a total of 13 special agencies have the authority to conduct traffic stops. This report presents the results from an analysis of the 585,000 traffic stops conducted during the 12-month study period from October 1, 2014 through September 30, 2015.

Six distinct analytical tools were used to evaluate whether racial and ethnic disparities are present in the Connecticut policing data collected from October 1, 2014 through September 30, 2015. The three techniques contained in Section I.C are descriptive in nature and should be viewed with a degree of caution.[6] These techniques are, however, extremely useful in helping to identify irregularities in the data and create a context that helps to better understand the results of more advanced statistical techniques. The three analytical tools applied in the analysis are presented in Section I.D of the report.

Section I.D of the report illustrates the application of the *Veil of Darkness* to assess the existence of racial and ethnic disparities in stop data. The *Veil of Darkness* is a statistical technique that was developed by Jeffery Grogger and Greg Ridgeway (2006) and published in the *Journal of the American Statistical Association*. The *Veil of Darkness* examines a restricted sample of stops occurring during the "inter-twilight window" and assesses relative differences in the ratio of minority to non-minority stops that occur in daylight as compared to darkness. The assumption of this technique is that if police officers are profiling motorists, they are more likely to do so during daylight hours when race and ethnicity are more easily discernible. The analysis conducted in Section I.D is considered to be the most rigorous and broadly applicable of all the tests presented in this analysis.

Section I.E of the report illustrates the application of the synthetic control analysis that has the same intuitive appeal as traditional population-based benchmarks but remains grounded in rigorous statistical theory. A synthetic control is a unique benchmark constructed for each individual department using various stop-specific and town-level demographic characteristics as captured through inverse propensity score weighting. The synthetic control is then used to assess the effect of treatment on an outcome variable(s). In the present context, treatment is defined as a traffic stop

[6] The justification behind this cautionary note is presented in Section I.C

made by a specific municipal police department and the outcome variable(s) indicates whether a motorist is a racial or ethnic minority.

Section I.F of the report illustrates the application of an analysis of hit-rates using the classic approach developed by Knowles, Persico and Todd (2001). Although some criticism has risen concerning the technique, it contributes to an understanding of post-stop police behavior in Connecticut.

I.G (1): FINDINGS FROM THE ANALYSIS

This section represents a summary of the findings from the analysis conducted in Sections I.D, I.E, and I.F of this report.

Aggregate Findings for Connecticut

A total of 14.1% of motorists stopped during the analysis period were observed to be Black. A comparable 12.5% of stops were of motorists of Hispanic descent. The results from the *Veil of Darkness* analysis indicated that minority stops were more likely to have occurred during daylight hours than at night. These results were robust to the addition of a variety of controls including time of day, day of the week, state traffic volume, department level fixed-effects, and department volume controls. The results from the post-stop analysis confirm that the disparity carries through to post-stop behavior across all racial and ethnic groups.

Although there is evidence of a disparity at the state level, it is important to note that it is likely that specific departments are driving these statewide trends. In an effort to better identify the source of these racial and ethnic disparities, each analysis was repeated at the department level. The departments that were identified as having a statistically significant disparity are likely to be having the largest effect on the statewide results. Although it is possible that specific officers within departments that were not identified may be engaged in racial profiling, if these behaviors existed, they were not substantial enough to influence the department level results. It is also possible that a small number of individual officers within the identified departments are driving the department level results.

The five municipal departments and one state police troop identified to exhibit a statistically significant racial or ethnic disparity that may indicate the presence of racial and ethnic bias include:

Bloomfield

The Bloomfield municipal police department was observed to have made 62% minority stops of which 7.2% were Hispanic and 52.2% were Black motorists. The results from the *Veil of Darkness* indicated that minority motorists, across all racial and ethnic categories except for Hispanic motorists alone, were more likely to have been stopped during daylight relative to darkness. The results were robust to the inclusion of a variety of controls and sample restriction that excluded equipment violations. The synthetic control analysis also produced statistically significant results and the disparity was sufficiently large across all racial and ethnic categories. The post-stop analysis did not produce statistically significant estimates possibly because of an insufficient sample of minority searches. The results of these analysis indicate that further investigation into the source of the observed statistical disparity in Bloomfield is warranted.

New Milford

The New Milford municipal police department was observed to have made 15.1% minority stops of which 9.7% were Hispanic and 4.3% were Black motorists. The results from the *Veil of Darkness* indicated that minority motorists, across all racial and ethnic categories except for Black motorists alone, were more likely to have been stopped during daylight relative to darkness. The results were robust to the inclusion of a variety of controls and sample restriction that excluded equipment violations. The synthetic control analysis and post-stop analysis did not reveal a statistically significant disparity. The results of these analysis indicate that further investigation into the source of the observed statistical disparity in New Milford is warranted.

Norwalk

The Norwalk municipal police department was observed to have made 42.6% minority stops of which 20.8% were Hispanic and 20.2% were Black motorists. The results from the *Veil of Darkness* indicated that minority motorists, for aggregate non-Caucasians and Black motorists alone, were more likely to have been stopped during daylight relative to darkness. The results were robust to the inclusion of a variety of controls and sample restriction that excluded equipment violations. The synthetic control analysis also produced statistically significant results but the disparity did not meet the threshold of ten percentage points and was not highlighted in that requisite section. The post-stop analysis did not produce statistically significant estimates possibly because of an insufficient sample of minority searches. The results of these analysis indicate that further investigation into the source of the observed statistical disparity in Norwalk is warranted.

West Hartford

The West Hartford municipal police department was observed to have made 37.5% minority stops of which 17.7% were Hispanic and 14.8% were Black motorists. The results from the *Veil of Darkness* indicated that minority motorists, across all racial and ethnic groups, were more likely to have been stopped during daylight relative to darkness. The results were robust to the inclusion of a variety of controls and sample restriction that excluded equipment violations. The synthetic control analysis also produced statistically significant results but the disparity did not meet the threshold of ten percentage points and was not highlighted in that requisite section. The post-stop analysis did, however, reveal that minorities were also searched significantly more frequently than Caucasian motorists. The results of these analyses indicate that further investigation into the source of the observed statistical disparity in West Hartford is warranted.

Wethersfield

The Wethersfield municipal police department was observed to have made 47.4% minority stops of which 27.2% were Hispanic and 18.5% were Black motorists. The results from the *Veil of Darkness* indicated that minority motorists, across all racial and ethnic groups, were more likely to have been stopped during daylight relative to darkness. The results were robust to the inclusion of a variety of controls and sample restriction that excluded equipment violations. The synthetic control analysis also produced statistically significant results and the disparity was sufficiently large across all racial and ethnic categories. The post-stop analysis did not produce statistically significant estimates possibly because of an insufficient sample of minority searches. The results of these analyses indicate that further investigation into the source of the observed statistical disparity in Wethersfield is warranted.

State Police- Troop H

Connecticut State Police Troop H was observed to have made 42.4% minority stops of which 15.4% were Hispanic and 22.1% were Black motorists. The results from the *Veil of Darkness* indicated that minority motorists were more likely to have been stopped during daylight relative to darkness especially after restricting the sample to moving violations. As mentioned, the synthetic control analysis was not run for any of the State Police troops. The post-stop analysis did, however, also reveal that Hispanic motorists were searched significantly more frequently than Caucasian motorists. The results of these analyses indicate that further investigation into the source of the observed statistical disparity in State Police Troop H is warranted.

Departments Identified from Descriptive Analysis

In addition to the five departments and one state police troop identified to exhibit statistically significant racial or ethnic disparities that may indicate the presence of racial and ethnic bias, six departments were identified using the descriptive tests. The descriptive tests are designed as a screening tool to identify the jurisdictions where consistent disparities that exceed certain thresholds have appeared in the data. They compare stop data to three different benchmarks: (1) statewide average, (2) the estimated driving population, and (3) resident-only stops. Although it is understood that certain assumptions have been made in the design of each of the three measures, it is reasonable to believe that departments with consistent data disparities that separate them from the majority of other departments should be subject to further review and analysis with respect to the factors that may be causing these differences.

In six departments the screening process showed stop data that exceeded the disparity threshold levels in at least two of the three benchmark areas as well as in a majority of the nine possible measures. Those departments are (1) Wethersfield, (2) Stratford, (3) Meriden, (4) New Britain, (5) Newington, and (6) Trumbull. In addition to these six departments, others were identified with racial and ethnic disparities when compared to one or more of the descriptive measures. It would be beneficial for departments with smaller disparities to evaluate their own data to better understand the reasons for any relevant patterns.

A total of 11 departments were identified with statistically significant disparities in the synthetic control analysis. Although identification in this test is not, in and of itself, sufficient to be identified for further analysis in the absence of significant results in any of the other five tests, three of the departments: (1) Waterbury, (2) East Hartford, and (3) Windsor were also identified in tier 2 of the descriptive benchmark analysis. When these analyses are taken as a whole, the results appear to justify further review of the stop data for these three departments.

The Ansonia municipal police department was also identified initially as having a statistical disparity for the initial Veil of Darkness test. However, when the sample was restricted to only moving violations, the results dropped substantially in terms of statistical significance. Given the change in the Ansonia data, the disparity is not persistent enough to conclude that a disparity exists in the rate at which minority motorists were stopped during daylight. Therefore, the overall results did not warrant a further analysis at this time.

I.G (2): NEXT STEPS AND FOLLOW-UP ANALYSIS

The reporting elements included in the 2012 and 2013 revisions to the Alvin W. Penn Racial Profiling Prohibition Act represent one of the largest and most comprehensive efforts to collect policing data

in any state in the nation or individual jurisdiction to date. The analysis in this report represents the application of a series of well-respected statistical techniques and the development of several useful descriptive statistics that help to better contextualize those findings. The data made available through this project, however, creates an opportunity to develop increasingly sophisticated statistical tests that build on those applied in this analysis and take advantage of the unique variables available in the dataset. This analysis of racial and ethnic disparities in Connecticut policing data is not the end of the process but should be considered the foundation for an ongoing dialogue.

This report makes it clear that racial and ethnic disparities do not, by themselves, provide conclusive evidence of racial profiling. Statistical disparities do, however, provide significant evidence of the presence of idiosyncratic data trends that warrant further analysis. The analysis conducted in this report at the department level will serve as an initial step towards the identification of racial and ethnic disparities in policing data. The statistical disparities identified in the department level analysis could be driven by specific department-wide practices or by individual officers.

Therefore, an in-depth follow-up analysis will be conducted for the following departments: (1) Bloomfield, (2) Meriden, (3) New Milford, (4) Newington, (5) Norwalk, (6) Trumbull, (7) West Hartford, (8) Wethersfield, (9) Windsor, and (10) Troop H. New Britain, Stratford, Wethersfield and Troop H were identified last year and an in-depth follow-up analysis is presented in Part II of this report. Based on the results of that analysis and our further understanding of traffic stop enforcement in New Britain and Stratford, we do not believe a full follow-up analysis is necessary. However, we will conduct a limited follow-up analysis to verify our conclusions in our follow-up assessment. Although a follow-up analysis was conducted for Wethersfield and Troop H, additional disparities were identified in Year 2 that warrant a full follow-up analysis.

Three departments (1) Waterbury, (2) East Hartford, and (3) Windsor were identified in the Synthetic Control Analysis and were also identified in Tier 2 of the descriptive benchmark analysis. While neither of these results taken individually would be sufficient to identify these departments for further analysis in the absence of any other results, when they are considered together they would appear to make a sufficient case for follow-up. Like New Britain and Stratford, Waterbury and East Hartford have undergone a full follow-up based on their Year 1 data and we intend to conduct only a limited analysis to verify our conclusions from Year 1. Windsor will undergo a full follow-up analysis based on its composite Synthetic Control and descriptive benchmark test results and its status as a Tier 3 town in Year 1 (Tier 3 towns were those that fell just below the threshold for a follow-up analysis in Year 1 and were being monitored for changes in Year 2).

Further analysis will include an internal benchmark analysis (using propensity score weights), a sophisticated analytical technique that has been used to identify racial and ethnic disparities at the officer level. This analysis would help to identify if individual officers are driving department level disparities and help to better target implicit bias training as well as other corrective measures. In addition to an officer level analysis, researchers will attempt to map traffic stops and analyze traffic enforcement patterns by neighborhood. This analysis will incorporate additional factors such as, accident, crime and call for service information. Departments identified for follow-up analysis will be invited to be an integral part of the analysis.

Last year it was highly recommended that all departments make a commitment to the Department of Justice, Community Oriented Policing Services, sponsored training program on "Fair and Impartial Policing (FIP)." The FIP program was established to train police officers and supervisors on fair and impartial policing by understanding both conscious and unconscious bias. This program has been offered to police agencies throughout the state on an ongoing basis. To date, well over 1,000 law enforcement officers have gone through this training. The Police Officers Standard and Training

Council also incorporated the FIP curriculum into supervisor and recruit training. We would continue to encourage departments to offer this training to all police professionals.

Although further analysis and training are important, a major component of addressing racial profiling in Connecticut is bringing law enforcement officials and community members together in an effort to build trust by discussing relationships between police and the community. The project staff has conducted several public forums throughout the state to bring these groups together and will continue these dialogues into the foreseeable future. They serve as an important tool to inform the public of their rights and the role of law enforcement in serving their communities. Through its ongoing work with OPM in implementing the Alvin Penn Act, the IMRP is committed to working with all law enforcement agencies to make improvements that will lead to enhanced relationships between the police and community.

PART II: 2013-2014 TRAFFIC STOP ANALYSIS FOLLOW-UP REPORT

II.A: INTRODUCTION

The reporting elements included in the 2012 and 2013 revisions to the Alvin W. Penn Racial Profiling Prohibition Act represent one of the largest and most comprehensive efforts to collect policing data in any state or individual jurisdiction to date. The April 2015 analysis of the first 12 months (October 1, 2013 – September 30, 2014) of traffic stop data was one of the most comprehensive analyses done in the country.

The April 2015 report represented the application of a series of well-respected statistical techniques and the development of several useful descriptive statistics that helped to better contextualize those findings. The first technique applied a methodology known as the "Veil of Darkness." The "Veil of Darkness" is a statistical technique that was developed by Jeffery Grogger and Greg Ridgeway (2006) and published in the *Journal of the American Statistical Association*. The "Veil of Darkness" examines a restricted sample of stops occurring during the "intertwilight window" to assess relative differences in the ratio of minority to non-minority stops that occur in daylight as compared to darkness. The underlying assumption is that if police officers wished to profile motorists, they would be more likely to do so during daylight hours when race and ethnicity are more easily discernible. The analysis utilizing this statistical measure is considered to be the most rigorous and broadly applicable of all the tests presented in our analysis.

In addition to the "Veil of Darkness" test, researchers also used four descriptive measures that evaluate racial and ethnic disparities. The descriptive tests were designed as a screening tool to identify the jurisdictions where consistent disparities that exceed certain thresholds have appeared in the data. They compare stop data to four different benchmarks: (1) statewide average, (2) the estimated driving population, (3) resident-only stops, and (4) peer groups. The other important factor is the relative size of the disparities. For this portion of the study, a threshold of 10 percentage points is the point at which a department's data is considered sufficient for identification. In each benchmark researchers looked at 3 measures: all minority driver stops, black driver stops, and Hispanic driver stops, making a total of 12 measures. These techniques are extremely useful in helping to identify irregularities in the data.

Lastly, the report also assessed post-stop behavior, particularly the incidence of vehicular searches, by applying two estimation strategies. This measure illustrates the application of an analysis of hit rates using the classic approach developed by Knowles, Persico, and Todd (2001). Although some criticism has risen concerning the technique, it contributes to an understanding of post-stop police behavior in Connecticut.

The April 2015 report found that a total of 13.5% of motorists stopped during the study period were observed to be Black. A comparable 11.7% of stops were of motorists from a Hispanic descent. The results from the "Veil of Darkness" analysis indicated that minority stops were more likely to have occurred during daylight hours than at night. These results were robust to the addition of a variety of controls including time of day, day of the week, state traffic volume, department level fixed effects, and department volume controls. The results from the post-stop analysis confirmed that the disparity carried through to post-stop behavior for Hispanic motorists.

In addition to the state level results, a total of nine municipal police departments and two state police troops were identified as having a statistically significant disparity in the conditional probability of a

minority motorist being stopped in each respective jurisdiction. As noted in the report, these nine municipal departments and two state police troops were identified across multiple statistical and descriptive tests. Although it is impossible to draw any direct inference about racial bias itself, the findings present compelling statistical evidence that warrants further investigation. The agencies identified were: **East Hartford, Granby, Groton Town, Hamden, Manchester, New Britain, Stratford, Waterbury, Wethersfield, State Police Troop C** and **Troop H.**

The researchers wanted to better understand if the statistical disparities identified in the department level analysis could be driven by specific department-wide practices or by individual officers. Therefore, following the release of the April 2015 report, the project staff began to develop an approach to further analyze the identified department's data. Our approach included further statistical and descriptive analysis along with an on-going dialogue with each department. The follow-up analysis included different approaches and methodologies from the initial report.

The first section of this follow-up analysis outlines additional descriptive measures that were applied to department-level data for the nine municipal departments. The second section focuses on the two state police troops and supplements the initial findings using the "Veil of Darkness" method by conducting several additional robustness checks on the initial findings. The final section outlines a methodology that moves us beyond examining disparities at the department level and examining individual officers. It is important to realize that the analysis only identifies officers that stopped more motorists relative to their internal benchmark and not whether officers are engaged in discriminatory policing. If any of the officers identified in this analysis were engaged in a particular activity that was not captured by the data, such as having been tasked with a specialized assignment, it could provide a reasonable explanation for the disparity. It is important that these results be viewed as the starting point of a dialogue and not as conclusive evidence of wrongdoing on the part of the officer. The officer analysis is meant to be an internal tool for law enforcement administrators to review in conjunction with additional officer information not available to researchers.

II.B: MUNICIPAL POLICE DEPARTMENT ENHANCED DESCRIPTIVE ANALYSIS

The goal of an enhanced analysis in this report is to better understand the reasons for racial and ethnic disparities in traffic stop data. We relied on a series of descriptive and statistical tests to identify departments with consistent racial and ethnic disparities. Disparities can be the result of a variety of factors that need to be further explored.

In this section of the report we take a deeper look at the identified disparities in traffic enforcement. The nature of policing differs from one community to another based on a variety of unique factors. Police administrators must deal with a variety of crime and disorder problems. Traffic stop disparities can be influenced by factors such as the location of accidents, high call for service volume areas, high crime rate areas, and areas with major traffic generators such as shopping and entertainment districts, to name a few. Police administrators make decisions about how to effectively deploy police resources based on the needs of the community.

In order to understand the factors that might be contributing to traffic enforcement decisions, we first wanted to better understand where traffic enforcement occurs in a community. The best way to complete this task is to map traffic stops for each identified community. Police officers are required to report the location of a traffic stop in a manner that would allow the stop to be identified on a map. In some cases, technology allows the officer to capture the specific longitude and latitude coordinates for the stop. In other cases, the officer enters a descriptive location such as the number and street or street and nearest cross street.

The project staff worked with each of the nine municipal police departments to map traffic stops during our study period. Researchers were provided with longitude and latitude information for Hamden, Manchester, Stratford, and Waterbury**.**

In cases where specific longitude and latitude information wasn't available, a student from Central Connecticut State University manually identified the longitude and latitude coordinates from the location description entered by the officer. For these departments, we were unable to map some of the traffic stops because the officer didn't adequately detail the location of the stop. Below is a list of departments where the traffic stop location was manually identified beside the percentage of traffic stops that we were able to map.

East Hartford (79%)
Granby (40%)
Groton Town (78%)
New Britain (76.2%)
Wethersfield (28%)

After completing the mapping exercise, we determined that we would proceed with a descriptive analysis of traffic stops at the census tract level for all departments except Granby and Wethersfield. Due to the relatively low number of stops that we could adequately identify longitude and latitude coordinates for in the case of Granby and Wethersfield, we decided to take a different approach.

The municipalities where we had a significant percentage of location coordinates, we mapped the stops by census tract. Each community is broken up into census tracts to help understand the

different makeup of a community. According to the United States Census Bureau, a census tract is "a small, relatively permanent statistical subdivision of a county or equivalent entity that are updated by local participants prior to each decennial census as part of the Census Bureau's Participant Statistical Areas Program." Census tract boundaries generally follow visible and identifiable features. Also, census tracts generally have a population size between 1,200 and 8,000 people, with an optimum size of about 4,000 people. Census tracts are each identified by a number of up to four digits.

Researchers have the ability to better understand the demographics of a subsection of a community by breaking down traffic stops into census tracts. A census tract analysis not only provides a better understanding of population demographics, but also allows researchers to focus on the unique attributes of a subsection of a community such as major traffic generators, accident rates, local crime problems, and calls for service. Neighborhoods can vary greatly within a community and a more detailed analysis will help to better understand the information presented in the initial analysis.

Due to the lack of detailed location information available in Granby and Wethersfield, researchers conducted a descriptive analysis of traffic stops by major corridors. The location information typically identified the road where the traffic stop was conducted, but not the specific point on the road. Although analyzing traffic stops by census tract is the preferred method, analyzing traffic stops by corridor was also an effective approach. Presented below are our findings from the department level descriptive analysis.

II.B (1): EAST HARTFORD FOLLOW-UP ANALYSIS SUMMARY

This follow-up analysis reviews traffic stops conducted in East Hartford from October 1, 2013 – September 30, 2014. An additional 12 months of data has been collected and analyzed in Part I of this report. A summary of reported traffic stops for East Hartford over a two-year period follows.

	2013-2014 Traffic Stop Records		2014-2015 Traffic Stop Records	
White Non-Hispanic	2,788	37.0%	2,859	33.7%
Black Non-Hispanic	2,703	35.8%	3,161	37.2%
AsPac Non-Hispanic	111	1.5%	112	1.3%
AI/AN Non-Hispanic	13	0.2%	7	0.1%
Hispanic	1,927	25.5%	2,255	26.6%
Total	7,542		8,394	

Overview of the April 2015 Traffic Stop Analysis

The April 2015 Traffic Stop Analysis report indicated that for the October 1, 2013 – September 30, 2014 study period the East Hartford Police Department made a total of 7,542 traffic stops. Of these, 63.1% were stops involving minority drivers (25.5% Hispanic, 36% black, and 1.7% other races). The East Hartford Police Department was identified using the four descriptive tests. East Hartford was identified as having exceeded the threshold of 10 percentage points in three of the four descriptive benchmarks and seven of the 12 possible measures. Although certain assumptions were made in the design of each of the four benchmarks, it is reasonable to believe that departments with consistent data disparities that separate them from the majority of other departments should be subject to further review and analysis with respect to the factors that may be causing these differences.

Descriptive Analysis of the 2013-2014 Traffic Stop Data

The racial and ethnic disparities in the East Hartford Police Department data were explored through a more detailed look at traffic enforcement during the original study period. Part of this analysis involves mapping all stops if possible using the location data provided by the department and any enhancements to this data we were able to make. Unfortunately, the descriptive information on stop locations was specific to allow accurate mapping of only 79% of the traffic stops reported. In most cases, geographical coordinates were not provided to us and traffic stops were manually mapped using the officer's description of the location of the stop. In 21% of the reported traffic stops, the description was too vague and therefore researchers could not identify the specific geographic coordinates. We believe that the percentage of stops we were able to map is sufficient enough to proceed with a census tract-based analysis. More than half of the stops that could not be given an exact location for mapping purposes occurred on either Main Street, which runs north-south through the entire town, or Burnside Avenue, which intersects with Main Street in the central business district and runs eastward to the Manchester town line.

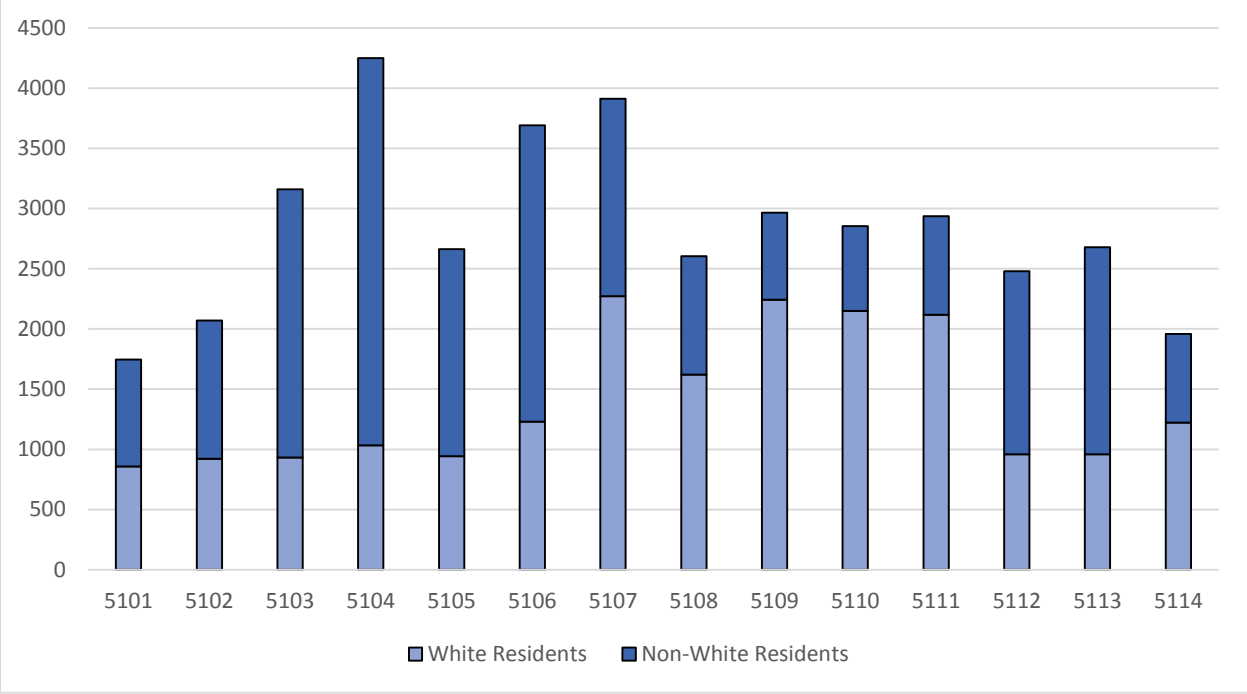
According to the 2010 census, East Hartford is a city with approximately 40,229 residents over the age of 16. Approximately 51.6% of the driving age population in East Hartford is identified as a minority. Figure 1.0 outlines the basic demographic information for East Hartford residents over 16.

Figure 1.0: East Hartford Population

Race/Ethnicity	16+ Population Total	% Population Total
White Non-Hispanic	19,460	48.37%
Black Non-Hispanic	9,058	22.52%
AsPac Non-Hispanic	2,310	5.74%
Hispanic	9,217	22.91%
Other	184	0.46%
Total	40,229	

The U.S. Census Bureau divides East Hartford into 14 census tracts. Driving age population within the census tracts varies from about 1,750 to 4,200 residents. The demographic breakdown of each census tract varies as well, ranging from a minority population of 76% in Census Tract 5104 to as low as 24% in Census Tract 5109. The town-wide average minority population is 51%. Figure 2.0 illustrates the variations in population demographics by census tract.

Figure 2.0: 16+ Resident Population by Census Tract



Five other municipalities share a common border with East Hartford, including South Windsor to its north, Manchester to its east, Glastonbury and Wethersfield to its south, and Hartford to its west. South Windsor, Manchester, Glastonbury, and Wethersfield are predominantly white demographically, with an average driving age white population of 83% (compared to East Hartford's white driving age population of 48%). However, Hartford borders the western portion of East Hartford and has a white driving age population of only 19%. Hartford and East Hartford are separated by the Connecticut River. Access between Hartford and East Hartford is via the Bulkeley (I-84), Founders (Route 2), and Charter Oak (Route 15) bridges.

The drivers stopped in East Hartford were almost evenly split between East Hartford residents and non-residents (52.5% non-residents). Interstate 84 runs in an east-west direction through East Hartford and Route 2 runs from the southern border to its intersection with Interstate 84.

Figure 3.1 illustrates the volume of traffic enforcement that occurs in each census tract. The majority of traffic enforcement activity (61%) occurred in a relatively concentrated geographical area encompassing 5 census tracts. Census Tract 5102 contributes the largest percentage of traffic enforcement with 25.4% of the city's traffic stops. Tract 5102 covers the Route 2 and Interstate 84 interchange with the Connecticut River forming the western border and Main Street forming the eastern border. This census tract also has a large commercial business presence due to the proximity to highway access ramps.

The other four census tracts that comprise the majority of traffic stop activity range from 7% of total stops to 12%. These census tracts include heavily traveled roads such as Tolland Street, Main Street, and Roberts Street, which contribute a large amount of traffic to these census tracts.

Traffic enforcement changes dramatically as you move to the outer parts of the city towards South Windsor, Manchester, and Glastonbury. With the exception of Census Tract 5113, which includes a large portion of Tolland Street (374 stops), none of the remaining census tracts generates more than 4.5% of the traffic stop activity, with most considerably below that level.

Figure 3.1: Traffic Stops by Census Tract

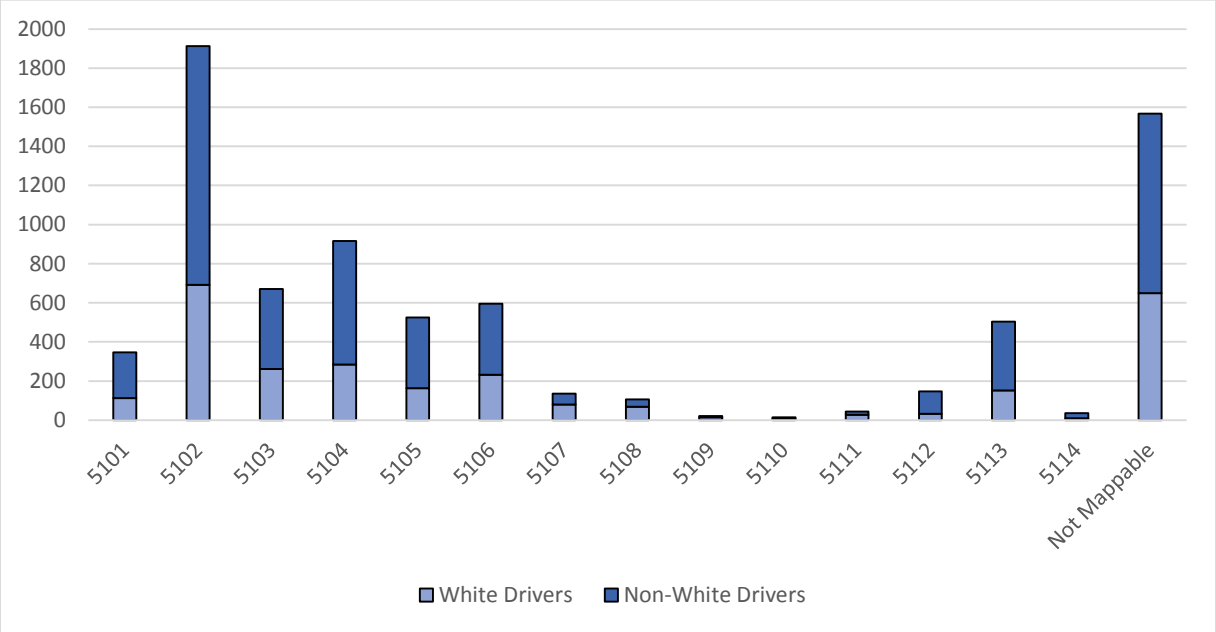
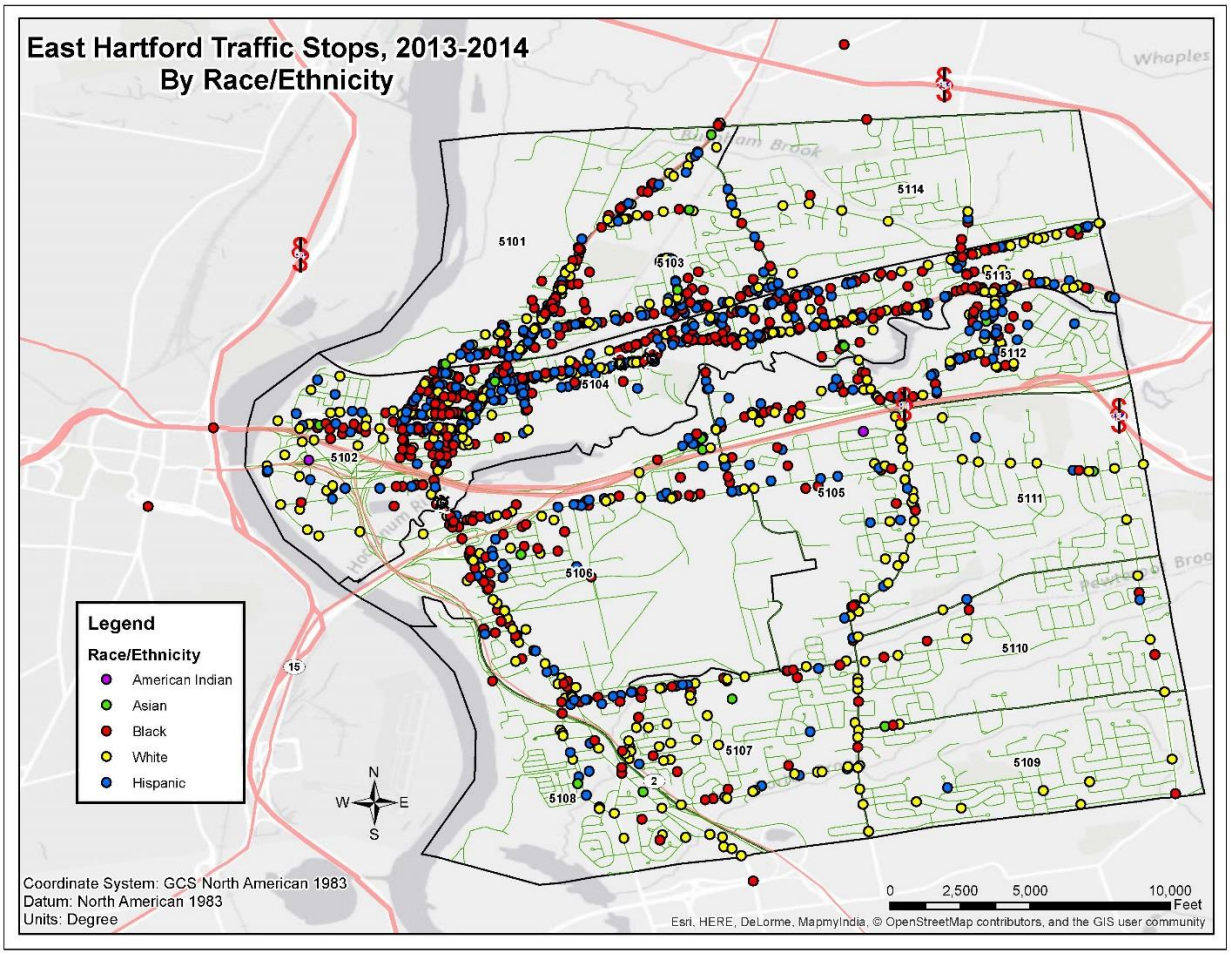


Figure 3.2 is a map of traffic stops made in East Hartford. The five census tracts that account for 61% of the traffic enforcement activity make up 40% of the resident population in East Hartford. The two largest of these five census tracts in terms of population are tracts 5104 (10.6% of the East Hartford population) and 5106 (9.2% of the population). Census Tract 5107 has the second largest population (9.8%) but generated only 1.8% of East Hartford's traffic stops. The resident population through the remaining census tracts is fairly evenly distributed from 4% to 8% of town population.

East Hartford's resident population is 51% minority; however, 72% of the residents stopped were minority. Minority residents were also stopped at a greater rate in 13 of the 14 census tracts than the resident population would reflect in that census tract. The rates at which drivers are not East Hartford residents affects these minority stop rates to varying degrees.

Figure 3.2: Traffic Stop Map



Traffic Stop Breakdown by Race/Ethnicity

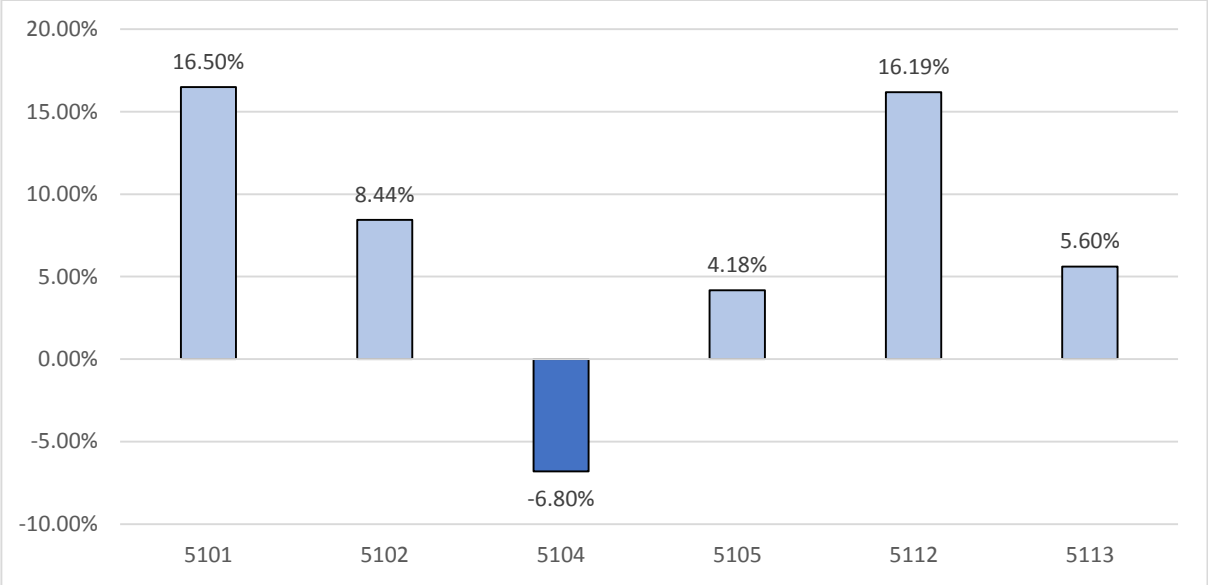
In East Hartford, 63% of all drivers stopped were minority. Minority drivers are classified as all non-white drivers, but it is predominantly made up of black or Hispanic drivers. The resident population (16+) of East Hartford is 51.3% minority. On its face this might suggest a disparity in the proportion of minority drivers stopped during the study period. In one sense, this is true, in that about one half of the East Hartford population is minority but almost two-thirds of the drivers stopped were minority. However, the racial and ethnic makeup of different areas of East Hartford varies significantly by census tract. Given the fact that the higher levels of traffic enforcement are concentrated along a few census tracts, most of which have minority populations well above the town wide average, the disparities involving minority drivers would appear to be almost inevitable.

Specifically seven of the 14 census tracts showed a higher percentage of minorities stopped than the town average for minority residents. When stops were limited to East Hartford residents only, the disparity between minority stops and the population was still present in the same seven census

tracts. There are six census tracts that make up the highest enforcement activity in East Hartford and five are among the census tracts with minority populations above the town average of 63%. Conversely, one of the census tracts that stopped a high percentage of minority drivers (5114) accounted for only 34 stops during the study period, making its demographic breakdown somewhat less significant than the results in the other tracts.

Taken individually, some of the census tracts with high proportions of minority drivers stopped and high to moderate enforcement activity tend to reflect the high proportions of the localized minority population living within the tracts. The non-resident minority stop component in these census tracts has considerable influence on how large the disparity appears compared to the localized minority population. In most cases, it accounts for most of the disparity. Census Tract 5101 is one example of this. If non-resident minority drivers are factored out of the total, the disparity drops to 2.5% above the localized minority population. However, the non-resident effect on the overall disparity is not as pronounced in Census Tract 5112, where non-residents account for only half of the disparity. Even after non-resident minority stops are accounted for, the disparity in 5112 remains at 8.5 percentage points above the localized minority population. Figure 4.1 highlights some of this information for the high to moderate enforcement census tracts.

Figure 4.1: Disparity between Minority Drivers Stopped and Census Tract Population



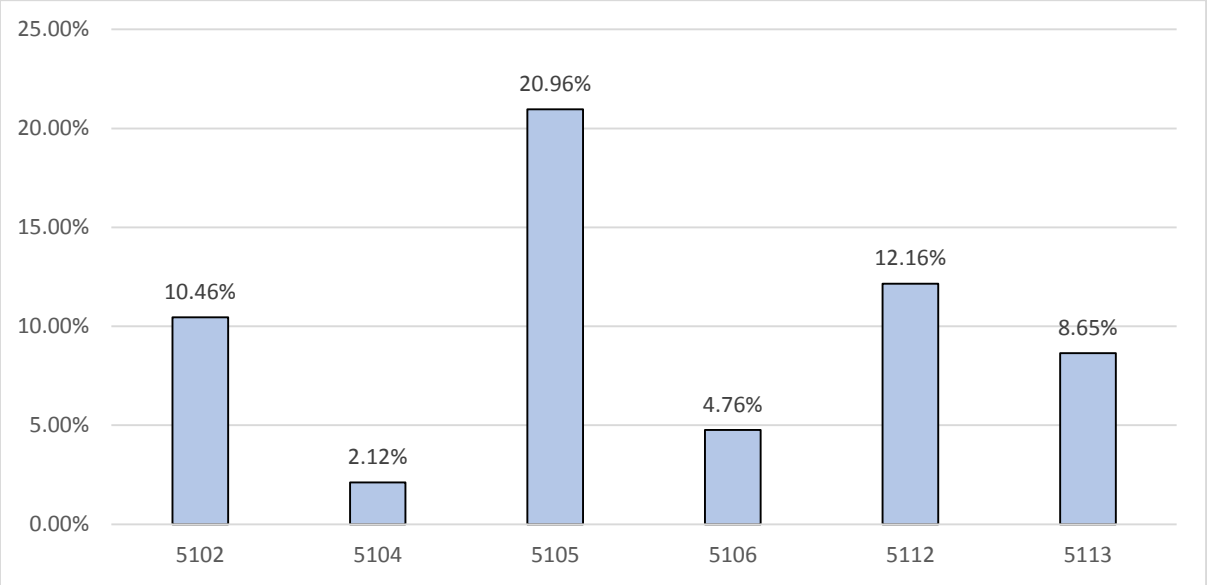
The overall percentage of East Hartford traffic stops involving black drivers was 35.8%. The percentage of black drivers stopped exceeded the town average in eight of the 14 census tracts, including five of the six high enforcement activity areas. The exception among the six high enforcement areas was Census Tract 5103, where black drivers comprised 34% of the stops compared to the town average of 35.8%. Two of the eight tracts (5110 and 5114) exhibited black driver stop percentages above the town average, but accounted for a combined total of only 25 black stops. The stops in these census tracts are part of the lowest enforcement activity areas in the city and make the results for these tracts fairly insignificant.

Figure 4.2 shows how the proportion of black stops made in six of the eight census tracts compares to the proportion of black driving age residents living within the tracts. The two tracts with extremely

low enforcement activity are excluded from the comparison. As can be seen from the comparison, the relative difference between the proportion of stops involving black drivers and the proportion of the black population living within the census tract was fairly small in some cases and significant in others. The greatest disparity of 21% was in tract 5105 where 40.5% of the stops involved black drivers while the black driving age population was only 19.6%.

Once again, the non-resident component of the black drivers stopped in these census tracts mitigates the disparities to some extent in most of them. The exception is Census Tract 5105, where even after factoring in the non-resident black drivers stopped, the disparity remains at 10.5 percentage points above the localized black driving age population.

Figure 4.2: Disparity between Black Drivers Stopped and Census Tract Population

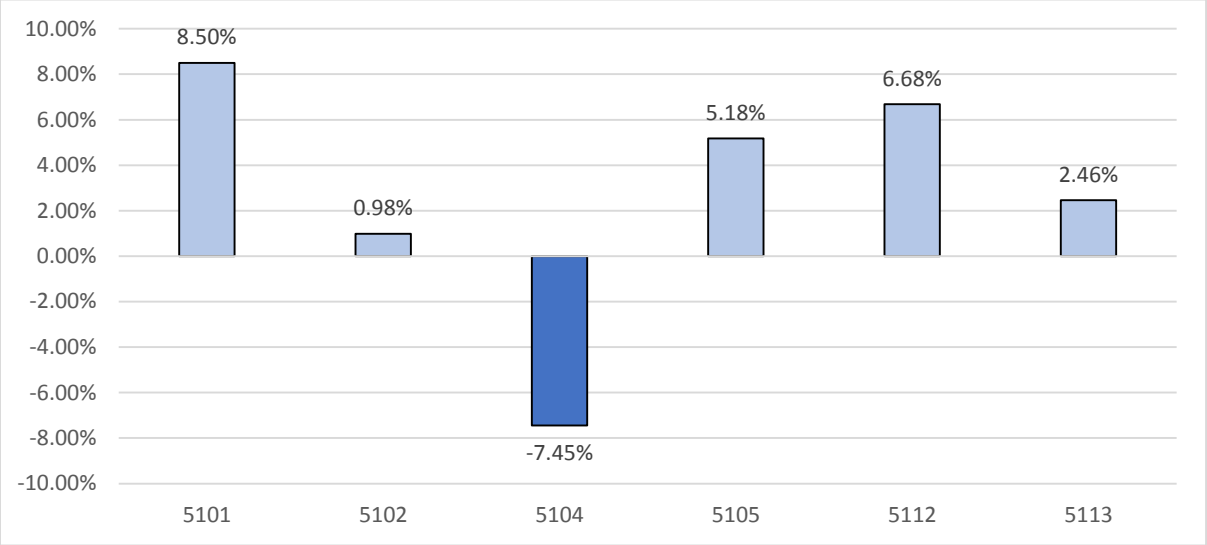


The overall percentage of East Hartford traffic stops involving Hispanic drivers was 25.6%. The percentage of Hispanic drivers stopped exceeded the town average in six of the 14 census tracts, including four of the six high enforcement activity areas. Two of the census tracts exceed the town-wide average by less than 1.5 percentage points.

Figure 4.3 shows how the proportion of Hispanic stops made in these six census tracts compares to the proportion of Hispanic driving age residents living within those census tracts. As can be seen from the data, the disparity between Hispanic stops and the localized Hispanic driving age population is a negative disparity in Census Tract 5104. Of the five census tracts where Hispanic stops exceeded the localized Hispanic population, Census Tract 5101 shows the largest disparity at 8.5 percentage points above the population. This census tract borders the high enforcement activity area.

The non-resident stop component for Hispanic drivers in these census tracts has a significant effect on the disparities in these census tracts. The disparities appear to be largely due to the non-resident Hispanic drivers that were stopped in these tracts.

Figure 4.3: Disparity between Hispanic Drivers Stopped and Census Tract Population



Traffic Stop Distribution for East Hartford Officers

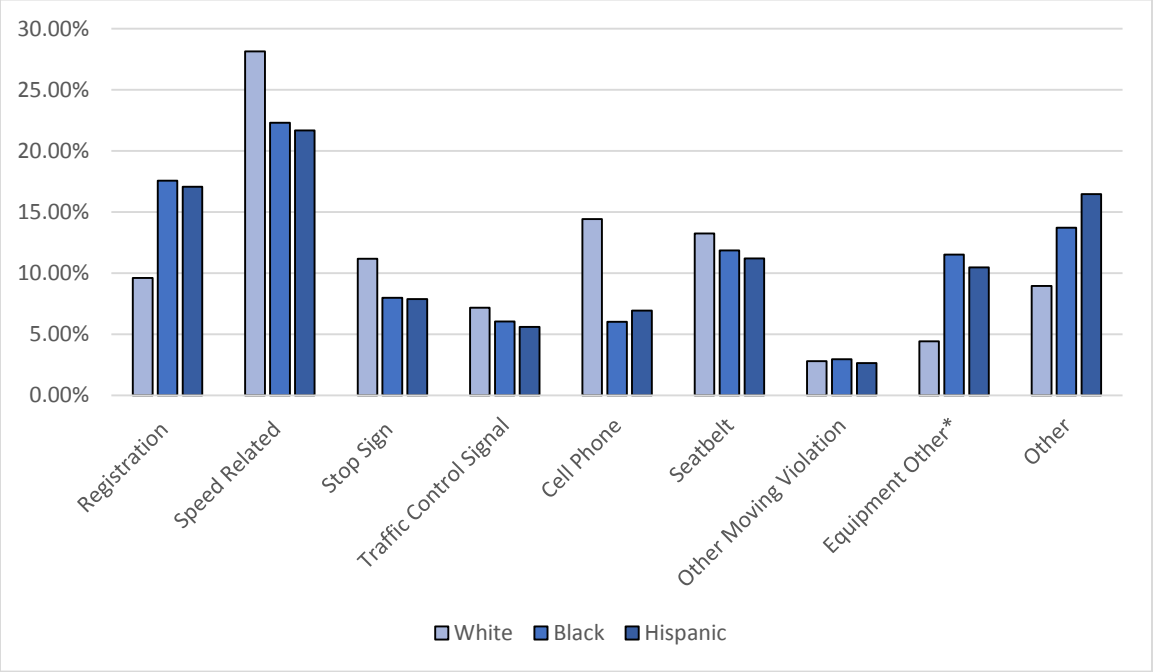
East Hartford's total of 7,542 traffic stops is comparable to other cities of its size. The East Hartford Police Department has officers dedicated to a traffic unit that contribute to a significant portion of the motor vehicle enforcement activity. During the study period, traffic stop data was reported for 81 officers. Of these officers, 55 made fewer than 20 stops, 10 made between 20 and 50 stops, six made between 50 and 100 stops, and 10 made over 100 stops. The 10 officers making more than 100 stops each accounted for 84% of the East Hartford stops, with one of those officers making 15% of all stops and another officer making almost 30% of all stops. Almost 45% of all traffic enforcement in East Hartford was conducted by two police officers. Since 12% of the officer force accounted for 84% of the traffic enforcement and two of them accounted for almost 45% of it, the specific assignments and patrol areas of these officers may have had a significant effect on the overall East Hartford data.

Post-Stop Outcome Review

The reasons police use to stop a motor vehicle can vary significantly from department to department. We reviewed the statutory authority that East Hartford officers reported as the reason for stopping motor vehicles. The three most common reasons used for stopping a motorist in East Hartford make up over 50% of the total stops. The three largest stop categories were for speeding (24%), registration violations (14%), and seatbelt violations (12%). Figure 5.1 illustrates the reason officers used to stop a motor vehicle by race and ethnicity.

Registration stops are a significant portion of the total East Hartford stops, and as Figure 5.1 indicates, black and Hispanic drivers are more frequently stopped for these violations. However, they are also significantly more likely to be made in the census tracts that have high minority populations than those that do not. Of all the registration stops made in East Hartford, 78% were made in six census tracts (5101, 5102, 5104, 5105, 5106, and 5112). In addition, 78% of the registration stops were made by a single officer.

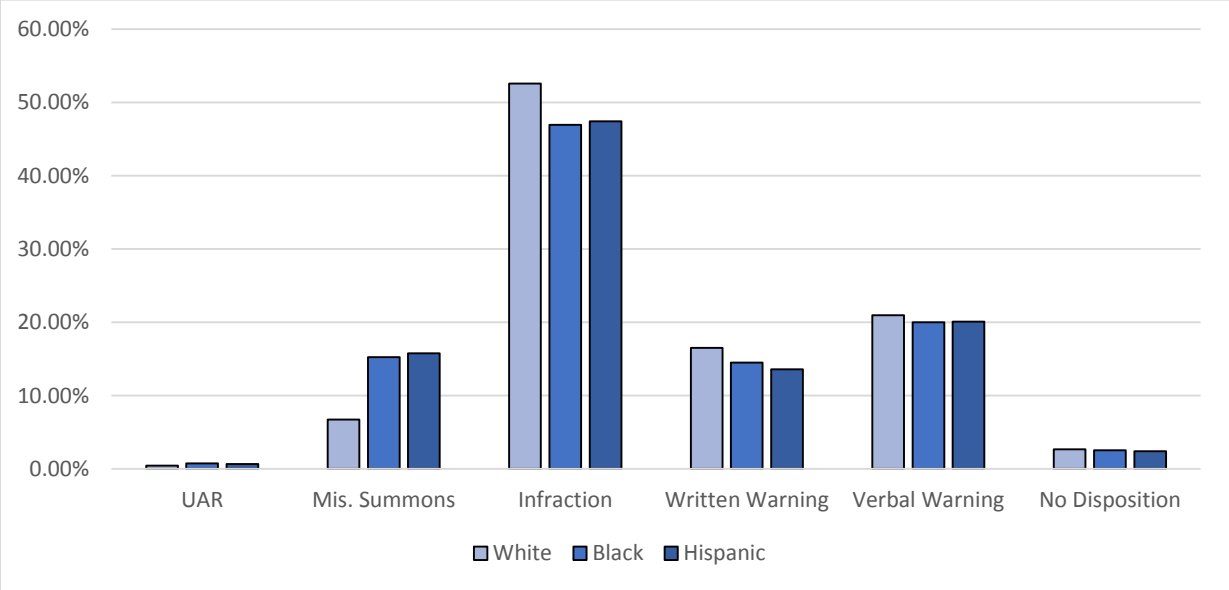
Figure 5.1: Reason for Traffic Stop



*Equipment Other includes violations for defective lights, excessive window tint, or display of plate violations.

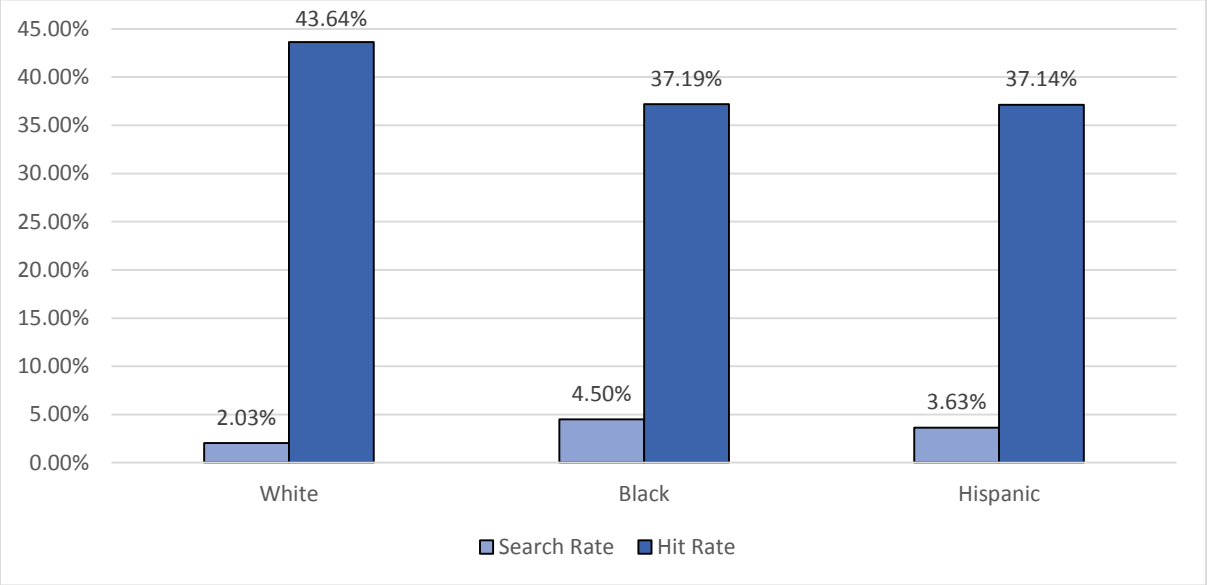
The majority of motor vehicle stops in East Hartford resulted in the driver receiving an infraction (49%). Figure 5.2 shows the outcomes of motor vehicle stops by race and ethnicity. Black and Hispanic drivers were more likely than white drivers to receive a misdemeanor summons as a percentage of their total stops. Black and Hispanic drivers are less likely to receive an infraction compared to white drivers. Warnings occurred at approximately the same frequency for all races.

Figure 5.2: Outcome of Traffic Stop



We also reviewed department search information. In particular, 3.4% (254) of the drivers stopped in East Hartford were subjected to a motor vehicle search. The rate of motor vehicle searches is slightly above the state average of 2.9%, but minority drivers were searched at twice the rate of white drivers. Contraband was found at a lower rate when a minority driver's vehicle was searched. Hit rates for black and Hispanic drivers were the same although black drivers were slightly more likely to be searched. Overall success rates in East Hartford were slightly above the statewide average. Figure 5.3 illustrates the motor vehicle search rate and the rate at which contraband is found.

Figure 5.3: Search and Hit Rate



Additional Contributing Factors

Law enforcement administrators choose to deploy police resources within a community based on a number of different factors. Some of these may include locations where calls for service volume, accident rates, or crime rates are higher. Traffic enforcement is likely to be more prevalent in locations that attract a greater police presence due to some of these factors. In addition to these factors, police may be more present in areas with higher traffic volume as the result of common factors that draw people into a community, such as employment and entertainment. In order to provide some context for potential explanations for the deployment of police resources in East Hartford, we provided some basic information on crime, accidents, and other economic factors that are worth consideration.

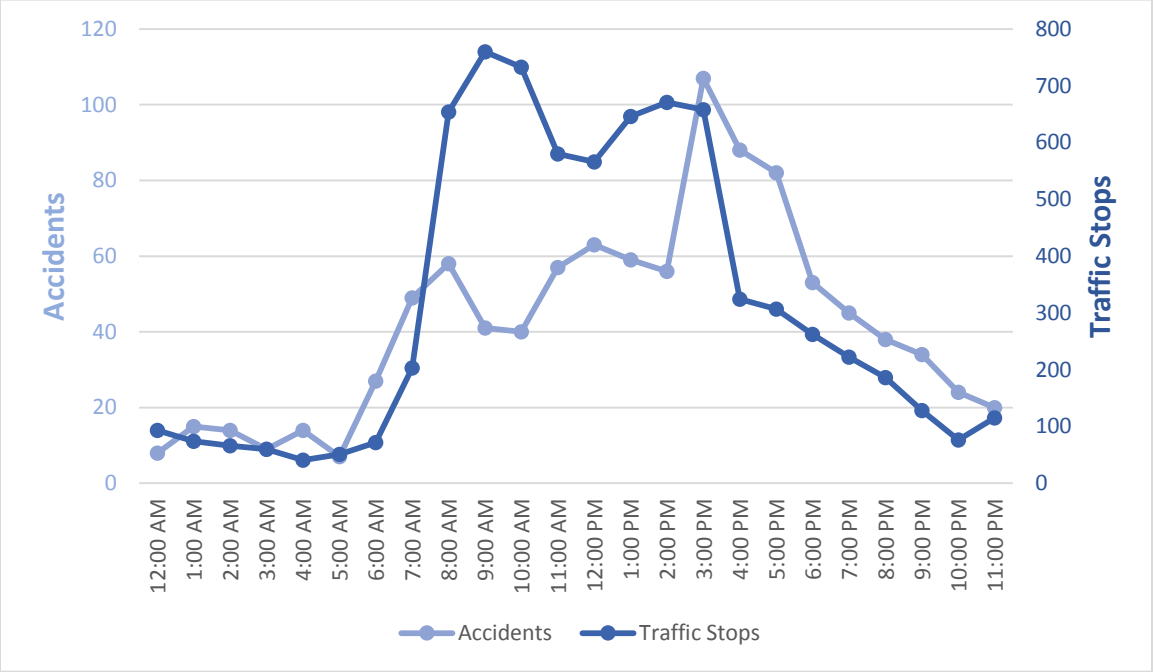
According to the Connecticut Economic Resource Center (CERC) town profiles, East Hartford employs approximately 30,000 people and their major employers include Pratt & Whitney, Clearwater Paper Corporation, and Goodwin College. The vast majority of commuters traveling into East Hartford for employment that don't live in the town travel from Manchester, Hartford, Glastonbury, South Windsor, and West Hartford. The overall unemployment rate is currently 8.5%, which is above the unemployment rate for Hartford country and the state.

In 2014, crime in East Hartford was reported at a rate of 2,632 per 100,000 residents compared to the state crime rate of 2,167 per 100,000 residents. According to the 2014 Connecticut Uniform

Crime Report[7], there were 1,376 reported crimes in East Hartford in 2014. The three most reported crimes were larceny (824), burglary (282) and motor vehicle theft (135).

During our study period, there were more than 1,000 motor vehicle accidents on roads patrolled by the East Hartford Police Department. Accidents were reported as occurring on a total of 167 roads, but 60% of the accidents occurred on just 10 roads. The roadways with the highest number of accidents were Main Street with 176 accidents, Route 44 with 133 accidents, and Silver Lane with 93 accidents. It is worth noting that traffic accidents occur on the most heavily traveled roadways in East Hartford. There were 19 roads with 10 or more accidents and those roads account for 75% of all accidents. Figure 6.0 illustrates the time of day when traffic accidents were reported and the number of traffic stops that occur during that same time period. This may help to better understand how closely traffic enforcement is correlated to traffic accidents in East Hartford.

Figure 6.0: Accidents Compared to Traffic Stops by Time of Day



Findings and Recommendations

The East Hartford Police Department identified some of the factors they believe contribute to the disparity identified in the initial analysis. In particular, the department identified areas with the highest call for service volume and areas with the highest levels of traffic as the same areas with the highest level of motor vehicle enforcement. It is evident by the volume of traffic stops made in a relatively small geographic area that departmental resources are concentrated to certain parts of town. We did not receive any specific information from East Hartford regarding crime rates or calls for service that would have permitted an analysis of how closely deployment of resources for traffic enforcement matched these factors.

[7] The Uniform Crime Report is an index for gauging fluctuations in the overall volume and rate of crime. The crime index includes seven offenses including the violent crimes of murder, rape, robbery, and aggravated assault and the property crimes of burglary, larceny-theft, and motor vehicle theft.

Over one quarter of all traffic stops occurred within one census tract, which is the census tract that covers the busy Route 2 and I-84 interchange. This section of town leads to the central business district and has a large commercial business presence due to its proximity to the highway. The other areas of town with high levels of motor vehicle enforcement include heavily traveled roads such as Tolland Street, Burnside Avenue, and Main Street, which contribute to a large amount of local traffic.

There are a total of eight census tracts with a majority of the population identified as minority residents. Of the stops that we were able to map, 94% occurred in the eight census tracts with majority minority populations. The other six census tracts, predominately white population, account for only 6% of the motor vehicle stops. This leads to the conclusion that the high concentration of traffic enforcement in these predominantly minority population areas is likely leading to a disproportionate number of minority drivers being stopped in East Hartford. East Hartford resident driving age population is 51% minority; however, 72% of its residents who were stopped were minority.

On average, more than half of the drivers stopped in East Hartford were not residents. This influences the size of the disparities in many of the census tracts to varying degrees. While in many cases the non-resident component of minority drivers stopped may explain a significant portion of the disparities above the localized minority population, there are exceptions. One exception is Census Tract 5105, where even after the non-resident black drivers stopped is accounted for, the disparity for black drivers still exceeds the localized black population by 10.5 percentage points. Another exception is Census Tract 5112, where the proportion of minority drivers stopped continues to exceed the localized minority population in the tracts by 8.5 percentage points, even after accounting for non-resident minority drivers.

The presence of police in high minority areas can be the result of a variety of factors. Those factors include, but are not limited to, areas with high call for service volume, high accident rates, and high crime rates. In East Hartford, high minority population census tracts tend to be in or around high traffic areas. The census tracts which see less enforcement are more residential in nature, but minority residents are still more likely to be stopped in 13 of the 14 census tracts, even after accounting for the localized minority population.

East Hartford has over 80 officers, but it is evident that motor vehicle enforcement is largely impacted by a relatively small number of those officers. Two officer's account for almost 45% of all traffic stops and 10 officers account for 84% of the stops. It is important to understand that traffic enforcement is clearly the focus of a small number of officers.

Traffic Stop Outcomes

In addition to understanding the location of motor vehicle stops, it is also important that we understand the result of those motor vehicle stops. In particular, white non-Hispanic drivers were more likely to be stopped for driver-related safety issues like speeding, cell phone, stop sign and seat belt violations. On the other hand, minority drivers were more likely to be stopped for registration, equipment, and other violations. When these types of stops, which can sometimes be more discretionary in nature, occur with greater frequency in areas with high minority populations than they do in areas where driving age populations are predominantly white, there is the potential for disparities to appear in the data even though violation rates for these offenses could be similar across racial categories. The data suggests that minority drivers in East Hartford are more likely to be exposed to these enforcement choices because law enforcement is more likely to be active in the

areas where they reside, compared to areas that have significantly less law enforcement presence and are predominantly white demographically.

With regard to stop outcomes, minority drivers are more likely to receive a misdemeanor summons, whereas white drivers are more likely to receive an infraction. Warnings were given to drivers of all races at approximately the same rates. East Hartford also searched a greater percentage of motor vehicles than the state average with slightly better success rates. Minority drivers were searched at more than twice the rate of white drivers, but the rate of contraband found is higher when white drivers are searched. This is an area where the disparity needs to be further evaluated by the police department.

Although we now have a better understanding of the location of motor vehicle stops and the results of those stops, it is important that East Hartford continue to refine their data collection efforts for future analysis. While East Hartford could not provide latitude and longitude for its stops, the location descriptions for a large portion of its stops were adequate to allow us to assign location for mapping purposes. However, this was not possible for just over 20% of the stops made. While location data was well done for the most part, it can and should be improved in order to provide the most accurate picture of where stops occur in the future. To improve the ability to understand the relationship between traffic enforcement activity and the factors that may be influencing where stops are being made, it will be important for East Hartford to better illustrate the correlation between motor vehicle stops and calls for service, accidents, or crime with quantitative evidence. We will continue to work with East Hartford to contextualize stop information at a localized level to improve our understanding of the additional factors that influence the racial and ethnic disparity in stop activity.

II.B (2): GRANBY FOLLOW-UP ANALYSIS SUMMARY

The follow-up analysis presented below continued to review traffic stops conducted from October 1, 2013 – September 30, 2014. An additional 12 months of data has been collected and analyzed in Part I of this report. Below is a summary of reported traffic stops for Granby over a two-year period.

	2013-2014 Traffic Stop Records		2014-2015 Traffic Stop Records	
White Non-Hispanic	1,120	90.76%	946	91.58%
Black Non-Hispanic	72	5.83%	39	3.78%
AsPac Non-Hispanic	6	0.49%	9	0.87%
AI/AN Non-Hispanic	1	0.08%	0	0.00%
Hispanic	35	2.84%	26	2.52%
Total	1,234		1,020	

Overview of the April 2015 Traffic Stop Analysis

The April 2015 Traffic Stop Analysis Report indicates that for the October 1, 2013 to September 30, 2014 study period a total of 1,234 traffic stops were made by the Granby Police Department. Of these, 9% were minority stops of which 2.8% were Hispanic and 5.8% were Black motorists. The results from the "Veil of Darkness" test indicated that minority motorists, across all racial and ethnic categories, were more likely to have been stopped during daylight hours as opposed to darkness hours. The results were strongest in the sample that was restricted to motor vehicle violations and were potentially being masked by the inclusion of equipment violations in the combined sample. Although the post-stop analysis could not be conducted due to an insufficient sample of vehicular searches, the analysis using the "Veil of Darkness" produced sufficiently strong results to indicate the presence of a marginally significant racial and ethnic disparity in Granby. The results of these analyses indicated that further investigation into the source of the observed statistical disparity was warranted.

After the April 2015 report was released, the Granby Police Department conducted an internal audit and discovered that 250 duplicate records existed in Granby's stop data. The duplicate records were the result of a technical error in the way the stop record entries were handled by the data collection system. The updated stop information was analyzed and as a result, the report was changed to highlight that the "Veil of Darkness" produced a sufficiently strong result to indicate the presence of a "marginally significant" racial and ethnic disparity in Granby, rather than the previously reported "significant" racial and ethnic disparity. The April 2015 report also stated, "The departments that were identified as having a statistically significant disparity are presumed to be driving the statewide results." It should be made clear that due to the relatively small number of traffic stops in Granby from October 1, 2013 – September 30, 2014 that were part of the "Veil of Darkness" test sample, it is unlikely that their data had any significant impact on the statewide disparity. Still, the department level data did identify a disparity that warranted further analysis.

Descriptive Analysis of the 2013-2014 Traffic Stop Data

The racial and ethnic disparities in the Granby Police Department data were explored through a more detailed look at traffic enforcement during the original study period. Part of this analysis involves mapping all stops, if possible, using the location data provided by the department and any enhancements to this data we were able to make. Unfortunately, the descriptive information on stop

locations was specific to allow accurate mapping of only 40% of the traffic stops reported. In most cases, geographical coordinates were not provided to us and traffic stops were manually mapped by using the officer's description of the location of the stop. In 60% of the reported traffic stops, the description was too vague and therefore researchers could not identify the specific geographic coordinates.

Due to the lack of detailed location information available for Granby, the census tract-based analysis was replaced by a descriptive analysis by highway corridors. The location information typically identified the road where the traffic stop was conducted, but not the specific point on the road. Although analyzing traffic stops by census tract is the preferred method, analyzing traffic stops by corridor has proved just as effective an approach because Granby has only two census tracts and four out of five traffic stops in Granby are made in only three specific highway corridors.

According to the 2010 census, Granby is a town with approximately 8,716 residents over the age of 16. Approximately 3.2% of the driving age population in Granby is identified as a minority. Figure 1.0 outlines the basic demographic information for Granby residents over 16.

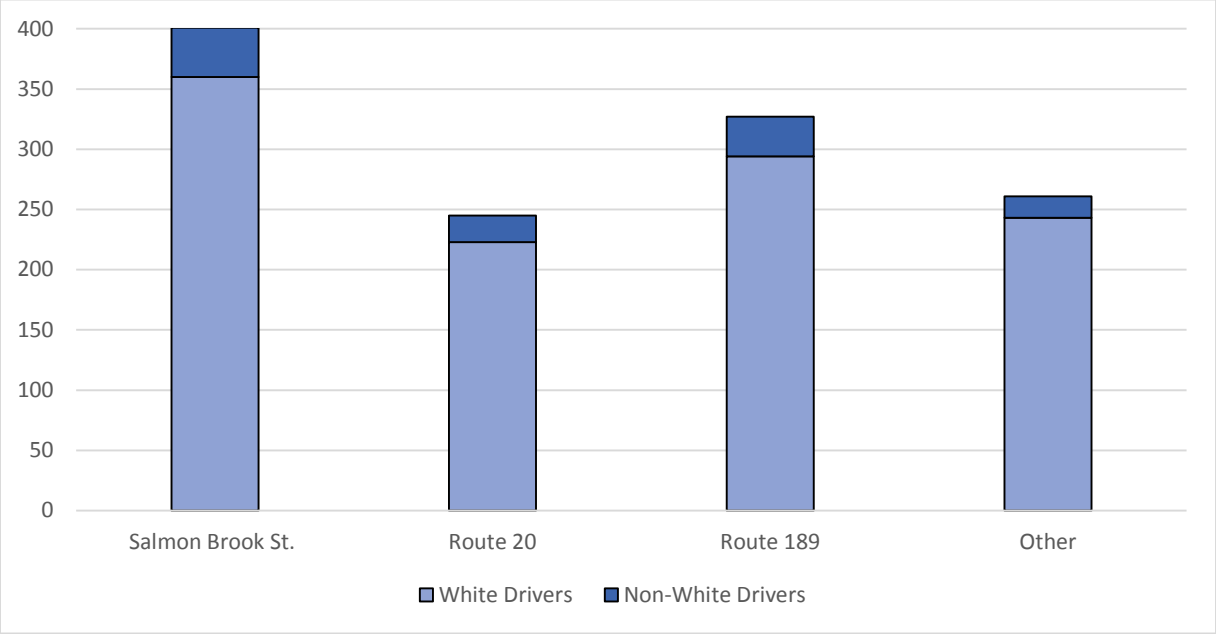
Figure 1.0: Granby Population

Race/Ethnicity	16+ Population Total	% Population Total
White Non-Hispanic	8,438	96.81%
Black Non-Hispanic	80	0.92%
AsPac Non-Hispanic	77	0.88%
Hispanic	121	1.39%
Other	0	0.00%
Total	8,716	

Six other Connecticut municipalities share a common border with Granby including Suffield and East Granby to its east, Simsbury and Canton to its south, and Barkhamsted and Hartland to its west. In addition to the six Connecticut municipalities, Massachusetts borders a portion of Granby to the north. All six Connecticut towns sharing borders with Granby are predominantly white demographically, with an average driving age white population of 96%, which is consistent with Granby's white driving age population of 97%. Route 20 runs from west to east through the center of Granby and connects with Bradley International Airport to the east. Route 10/202 and Route 189 run from the Massachusetts border south and southeast through Granby. All three of the routes come together within a very short distance of one another in the Granby downtown area. According to the Granby Police Department, all three of these routes are commonly traveled roads for people traveling to Bradley International Airport in Windsor Locks.

These three roadways in Granby account for 79% of traffic stop locations. Each of the three roadways contributed 200-400 stops to the total. All of the other roads in Granby contributed just over 250 traffic stops combined. We have focused the discussion of traffic enforcement not on census tracts, but rather on these three roads that contribute to the majority of traffic enforcement. Figure 2.1 illustrates the volume of traffic enforcement that occurs on each of the three identified roads.

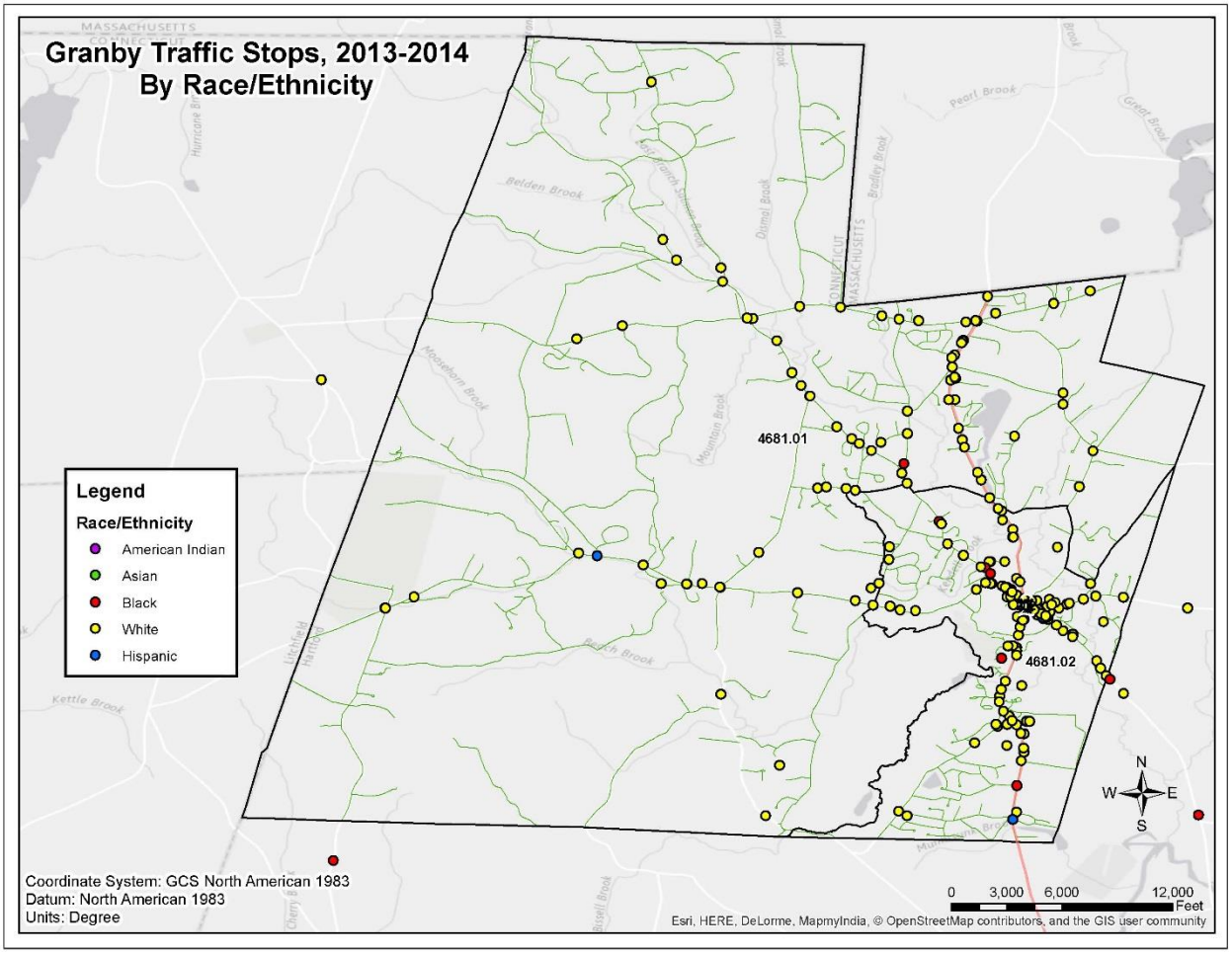
Figure 2.1: Traffic Stops by Major Roadways



Hispanic drivers were stopped with greater frequency on Route 20 than on Route 189, Route 10/202, or elsewhere in Granby (6% of stops on Route 20 compared to less than 3% of stops anywhere else). Conversely, black drivers were significantly less likely to be among those stopped on Route 20 than they were elsewhere (2% of stops on Route 20 compared to over 7% of stops on Route 189 and Route 10/202 and over 5% of stops elsewhere in Granby).

Figure 2.2 is a map of the traffic stops made in Granby able to be located. For the most part, the vast majority of the stops that could not be mapped distribute themselves along the same routes as the stops that were mapped, suggesting that the majority of traffic enforcement occurs where all three major roadways intersect in the downtown area. Granby has a relatively small downtown area, much of the town is dense woods, rolling hills, and mountains. According to the U.S. Census, the downtown area is its own census designated place referred to as Salmon Brook. The downtown area is approximately 3 square miles in a town that is approximately 41 square miles. Unsurprisingly, the heaviest traffic enforcement occurs in the busier downtown area.

Figure 2.2: Traffic Stop Map



Traffic Stop Distribution for Granby Officers

Granby's total of 1,234 traffic stops is comparable to other towns of its size. During the study period, traffic stop data was reported for 16 officers. The average number of stops made per officer was 77. Of the 16 officers reporting stops, five made fewer than 20 stops, two made between 20 and 50 stops, three made between 50 and 100 stops, five made between 100 and 200 stops, and one made over 200 stops. The most active officer made almost one quarter of all the stops in Granby with 288 traffic stops. The six officers making more than 100 traffic stops account for over 75% of Granby's traffic enforcement. Although Granby is a small department, the stop data is primarily driven by a fairly small number of officers.

The overall percentage of traffic stops involving minority drivers was 9.2%, which is almost three times the size of the resident driving age population. However, only 36% of the drivers stopped in Granby were town residents. Another 48% of the drivers stopped lived in Connecticut but not in Granby. The remaining 16% of the drivers stopped were not residents of Connecticut. Granby's proportion of out-of-state drivers stopped is among the 10 highest in Connecticut.

Of the 16 officers that reported traffic stops, only four officers exceeded the town-wide average in terms of minority drivers stopped. In particular, these four officers accounted for 49% of all the stops made in Granby and 66% of all the minority stops in Granby.

Non-Resident Component of Granby Traffic Stops

Granby's traffic stop data tends to reflect two basic influences: (1) an extremely low non-white driving age resident population and (2) the relatively large proportion of non-Granby residents who make up the majority of people who were stopped in Granby. Granby's resident driving age population is estimated as 96.8% white, 0.9% black, 0.9% Asian/Pacific Islander, and 1.4% Hispanic. The demographics of the Granby residents who were stopped during the study year follow the population distribution fairly closely (97.5% white, 1.6% black, 0.5% Asian/Pacific Islander, and 0.5% Hispanic). Thus, Granby's overall minority driver stop demographics (5.8% black, 0.5% Asian/Pacific Islander, 0.1% Indian American, 2.5% Hispanic) are primarily driven by the demographics of the non-Granby residents stopped, both out-of-state drivers and Connecticut residents who live in communities other than Granby. The demographics of drivers stopped who were not Granby residents were as follows: 87.0% white, 8.2% black, 0.5% Asian/Pacific Islander, 0.1% Indian American, and 4.2% Hispanic.

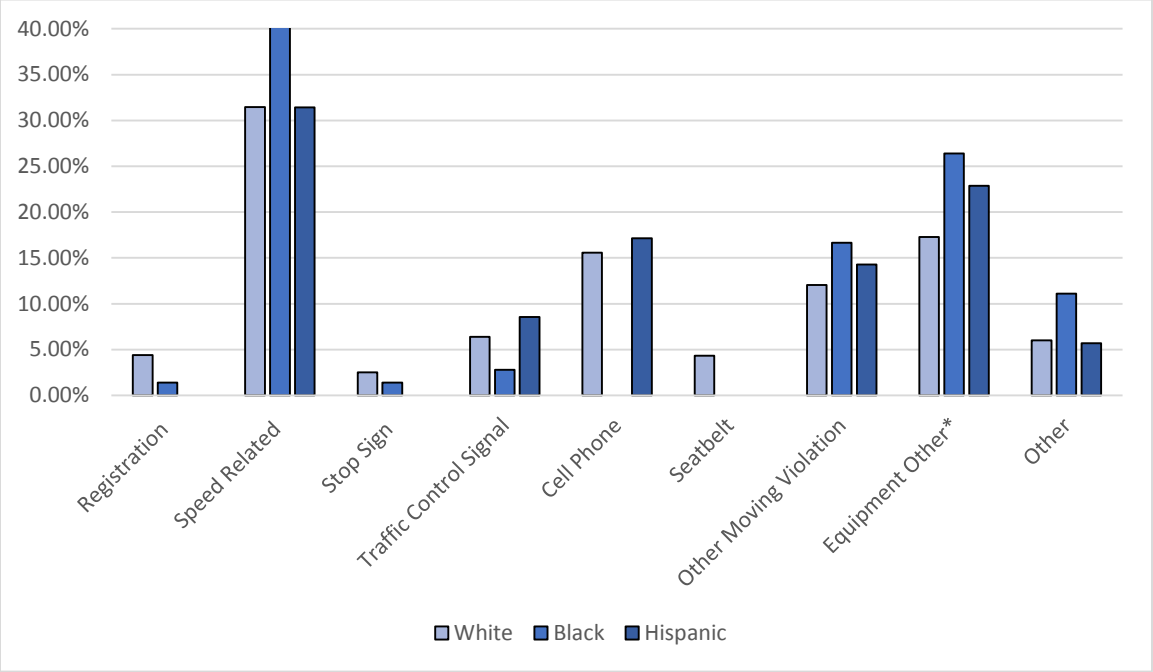
The Route 20 and Route 10/202 corridors appear to have the greatest influence on the non-Granby resident component of the stop demographics with 74% of the drivers stopped on Route 20 and 67% of the drivers stopped on Route 10/202 not living in Granby. Route 189 has a lesser influence with 60% of the drivers stopped being non-residents, and stops at all other locations in Granby have the smallest non-resident component at 57%.

The Route 20 and Route 10/202 corridors produced 69% of the Hispanic drivers stopped in Granby, but only 47% of the black drivers stopped. The Route 10/202 and Route 189 corridors produced 74% of all the black drivers stopped in Granby.

Post-Stop Outcome Review

The reasons police use to stop a motor vehicle can vary significantly from department to department. We reviewed the statutory authority that Granby officers reported as the reason for stopping motor vehicles. The three most common reasons used for stopping a motorist in Granby make up over 62% of the total stops. The three largest stop categories were for speeding violations (33%); defective, improper, or inoperative lighting (15%); and cell phone violations (15%). Figure 3.1 illustrates the reason officers used to stop a motor vehicle by race and ethnicity.

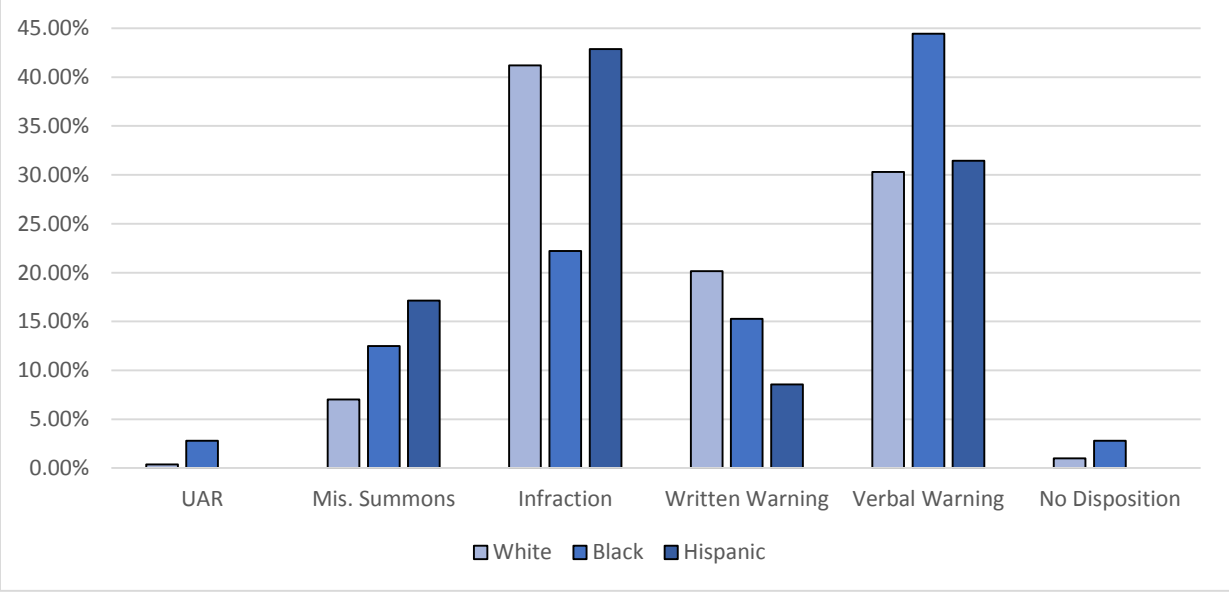
Figure 3.1: Reason for Traffic Stop



*Equipment Other includes violations for defective lights, excessive window tint, or display of plate violations.

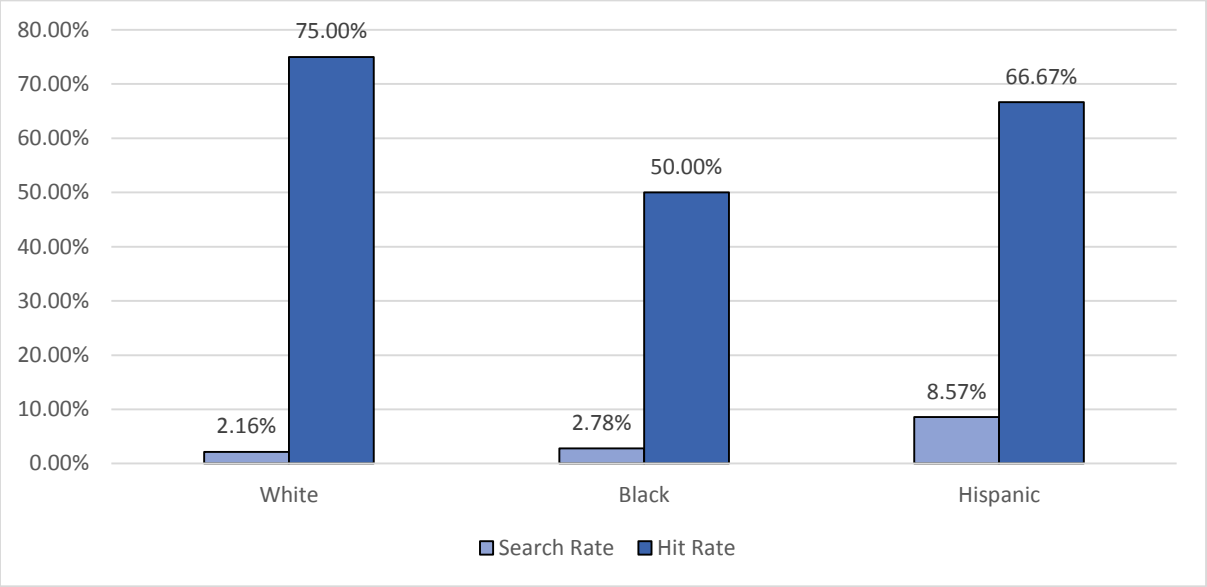
The majority of motor vehicle stops in Granby resulted in the driver receiving a written or verbal warning (51%). Figure 3.2 shows the outcomes of motor vehicle stops by race and ethnicity. Black and Hispanic drivers were more likely than white drivers to receive a misdemeanor summons as a percentage of their total stops. However, black drivers were less likely to receive an infraction citation and significantly more likely to receive a verbal warning than either white or Hispanic drivers.

Figure 3.2: Outcome of Traffic Stop



We also reviewed department search information. In particular, 2.4% (29) of the drivers stopped in Granby were subjected to a motor vehicle search. The rate of motor vehicle searches is below the state average of 2.9%. It is noteworthy that only two of the 72 black drivers and three of the 35 Hispanic drivers stopped in Granby were subjected to searches, which makes these results fairly insignificant. Figure 3.3 illustrates the motor vehicle search rate and the rate at which contraband is found.

Figure 3.3: Search and Hit Rate



Additional Contributing Factors

Law enforcement administrators choose to deploy police resources within a community based on a number of different factors. Some of these may include locations where calls for service volume, accident rates, or crime rates are higher. Traffic enforcement is likely to be more prevalent in locations that attract a greater police presence due to some of these factors. In addition to these factors, police may be more present in areas with higher traffic volume as the result of common factors that draw people into a community such as employment and entertainment. In order to provide some context for potential explanations for the deployment of police resources in Granby, we provided some basic information on crime, accidents, and other economic factors that are worth consideration.

According to the Connecticut Economic Resource Center (CERC) town profiles, Granby employs approximately 2,900 people and their major employers include a nursing home, two grocery stores, a veterinary hospital, and the local high school. The vast majority of commuters traveling into Granby for employment are from Simsbury, Hartford, and East Granby. The overall unemployment rate is currently 4.6%, which is well below the unemployment rate for Hartford County and the state.

Granby's proximity to Bradley International Airport makes it a likely pass-through community for those either using or working at the airport and who live in communities west of Granby or in southern Massachusetts. The relatively large percentage of out-of-state drivers (16.4%) and Connecticut residents who live somewhere other than Granby (48.1%) among those stopped in

Granby during the study year is likely attributable to some extent to the airport's influence as an employment and transportation hub.

In 2014, crime in Granby was reported at a rate of 861 per 100,000 residents compared to the state crime rate of 2,167 per 100,000. According to the 2014 Connecticut Uniform Crime Report[8], there were 94 reported crimes in Granby in 2014. The three most reported crimes were larceny (84), burglary (6) and aggravated assault (2).

During our study period, there were almost 150 motor vehicle accidents on roads patrolled by the Granby Police Department. Accidents were reported as occurring on a total of 28 roads, but 67% of the accidents occurred on just three roads. The roadways with the highest number of accidents were Route 10 with 37 accidents, Route 20 with 32 accidents, and Route 189 with 30 accidents. It is worth noting that traffic accidents occur on the most heavily traveled roadways in Granby. Figure 4.0 illustrates the time of day when traffic accidents were reported and the number of traffic stops that occur during that same time period. This may help to better understand how closely traffic enforcement is correlated to traffic accidents in Granby.

Figure 4.0: Accidents Compared to Traffic Stops by Time of Day

Findings and Recommendations

In the May 2015 Traffic Stop Analysis Report, application of the "Veil of Darkness" test produced a sufficiently strong result to indicate the presence of a "marginally significant" racial and ethnic disparity in Granby. This identification was sufficient to make a further analysis of the Granby data

[8] The Uniform Crime Report is an index for gauging fluctuations in the overall volume and rate of crime. The crime index includes seven offenses including the violent crimes of murder, rape, robbery, and aggravated assault and the property crimes of burglary, larceny-theft, and motor vehicle theft.

necessary. However, Granby's contribution to the overall statewide disparity was overstated in the May 2015 report. The size of the Granby "Veil of Darkness" sample, while sufficient to make the identification of the disparity in Granby statistically valid, it was not large enough to have a significant impact on the overall statewide disparity identified in the report.

It is also of significance that Granby was not identified in any of the tests or descriptive benchmarks, including the "Veil of Darkness," in the Year 2 analysis covering stops made from October 1, 2014 through September 30, 2015. Thus, the factors that may have led to the Year 1 disparities in Granby were no longer evident in the Year 2 data.

Granby has a very small resident minority driving age population. Minority drivers stopped in Granby were 90% non-residents during the study year. Although it was not possible to precisely locate many of the stops made in Granby, the available data indicates that the largest concentration of enforcement activity centered in the central business district where Routes 20, 10/202, and 189 converge. Stops on Route 10/202, which accounted for one third of all the stops made in Granby, tended to be more evenly distributed throughout the corridor than the stops on Routes 20 and 189.

Speeding offenses (32.5%) were the largest category of stops made in Granby. The next largest category of stops were for defective or missing vehicle lighting, display of plates, and window tinting, which tend to be stops with a higher degree of discretion for officers. While these three categories totaled 17.8% of all the stops made in Granby, they were 22% of all the stops made on Route 10/202, 19% of all the stops made on Route 189, and 16% of the stops made on Route 20. They were less prevalent in any areas of Granby other than these three corridors where stops were made (10.7%) for all other locations.

The main disparity in the Granby data with respect to stop outcomes involved black drivers. Black drivers were half as likely to receive infraction citations as their white or Hispanic counterparts but almost one third more likely to receive a verbal warning. Stops involving black and Hispanic drivers were more likely to result in a misdemeanor summons than white drivers calculated as a percentage of total stops.

Taken as a whole, the Granby traffic stop data reflects the influence of pass-through traffic that may be somewhat more diverse than the predominantly white local driving age population. While the disparities do not appear excessive in nature, there are some factors present in the data that the Granby Police Department might benefit from reviewing in more detail. Based on the Year 2 data results, we do not anticipate any further review of the Granby data at this time.

Since Granby's records management system does not appear to capture latitude and longitude for traffic stops, it is extremely important that the descriptive explanation of the stop locations be as specific as possible. While it understandably may be difficult to adequately capture a street address or cross street in some sections of Granby that are more rural, it is recommended that Granby take steps to review and improve its ability to capture more precise locations for its traffic stops.

II.B (3): GROTON TOWN FOLLOW-UP ANALYSIS SUMMARY

The follow-up analysis presented below continued to review traffic stops conducted from October 1, 2013 – September 30, 2014. An additional 12 months of data has been collected and analyzed in Part I of this report. Below is a summary of reported traffic stops for Groton Town over a two-year period.

	2013-2014 Traffic Stop Records		2014-2015 Traffic Stop Records	
White Non-Hispanic	4,770	76.3%	4,558	77.27%
Black Non-Hispanic	817	13.1%	701	11.88%
AsPac Non-Hispanic*	146	2.3%	0	0.00%
AI/AN Non-Hispanic*	0	0.0%	140	2.37%
Hispanic	519	8.3%	500	8.48%
Total	6,252		5,899	

*We take note of an apparent anomaly in the Year 1 and Year 2 data as it relates to the Asian/Pacific Islander and American Indian/Alaskan Native racial categories, which may be due to an error in the way these records were entered into the system. The data in the above table accurately reflects the data for the two years as the department entered it.

Overview of the April 2015 Traffic Stop Analysis

The April 2015 Traffic Stop Analysis Report indicates that for the October 1, 2013 to September 30, 2014 study period, a total of 6,252 traffic stops were made by the Groton Town Police Department. These included 23.7% stops of minority drivers of which 8.3% were Hispanic and 13.1% were black motorists.[9] The results from the "Veil of Darkness" test indicated that minority motorists, across all racial and ethnic categories, were more likely to have been stopped during daylight hours as opposed to darkness hours. The results were robust to the inclusion of a variety of controls and sample restriction that excluded equipment violations. Although the post-stop analysis could not be conducted due to an insufficient sample of vehicular searches, the analysis using the "Veil of Darkness" produced sufficiently strong results to indicate the presence of a significant racial and ethnic disparity in Groton. The results of the analysis indicated that further investigation into the source of the observed statistical disparity was warranted.

Descriptive Analysis of the 2013-2014 Traffic Stop Data

The racial and ethnic disparities in the Groton Town Police Department data were explored through a more detailed look at traffic enforcement during the original study period. Part of this analysis involves mapping all stops, if possible, using the location data provided by the department and any enhancements to this data we were able to make. In Groton's case, we were able to map exact locations for 78% of the traffic stops reported. In most cases, geographical coordinates were not provided to us and traffic stops were manually mapped using the officer's description of the location of the stop. In 22% of the reported traffic stops (1,352 stops), the description was too vague and therefore researchers could not identify geographical coordinates that would identify in which census tracts the stops occurred. Almost 600 of the 1,352 stops that could not be mapped occurred on the Route 12 corridor. Although mapping 100% of stops would be ideal for analytical purposes, the 78% of stops that could be mapped provide more than an adequate analytical base. The racial and ethnic demographics of the stops that could not be mapped did not vary significantly from the stops that could be mapped, being slightly less black and slightly more Hispanic and Asian. The

[9] These results do not include stops for the police departments with jurisdiction over Groton Long Point or Groton City.

combined demographic for minority drivers in the non-mapped sample was only 0.9% higher than the mapped sample, so their overall effect was quite small.

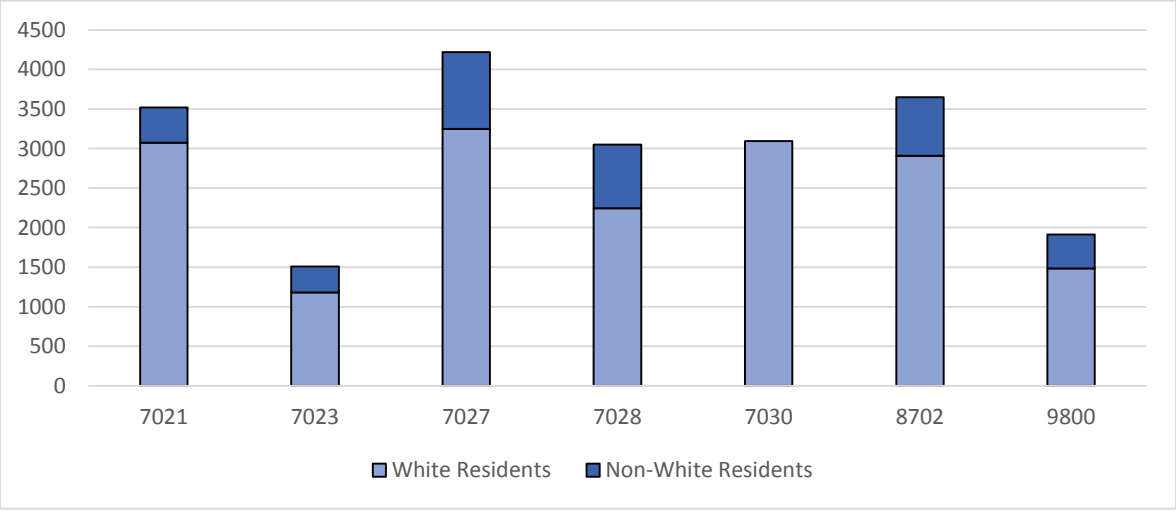
Although Groton Town has its own police department, the U.S. census counts the residents of Groton Town with the residents of Groton City and Groton Long Point. According to the 2010 census, Groton has approximately 30,948 residents over the age of 16. Approximately 19% of the driving age population in Groton is identified as a minority. Figure 1.0 outlines the basic demographic information for Groton residents over 16.

Figure 1.0: Groton Population

Race/Ethnicity	16+ Population Total	% Population Total
White Non-Hispanic	25,093	81.1%
Black Non-Hispanic	1,820	5.9%
AsPac Non-Hispanic	1,795	5.8%
Hispanic	2,240	7.2%
Other	0	0.0%
Total	30,948	

The U.S. Census Bureau divides Groton into 11 census tracts. However, the borders for Groton Town include only seven of the 11 census tracts. Census Tracts 7024, 7025, and 7026 make up the boundaries for Groton City, which has its own police department. Census Tract 7029 makes up the boundaries for Groton Long Point, which also has its own police department. Census Tract 7025 in Groton City has the highest proportion of minority driving age residents in the municipality (40% overall, made up of 17.9% Hispanics, 12.1% blacks, and 9.97% Asian/Pacific Islander). Figure 2.0 shows the resident population for the census tracts within the boundaries of Groton Town. The resident driving age population varies from one census tract to another from about 1,500 to 4,000 people. The demographic breakdown of each census tract varies as well, from 0% minority in tract 7030 to 24.6% minority in tract 7028.

Figure 2.0: 16+ Resident Population by Census Tract



Four other municipalities share a common border with Groton, including Ledyard to its north, Stonington to its east, and New London and Waterford to its west. With the exception of New London,

the three other border towns are predominantly white demographically, with an average driving age white population of 91% (compared to Groton's white driving age population of 80%). New London borders the western portion of Groton, with the two towns separated by the Thames River. New London has a white driving age population of 56%.

Approximately 41% of the drivers stopped in Groton were residents of Groton. The other 59% of drivers stopped were not residents, including non-state residents. Just over 8.5% of the drivers stopped by Groton Town were not Connecticut residents. The demographics of the non-Connecticut residents stopped in Groton Town were 3.8% more Asian than the state residents stopped, but 4.2% less Hispanic. They were virtually identical to state residents with respect to black and white drivers. The non-Connecticut residents had their largest presence in terms of their proportion of those stopped in Census Tracts 7023 (12.5%) and 7030 (11.2%). The influence of the non-Connecticut residents had virtually no effect on the overall data in Census Tract 7030 compared to state residents only, and only a minor effect in Census Tract 7023 where it increased the Asian and black demographic by less than one percentage point each but decreased the Hispanic demographic by just over one percentage point.

Census Tract 9800 in Groton contains the New London Naval Submarine Base. During our meeting with the department, the town expressed concerns regarding the accuracy of the population count for Census Tract 9800. The town has struggled with the U.S. Census Bureau to identify the most accurate population figures for this tract since the 2000 census. Groton Town believes that many naval personnel on the Base may tend to identify their actual home as other than the Base, even though they live on base most of the year. According to the United States Navy, the New London Submarine Base has approximately 6,500 military personnel and 1,000 civilian employees. They state that approximately 40% of the military personnel live on the Base. It is considered one of the largest employers in Southeastern Connecticut.

Two large employers that are major traffic generators in Groton include General Dynamic Electric Boat and Pfizer Corporation. General Dynamic Electric Boat has a 118-acre facility in Groton with approximately 7,500 individuals employed. The town also indicated that there are approximately 6,500 people that travel in and out of the Pfizer Corporation on a daily basis. Both companies are physically located within the boundaries of Groton City. A portion of the highway access to these two large employers runs through Census Tract 7027 in Groton Town.

The village of Mystic is also a major traffic generator for the eastern side of Groton, especially during the summer months. The small village is part of both Groton and Stonington. It is a tourism destination, and the traffic from Mystic most heavily impacts the northeast portion of Route 1 in Groton.

Figure 3.1 illustrates the volume of Groton Town's traffic enforcement that occurs in each census tract. Census Tract 7027 contributes the largest percentage of traffic enforcement with 22% of all the traffic stops. This tract borders Groton City and includes Route 1 and access to I-95. The majority of the traffic stops in this census tract occurred on Route 1.

Census Tracts 7021, 7023, and 7030 each contribute about 12% of the total traffic stop activity. Tract 7021 covers a large portion of eastern Groton north of I-95 with traffic enforcement concentrated on the Gold Star Highway and North Road. Tract 7023 borders the southern boundary of the Naval Base and is bounded on the east by Route 12 where most traffic stops in this census tract occur. Lastly,

tract 7030 borders Stonington south of I-95 and includes the eastern portion of Route 1, where the majority of traffic enforcement is focused.

Although 1,352 traffic stops were unable to be mapped, almost 600 of those stops occurred on Route 12, which runs from the northwest corner of Groton near the Naval Submarine Base until it merges with Route 1 just south of I-95. Route 12 and Route 1 are the roadways with the largest number of traffic stops in Groton Town.

Figure 3.1 shows little or no traffic enforcement in Census Tracts 7024, 7025, 7026, and 7029 because the Groton City or Groton Long Point Police Departments patrol those census tracts. The Groton Town Police Department patrols the remaining census tracts.

Figure 3.1: Traffic Stops by Census Tract

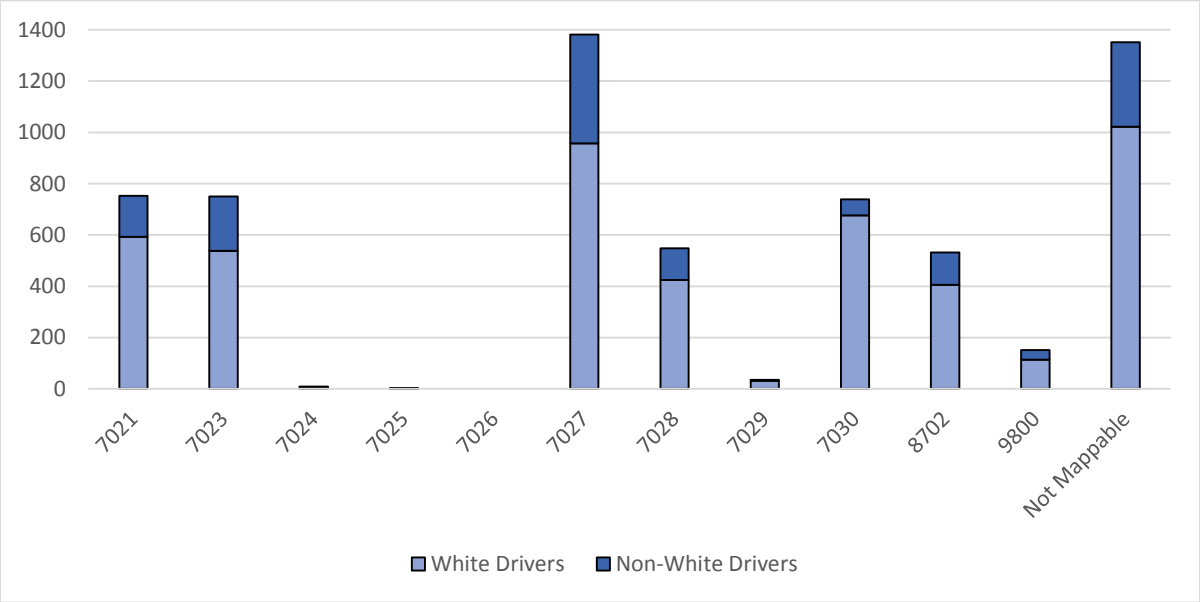
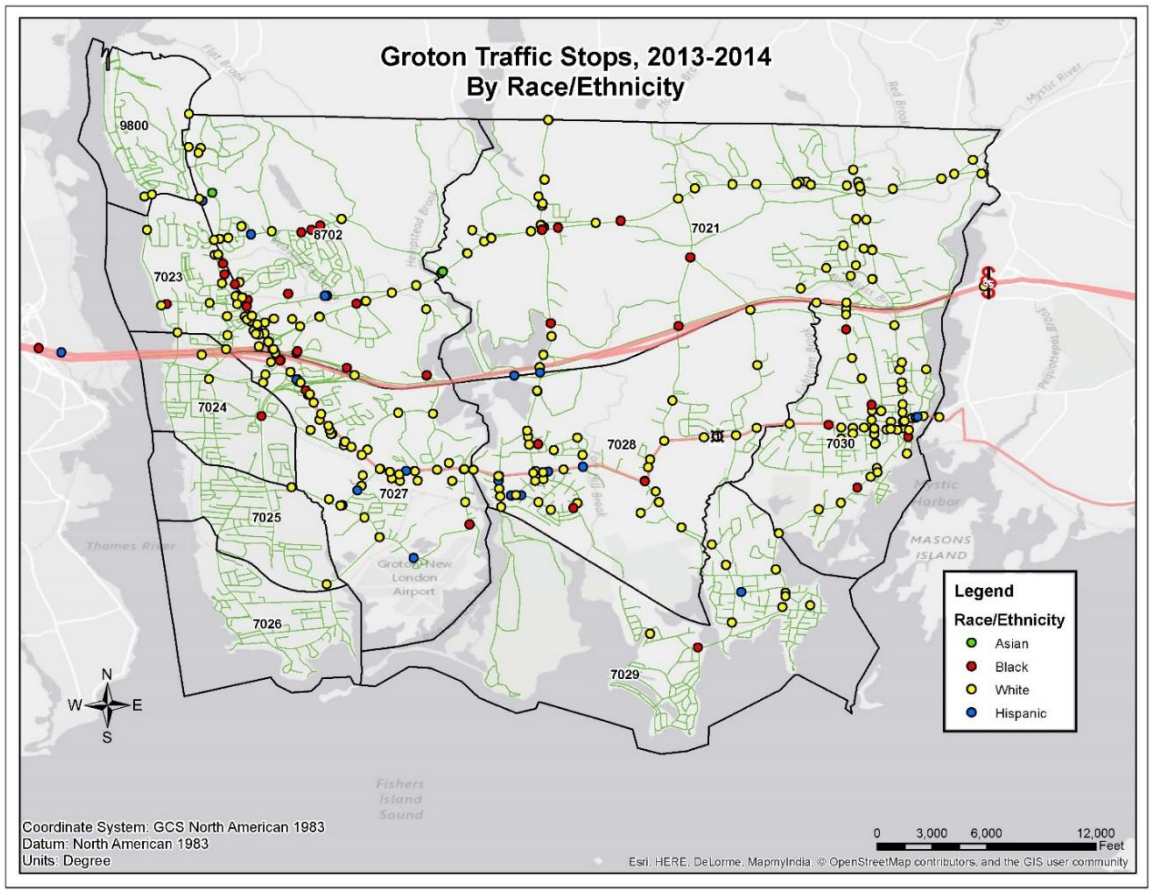


Figure 3.2 maps traffic stops made by the Groton Town Police Department. Census Tract 7027 has the largest percentage of driving age residents living within its boundaries with 14% of the Groton population. Although tract 7027 makes up 14% of the population, it accounts for 24% of the resident stops in Groton. Groton's resident population is 19% minority; however, 23% of the residents stopped were minority. Minority drivers in six out of seven census tracts were stopped more than the percentage of minority residents living in that census tract.

Figure 3.2: Traffic Stop Map

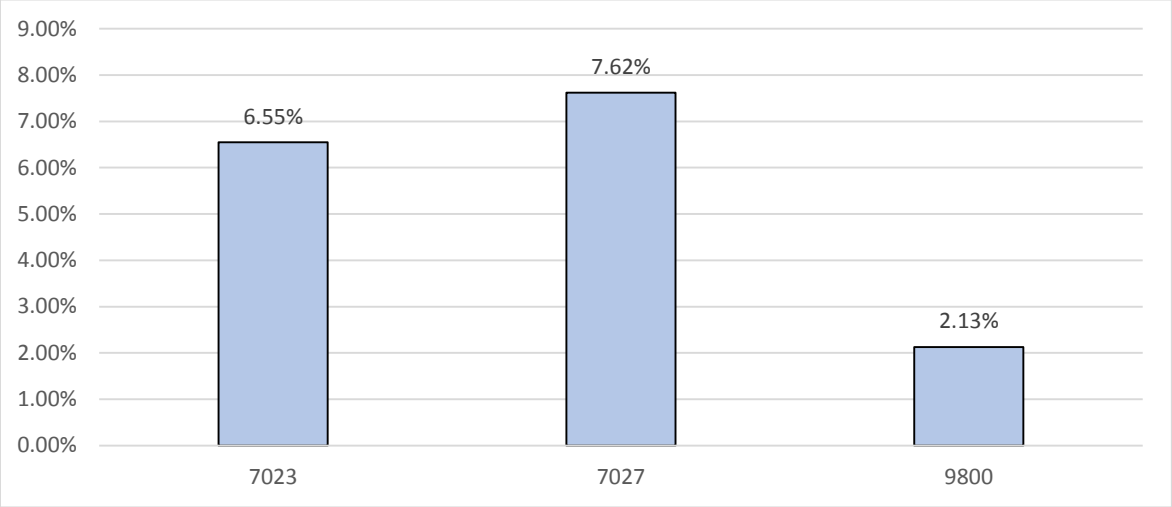


Traffic Stop Breakdown by Race/Ethnicity

In Groton Town, 23.7% of all drivers stopped were minority. Minority drivers are classified as all non-white drivers, but this is predominantly made up of black or Hispanic drivers. The resident population (16+) of the municipality of Groton as a whole is 19% minority, but two of the three largest proportions of minority population live within the census tracts of Groton City (40% in 7025 and 23.5% in 7024). Census Tract 7027, which has the highest level of traffic enforcement activity, also has the largest percentage of minority stops.

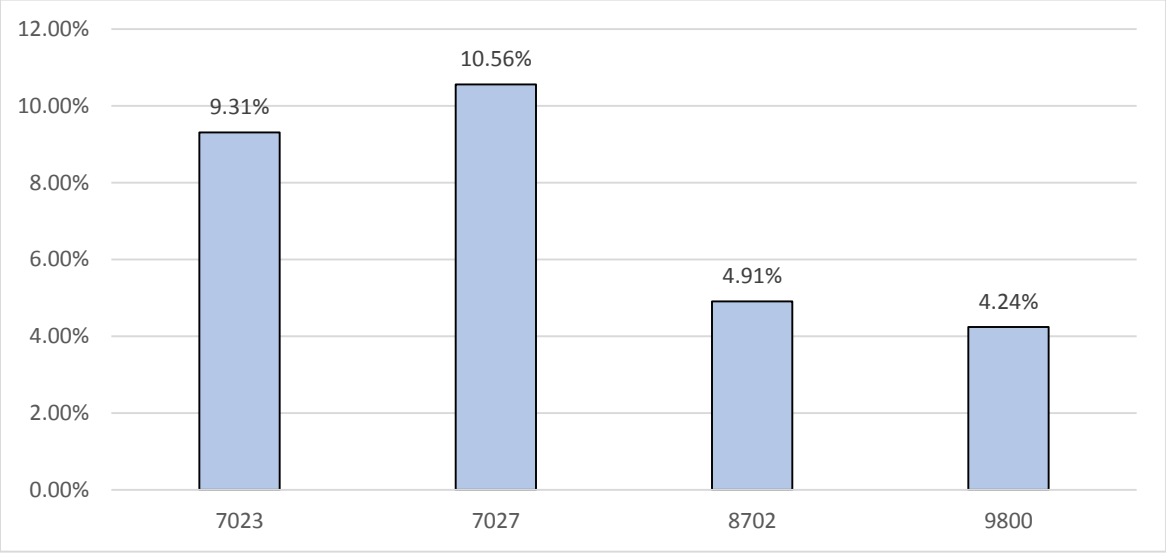
Taken individually, some of the census tracts with high proportions of minority drivers stopped and high to moderate enforcement activity tend to reflect the high proportions of the minority population, but a few do not. Figure 4.1 highlights the disparity between the minority population and percent of minorities stopped in the three census tracts where the minority stop percentage exceeded the town wide average of 23.7%. The greatest disparity of 7.62% was in tract 7027, where 30.7% of the stops involved minority drivers while the minority driving age population was only 23.1%. Tract 7027 has the highest volume of traffic enforcement in Groton Town. It also borders tract 7025 in Groton City, which has the largest proportion of minority driving age residents within the geographic borders of Groton (more than twice the town-wide average of 18.9%). This appears to have affected the disparity in 7027, although it was not possible to determine the exact nature of the effect from the data available.

Figure 4.1: Disparity Between Minority Drivers Stopped and Census Tract Population



The overall percentage of Groton Town traffic stops involving black drivers was 13.1%. The percentage of black drivers stopped exceeded the town average in four of the seven census tracts that cover Groton Town. Figure 4.2 shows how the proportion of black stops made in four of the seven census tracts compares to the proportion of black driving age residents living within the tracts. As can be seen from the comparison, the relative difference between the proportion of stops involving black drivers and the proportion of the black population living within the census tract was higher in each of the four census tracts. The greatest disparity of 10.6% was in tract 7027, where 16.7% of the stops involved black drivers while the black driving age population was only 6.1%. Tract 7027 has the highest volume of traffic enforcement in Groton Town. It also borders tract 7025 in Groton City, which has the largest proportion of black driving age residents within the geographic borders of Groton (more than twice the town-wide average). This appears to have affected the disparity in 7027, although it was not possible to determine the exact nature of the effect from the data available.

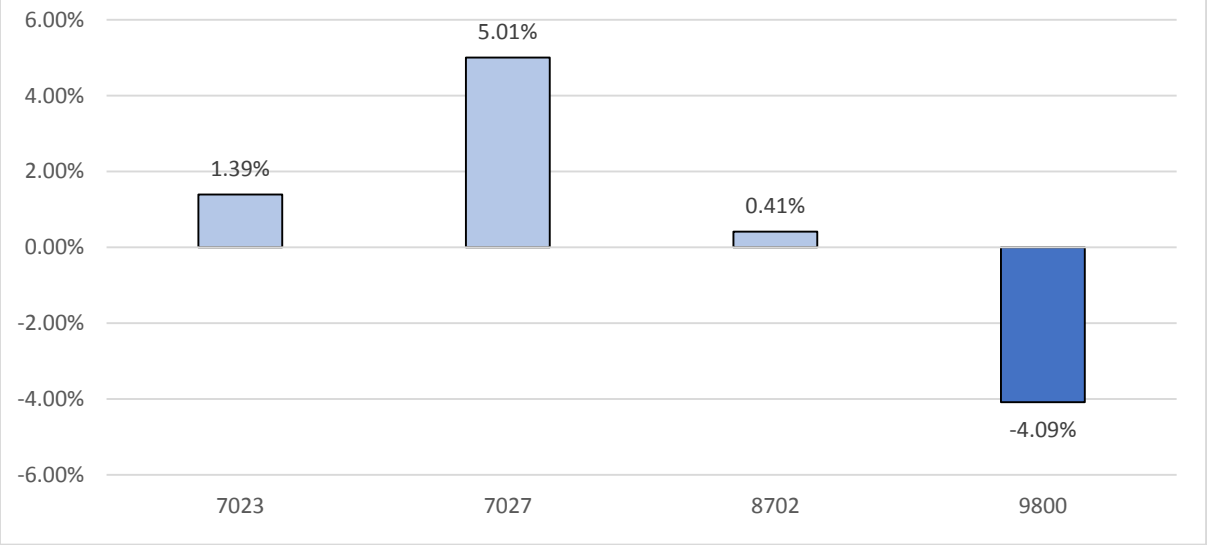
Figure 4.2: Disparity Between Black Drivers Stopped and Census Tract Population



The overall percentage of Groton Town traffic stops involving Hispanic drivers was 8.3%. The percentage of Hispanic drivers stopped exceeded the town average in four of the seven census tracts. Three of the four census tracts exceeded the town-wide average by less than one percentage point.

Figure 4.3 shows how the proportion of Hispanic stops made in these four census tracts compares to the proportion of Hispanic driving age residents living within those census tracts. As can be seen from the data, the disparity between Hispanic stops and the localized Hispanic driving age population is a negative disparity in Census Tract 9800. Of the three census tracts where Hispanic stops exceeded the localized Hispanic population, Census Tract 7027 shows the largest disparity at 5 percentage points above the localized Hispanic population. This census tract has the highest volume of traffic enforcement in Groton Town. It also borders tract 7025 in Groton City, which has the largest proportion of Hispanic driving age residents within the geographic borders of Groton (18% compared to the town-wide average of 7.25%). This appears to have affected the disparity in 7027, although it was not possible to determine the exact nature of the effect from the data available.

Figure 4.3: Disparity between Hispanic Drivers Stopped and Census Tract Population



Highway Corridor Analysis

To augment the census tract-based analysis, we also conducted an individual analysis of the three highway corridors where the greatest number of traffic stops were made. These three corridors were Route 12, Route 184 (Goldstar Highway), and Route 1 (various local road names).

Route 12 is north of I-95 and forms the border of three census tracts (9800, 7023, and 8702). The Naval Submarine Base and much of the housing for naval families is located off Route 12. A total of 1,512 traffic stops were made along the Route 12 corridor during the study year, which was 24% of total stops made. The stops made in the Route 12 corridor included slightly more non-state residents than the town as a whole (10.9% compared to 8.5%) and also involved a higher proportion of black and Hispanic drivers than the town-wide average. Black drivers accounted for 15.8% of the Route 12 stops (compared to the town average of 13.1%). Hispanic drivers accounted for 9.2% of the Route 12 stops (compared to the town average of 8.3%). The presence of the Submarine Base influences these numbers to some extent, but the difference between the Route 12 numbers and the overall town numbers is not a dramatic one.

Route 184 runs northeasterly through Groton from I-95 to the Stonington town line. It runs through Census Tracts 8702 and 7021 and cuts briefly through a corner of tract 7023 where it intersects with Route 12 before it meets I-95. It accounted for 868 of the stops made in Groton Town (14%). Of the drivers stopped in the Route 184 corridor, 68.5% were not residents of Groton, which was well above the town average of 59% and more than either the Route 12 or Route 1 corridors. The high proportion of non-residents suggests that Route 184 may serve as a commuter route for those who live east of Groton and work at Pfizer or Electric Boat in Groton City. The demographics of the drivers stopped in the Route 184 corridor mirror the overall town-wide stop demographics extremely closely (0.7% less black, 0.3% more white and Asian, and 0.1% more Hispanic).

The Route 1 corridor runs east-west through Groton and goes under several local road names, including Long Hill Road, Poquonnock Road, Fort Hill Road, New London Road, and West Main Street. Just over 30% of all the stops made by the Groton Town police occurred either on the Route 1 corridor or on a crossing street where it intersected with Route 1. Route 1 passes primarily through Census Tracts 7027, 7028, and 7030, but two-thirds of all stops were made in the heavily travelled western end of the corridor located in Census Tract 7027. Of the drivers stopped in the corridor, 53% were not residents of Groton, which was six percentage points less than the town-wide average of 59%. Driver demographics for those stopped in the Route 1 corridor differed slightly from the overall town-wide demographics. The Route 1 stops showed 3% fewer white drivers stopped, 1% higher results for both Hispanic and Asian drivers, and just over 1% higher results for black drivers.

Traffic Stop Distribution for Groton Town Officers

Groton's total of 6,252 traffic stops is comparable to other towns of its size. During the study period, traffic stop data was reported for 69 officers. The average number of stops made per officer was 91. Of these officers, 24 made fewer than 20 stops, 11 made between 20 and 50 stops, 12 made between 50 and 100 stops, and 22 made over 100 stops. There were 11 officers that made more than 200 stops, and combined they accounted for 55% of the Groton Town stops. There were two officers that made 539 and 549 stops each, which accounted for 17% of all traffic stops.

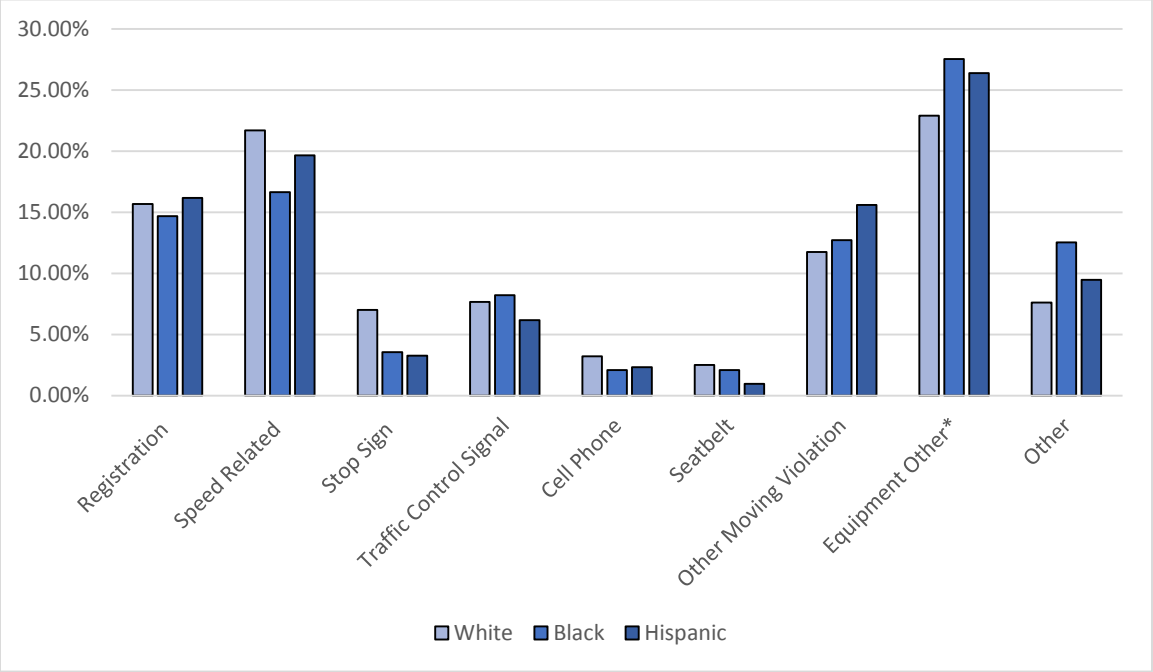
Reasons for Stops

The reasons police use to stop a motor vehicle can vary significantly from department to department. We reviewed the statutory authority that an officer reported as the reason for stopping a motor vehicle and found that the three most common reasons for stopping a motorist in Groton Town made up over 55% of the total stops. Those included stops as the result of a speed related violation (21%); defective, inoperative or improper lighting equipment (19%); and registration violations (15%). Figure 5.0 illustrates the reason officers used to stop a motor vehicle by race and ethnicity.

Violations related to defective, missing, or inoperative lighting; display of plates; and excessive window tinting, for the most part, involve a higher level of officer discretion than violations relating more directly to hazardous or dangerous vehicle operation. As noted above, light-related violations (18.8%) were second only to speeding as a cause of traffic stops in Groton. When the other two categories (plate display and window tinting) are added to the light-related stops, the total of 1,485 stops represents 24% of all the stops made. If officers choose to make these types of stops more frequently in areas where larger minority populations exist, it can have an effect on the size of disparities.

Unfortunately, about one third of these types of stops lacked specific enough location details to permit an analysis based on census tract-localized population demographics. Nonetheless, at least 36% of these types of stops could still be attributed to Census Tracts 7023 and 7027, which have the two largest localized minority populations within Groton Town itself. Taken as a whole, these types of stops appeared to affect minority drivers to a slightly greater extent than they did white drivers. Minority drivers comprised 26.4% of those stopped for these types of violations and 22.9% of those stopped for all other types of violations, a difference of 3.5 percentage points.

Figure 5.0: Reason for Traffic Stop

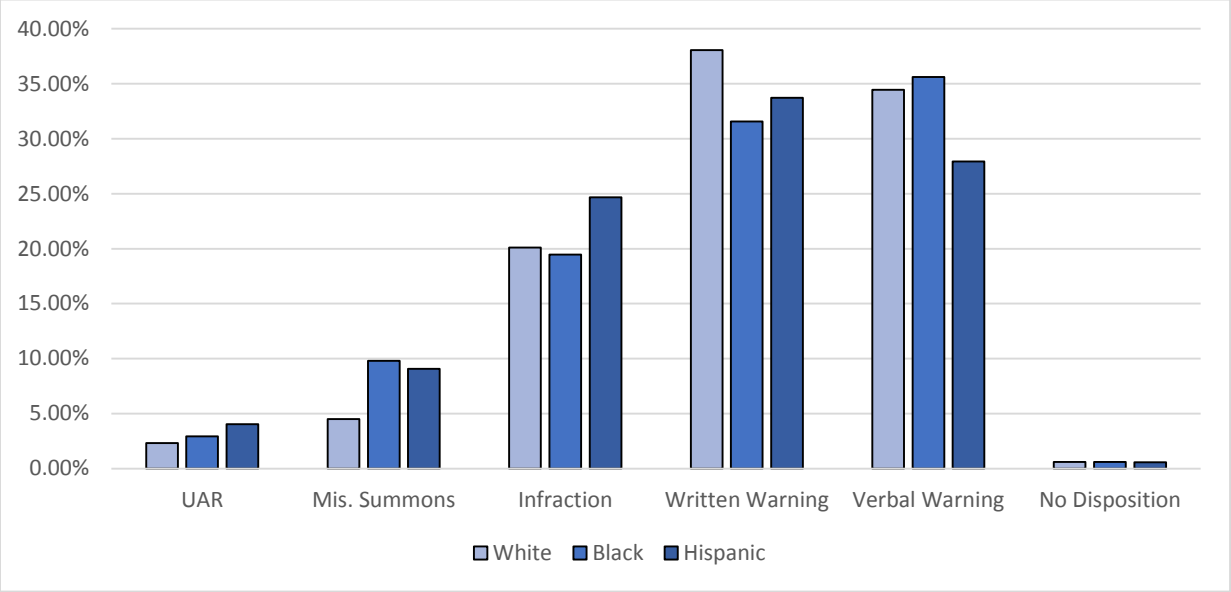


*Equipment Other includes violations for defective lights, excessive window tint, or display of plate violations.

Post-Stop Outcome Review

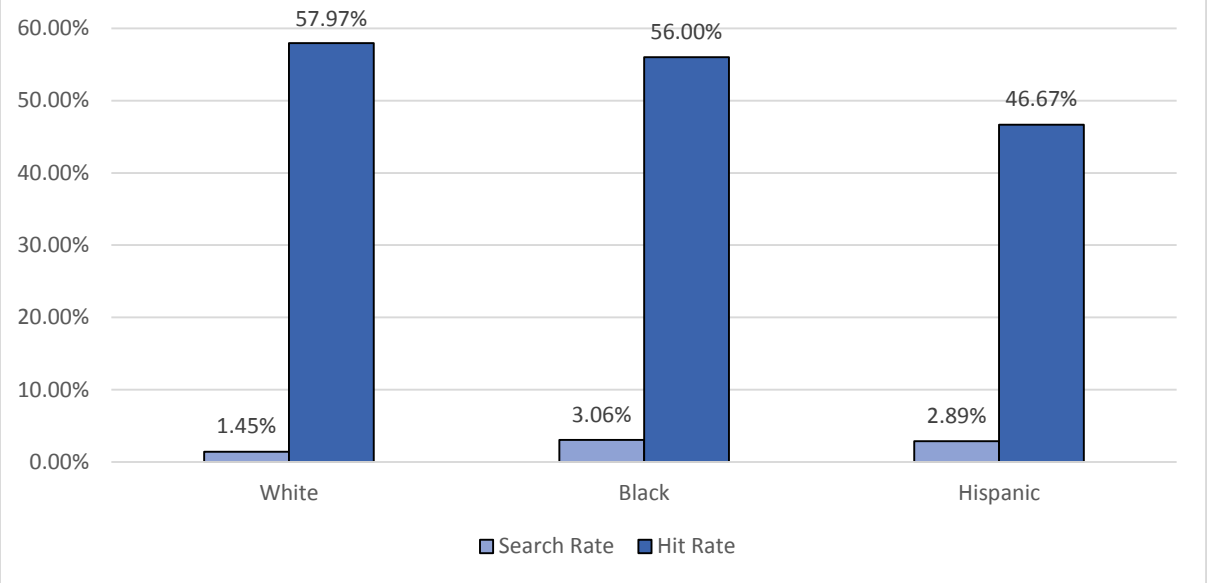
The majority of motor vehicle stops in Groton Town resulted in the driver receiving either a written or verbal warning (71%). Figure 6.1 shows the outcome of motor vehicle stops by race and ethnicity. Black and Hispanic drivers were more likely to receive a misdemeanor summons as a percentage of their total stops. However, black drivers were less likely to receive an infraction citation compared to Hispanic drivers and about equally likely to receive one as white drivers. Stops involving Hispanic drivers were more likely to result in an infraction citation and less likely to result in a verbal warning than either black or white drivers.

Figure 6.1: Outcome of Traffic Stop



In addition, we also reviewed department search information. In particular, less than 2% (110) of the drivers stopped in Groton Town were subjected to a motor vehicle search. The rate of motor vehicle searches was below the state average of 2.9%, but minority drivers were searched at approximately twice the rate of white drivers. Contraband was found at a slightly lower rate when a minority driver's vehicle was searched, although the difference was more apparent for Hispanic drivers. Figure 6.2 illustrates the motor vehicle search rate and the rate at which contraband was found.

Figure 6.2: Search and Hit Rate



Additional Contributing Factors

Law enforcement administrators choose to deploy police resources within a community based on a number of different factors. Some of these may include locations where call for service volume,

accident rates, or crime rates are higher. Traffic enforcement is likely to be more prevalent in locations that attract a greater police presence due to some of these factors. In addition to these factors, police may be more present in areas with higher traffic volume as the result of common factors that draw people into a community such as employment and entertainment. In order to provide some context for potential explanations for the deployment of police resources in Groton, we provided some basic information on crime, accidents, and other economic factors that are worth consideration.

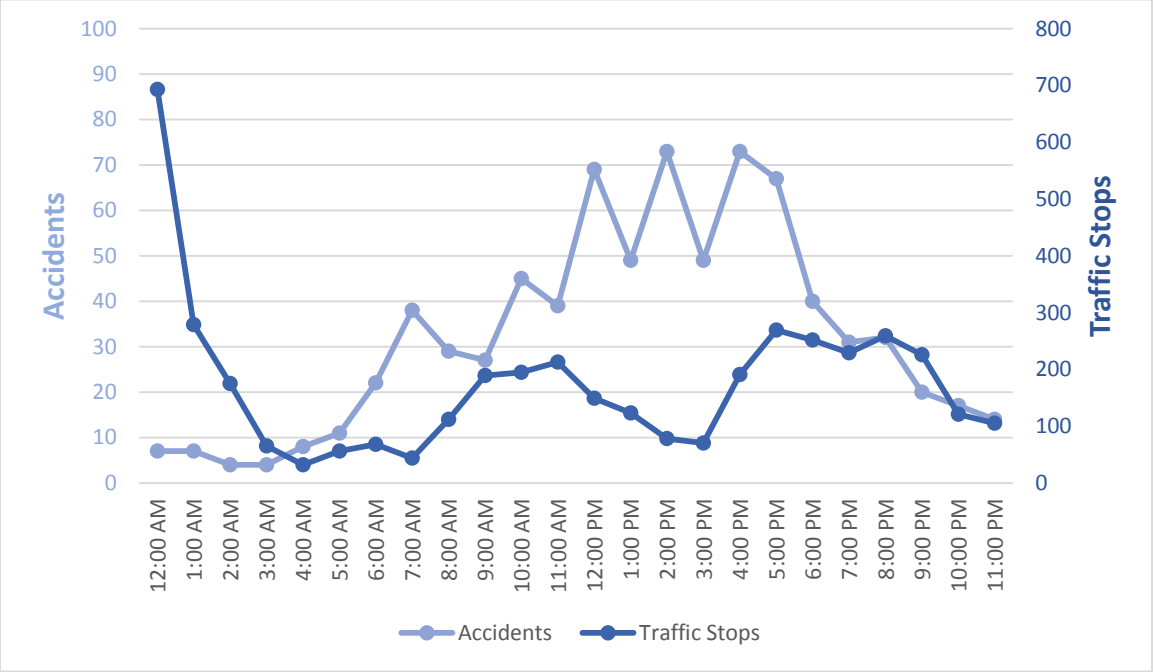
According to the Connecticut Economic Resource Center (CERC) town profiles, Groton employs approximately 29,000 people and their major employers include Pfizer Inc., Electric Boat Corporation, Mystic Seaport, and the Naval Submarine Base. The vast majority of commuters traveling into Groton for employment are from Stonington, Ledyard, New London, Waterford, and Norwich. The overall unemployment rate is 6.1%, which is just below the unemployment rate for New London County and the state.

In 2014, crime in Groton was reported at a rate of 190.8 per 10,000 residents compared to the state crime rate of 216.7 per 10,000 residents. According to the 2014 Connecticut Uniform Crime Report[10], there were 613 crimes reported to the Groton Town Police Department in 2014. The three most reported crimes were larceny (474), burglary (62), and motor vehicle theft (35).

During our study period, there were approximately 775 motor vehicle accidents on roads patrolled by the Groton Town Police Department. Accidents were reported as occurring on a total of 110 roads, but 54% of the accidents occurred on just three roads. The roadways with the highest number of accidents were Route 1 with 173 accidents, Route 12 with 136 accidents, and Route 184 with 109 accidents. These three roads also had the majority of the Groton traffic stops. There were 10 roads with 10 or more accidents and those roads accounted for 73% of all accidents. Figure 7.0 illustrates the time of day when traffic accidents were reported and the number of traffic stops that occurred during that same time period. This may help to better understand how closely traffic enforcement is correlated to traffic accidents in Groton Town.

[10] The Uniform Crime Report is an index for gauging fluctuations in the overall volume and rate of crime. The crime index includes seven offenses including the violent crimes of murder, rape, robbery, and aggravated assault and the property crimes of burglary, larceny-theft, and motor vehicle theft.

Figure 7.0: Accident's compared to Traffic Stops by Time of Day



Findings and Recommendations

Groton is a town with many unique characteristics that directly impact policing. Groton has three distinct police departments, each with their own headquarters and command structure. The Groton Town Police Department patrols the largest geographical area of the town. It is evident that there are several factors contributing to traffic enforcement patterns by the Groton Town Police Department. Traffic enforcement seems to be focused on several heavily traveled roads in Groton including Route 1, Route 12, and the Gold Star Highway (Route 184).

Almost one quarter of all traffic stops occurred in the census tract that includes the busy western portion of Route 1. The adjacent census tract with the largest minority resident population is within the boundaries patrolled by the Groton City Police Department. This census tract (7025) borders the section of Groton Town where traffic enforcement is heaviest on Route 1. This portion of Route 1 is just south of I-95, approximately 3 miles long, and is a major draw for people living in or traveling through the area due to shopping, entertainment, and other major traffic generators.

The other portion of town with a large percentage of motor vehicle enforcement is Route 12. Route 12 is north of I-95 and runs along three census tracts. The Naval Submarine Base and much of the housing for naval families is located off Route 12. Groton made a total of 1,512 traffic stops along the Route 12 corridor during the study year, which was 24% of all the stops made. The stops made in the Route 12 corridor included slightly more non-state residents than the town as a whole (10.9% compared to 8.5%) and also involved a higher proportion of black and Hispanic drivers than the town-wide average. Black drivers accounted for 15.8% of the Route 12 stops (compared to the town average of 13.1%). Hispanic drivers accounted for 9.2% of the Route 12 stops (compared to the town average of 8.3%). The presence of the Submarine Base influences these numbers to some extent but the difference between the Route 12 numbers and the overall town numbers is not a dramatic one.

Approximately 8.5% of the drivers stopped in Groton during the study period were not residents of Connecticut. A significant portion of this is likely due to the presence of personnel assigned to the Naval Base in the northeastern part of the town and the influence of Mystic along the eastern border. However, the demographics of the non-state residents who were stopped, while more Asian and less Hispanic than the state residents stopped in Groton Town, did not have a significant effect on either the overall town-wide data or the two census tracts (7023 and 7030) where they had the largest presence in terms of proportion of the stops made in those tracts.

Groton had 69 officers that reported making traffic stops, but it is evident that motor vehicle enforcement is largely impacted by a relatively small number of those officers. Two officers account for 17% of all traffic stops and 10 officers account for more than 50% of the stops.

In addition to understanding the location of motor vehicle stops it is also important that we understand the result of those motor vehicle stops. In particular, white non-Hispanic drivers are more likely than minority drivers to be stopped for speeding, cell phone, stop sign, and seat belt violations. On the other hand, minority drivers are more likely than white drivers to be stopped for traffic control signal, equipment, and other violations.

Stop Outcomes

With respect to stop outcomes, minority drivers were more likely to receive a misdemeanor summons, whereas white drivers were more likely to receive a written warning. Black drivers were less likely to receive an infraction citation compared to Hispanic drivers and about equally likely to receive one as white drivers. Stops involving Hispanic drivers were more likely to result in an infraction citation and less likely to result in a verbal warning than either black or white drivers.

Although Groton Town searched a smaller percentage of motor vehicles than the state average, minority drivers were searched at a higher rate than white drivers. The rate of contraband found was slightly higher when white drivers were searched. The success rate for black drivers was two percentage points lower than white drivers. The largest disparity in successful searches was for Hispanic drivers (11 percentage points lower than white drivers and more than nine percentage points lower than black drivers). It is recommended that the Groton Town Police Department review and evaluate this search data to gain a more complete understanding of if its search policies affect minority drivers differently.

Year 1 Veil of Darkness Test Results

Groton was identified for further data review in the April 2015 Traffic Stop Analysis Report through application of the "Veil of Darkness" test, which indicated that minority motorists across all racial and ethnic categories were more likely to have been stopped during daylight hours as opposed to darkness hours. These results were considered sufficient to warrant further detailed analysis of the stop data. During this analysis, it was discovered that 601 stops (9.6%) had been incorrectly recorded with respect to the time of day at which they occurred. These stops had all been recorded in the database that was submitted to the state with a default time of 12:00 AM. While a small number of these stops no doubt occurred at 12:00 AM, many of them clearly did not. The demographics of the stops differed slightly from the overall Groton Town stop demographics, being more white (+4.4%) and black (+1.9%), but less Asian (-0.6%) and Hispanic (-0.8%).

It is impossible to determine how many of these stops actually may have occurred during the "Veil of Darkness" sample period. Thus it is also impossible to determine if the "Veil of Darkness" results

would have been affected positively, negatively, or at all, had the intervention times of these stops been properly recorded. The issue was discussed during our meetings with the department administrators and it was corrected. Groton Town was not identified through the "Veil of Darkness" test in Year 2, although we do not know if this was due to changing stop demographics or correction of the Year 1 data error.

Improving Data and Supporting Information

Analyzing the Year 1 Groton Town data identified some issues with regard to the location descriptions that were provided for a portion of their traffic stops, the lack of specificity of which hampered the analysis. These issues were discussed during our meetings with department administrators and appear to have been substantially resolved. Should future analysis of Groton stop data be necessary, improved location data will improve the quality of the analysis.

Conclusion

Groton Town was identified in Year 1 through the "Veil of Darkness" test, but it did not reappear in the test results for Year 2. While the Year 1 test results were valid, there is uncertainty of the extent to which the many stops whose intervention times were incorrectly entered into the database may have affected the Year 1 results, whether positively or negatively. Groton Town also was not identified in Year 2 using any of the other measures or descriptive benchmarks, nor was it identified through these benchmarks in Year 1.

While this analysis examined some of the disparities in the overall stop data for Groton Town on a more granular level with respect to where they occurred in the town, the disparities are explainable to some degree by the extent to which non-residents of Groton and non-Connecticut residents are present in the community for employment and recreational reasons as well as the unique nature of the policing structure within the geographic boundaries of the municipality. While we recommend that the Groton Town Police Department review both its significant use of higher discretion vehicle equipment stops and its search policies to evaluate if they affect minority drivers in a disparate way, we anticipate no further need to monitor or review Groton Town stop data at this time.

II.B (4): HAMDEN FOLLOW-UP ANALYSIS SUMMARY

The follow-up analysis presented below continued to review traffic stops conducted from October 1, 2013 – September 30, 2014. An additional 12 months of data has been collected and analyzed in Part I of this report. Below is a summary of reported traffic stops for Hamden over a two-year period.

	2013-2014 Traffic Stop Records		2014-2015 Traffic Stop Records	
White Non-Hispanic	2,868	52.5%	2,822	58.2%
Black Non-Hispanic	2,069	37.9%	1,545	31.8%
AsPac Non-Hispanic	74	1.4%	44	0.9%
AI/AN Non-Hispanic	0	0.0%	9	0.2%
Hispanic	455	8.3%	432	8.9%
Total	5,466		4,852	

Overview of the April 2015 Traffic Stop Analysis

The April 2015 Traffic Stop Analysis report indicates that for the October 1, 2013 – September 30, 2014 study period the Hamden Police Department made a total of 5,466 traffic stops. Of these, 47.5% were minority stops, of which 8% were Hispanic drivers and 38% were black drivers. The Hamden Police Department was identified using the four descriptive tests. Hamden was identified as having exceeded the threshold of 10 percentage points in all four of the descriptive benchmarks used and eight of the 12 possible measures. Although it is understood that certain assumptions have been made in the design of each of the four benchmarks, it is reasonable to believe that departments with consistent data disparities that separate them from the majority of other departments should be subject to further review and analysis with respect to the factors that may be causing these differences.

Descriptive Analysis of the 2013-2014 Traffic Stop Data

The racial and ethnic disparities in the Hamden Police Department data were explored through a more detailed look at traffic enforcement during the original study period. Part of the analysis involved mapping all stops if possible using the location data provided by the department and any enhancements we were able to make. Hamden provided the specific geographic location information necessary to map almost all traffic stops.

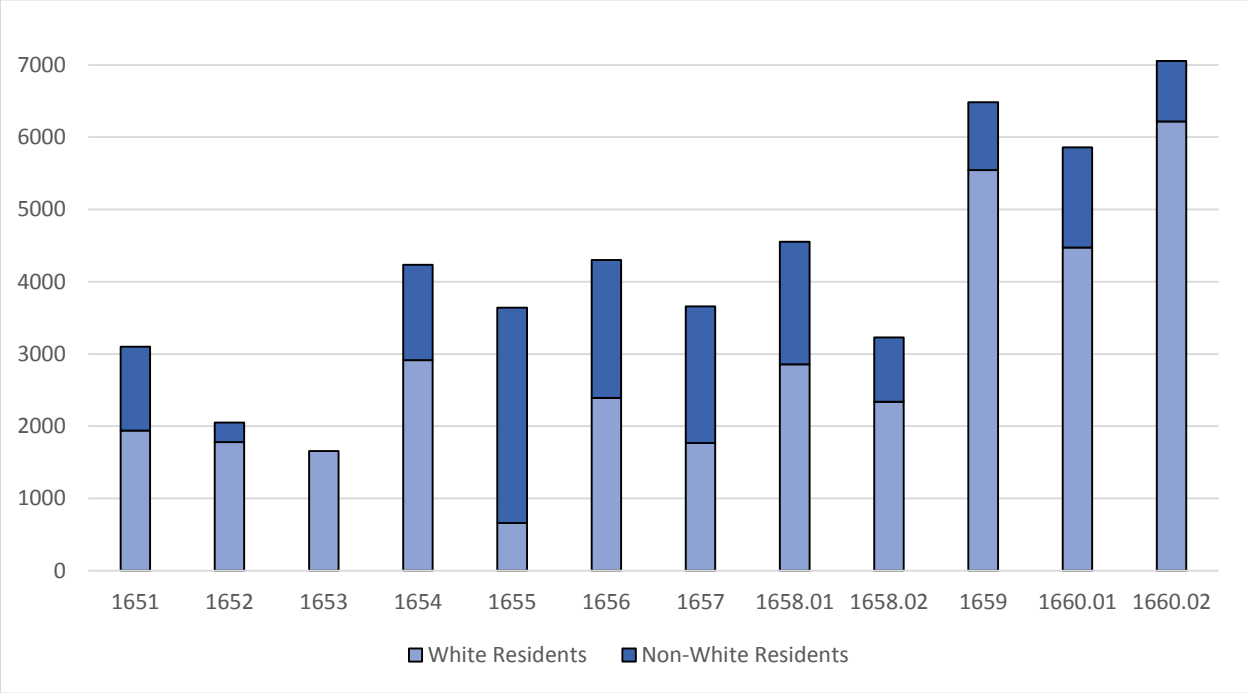
According to the 2010 census, Hamden is a city with approximately 49,831 residents over the age of 16. Approximately 31% of the driving age population in Hamden is identified as a minority. Figure 1.0 outlines the basic demographic information for Hamden residents over age 16.

Figure 1.0: Hamden Population

Race/Ethnicity	16+ Population Total	% Population Total
White Non-Hispanic	34,549	69.3%
Black Non-Hispanic	9,078	18.2%
AsPac Non-Hispanic	2,476	5.0%
Hispanic	3,728	7.5%
Other	0	0.0%
Total	49,831	

The U.S. Census Bureau divides Hamden into 12 census tracts. The resident driving age population varies from one census tract to another from about 1,700 to 7,000 people. The demographic breakdown of each census tract varies as well from almost 82% minority driving age residents in Census Tract 1655 to Census Tract 1653, which is virtually all white. The population is predominantly white in 10 of the 12 census tracts and predominantly minority in the other two. Census Tract 1655 is almost two-thirds black. Figure 2.0 shows the distribution for each census tract in terms of white and non-white population.

Figure 2.0: 16+ Resident Population by Census Tract



Six other municipalities share a common border with Hamden, including Cheshire and Wallingford to its north, North Haven to its east, New Haven to its south, and Woodbridge and Bethany to its west. With the exception of New Haven, the five other bordering towns are predominantly white demographically, with an average driving age white population of 90% (compared to Hamden's white driving age population of 69%). New Haven borders the southern portion of Hamden and has a white driving age population of 37%. Of the drivers stopped in Hamden, 45% were Hamden residents and 55% lived elsewhere. Route 15 runs from southwest to northeast and Dixwell Avenue is the most heavily traveled local road, running from north to south through a large portion of Hamden. Quinnipiac University is located in the northeastern part of Hamden.

Figure 3.1 illustrates the volume of traffic enforcement that occurs in each Hamden census tract. The majority of traffic enforcement activity (50%) occurred in a relatively concentrated geographical area encompassing 3 census tracts. Census Tract 1655 contributes the largest percentage of traffic enforcement with 22% of all the town's stops. This tract is relatively small geographically compared to Hamden's other census tracts and is the fifth smallest in terms of driving age population with 3,642 people. It borders New Haven and the southern portion of Dixwell Avenue runs through it. It includes a large residential area and some small businesses along Dixwell.

The other two census tracts that comprise the majority of traffic stop activity are 1656 and 1658.01. All three census tracts cover the majority of Dixwell Avenue. Tract 1656 borders 1655 to the north and 1658.01 borders 1656 to the north. Approximately 38% of all traffic enforcement occurred on Dixwell Ave. More specifically, 56% of the traffic enforcement in 1655, 78% of the traffic enforcement in 1656, and 69% of traffic enforcement in 1658.01 occurred on Dixwell.

Outside of the relatively concentrated stop activity area, Census Tract 1660.02 contributed an additional 11% to the traffic enforcement activity. It covers the area which includes Quinnipiac University in the northeast part of Hamden. Traffic enforcement changes dramatically as you move to the outer parts of the town towards Cheshire, Wallingford, Woodbridge, and Bethany.

Figure 3.1: Traffic Stops by Census Tract

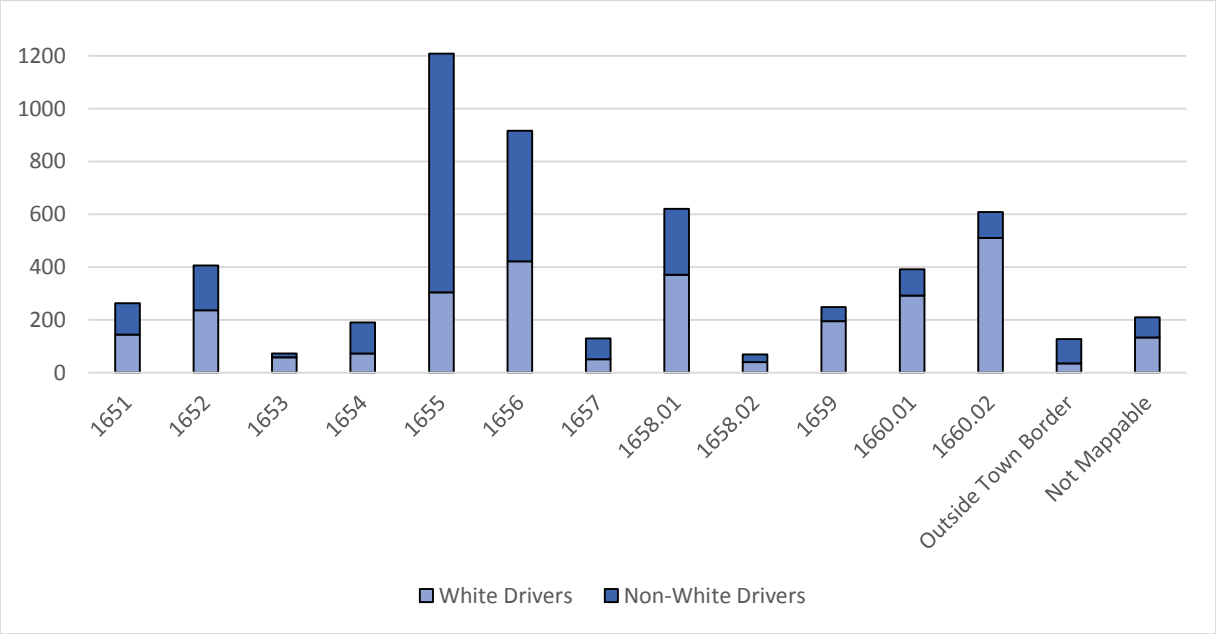
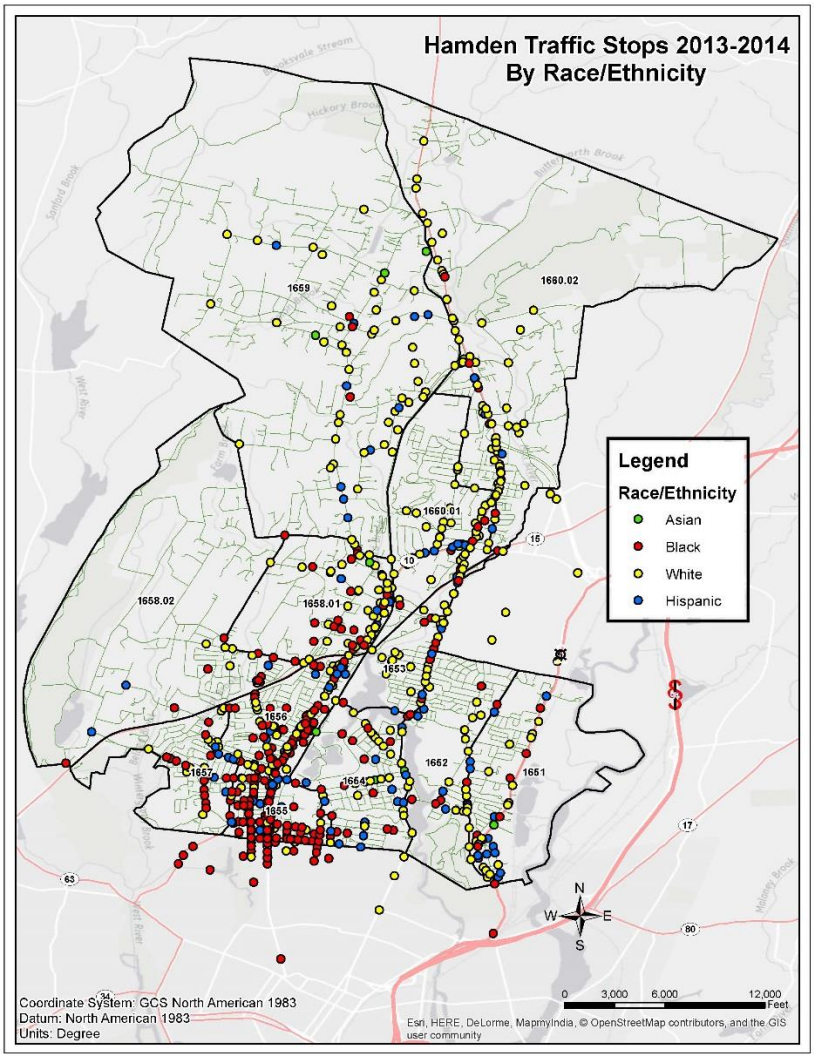


Figure 3.2 is a map of traffic stops made in Hamden. The three census tracts that account for 50% of the traffic enforcement activity make up 25% of the resident population. The largest of these three tracts in terms of population is tract 1658.01 with about 9% of the town population, although it had the lowest proportion of stops among the three high activity areas. Two of the other most heavily populated census tracts in Hamden (1659 and 1660.02) are located outside of this high enforcement activity core.

Hamden's resident population is 31% minority; however, 46% of the residents stopped were minority. In 10 of the 12 census tracts, minority drivers were stopped at a higher rate than they represented in the localized residential population living in that census tract. In Census Tract 1655 with the largest percentage of traffic enforcement, minority residents were stopped at a smaller percentage than the resident population in that census tract.

Figure 3.2: Traffic Stop Map



Traffic Stop Breakdown by Race/Ethnicity

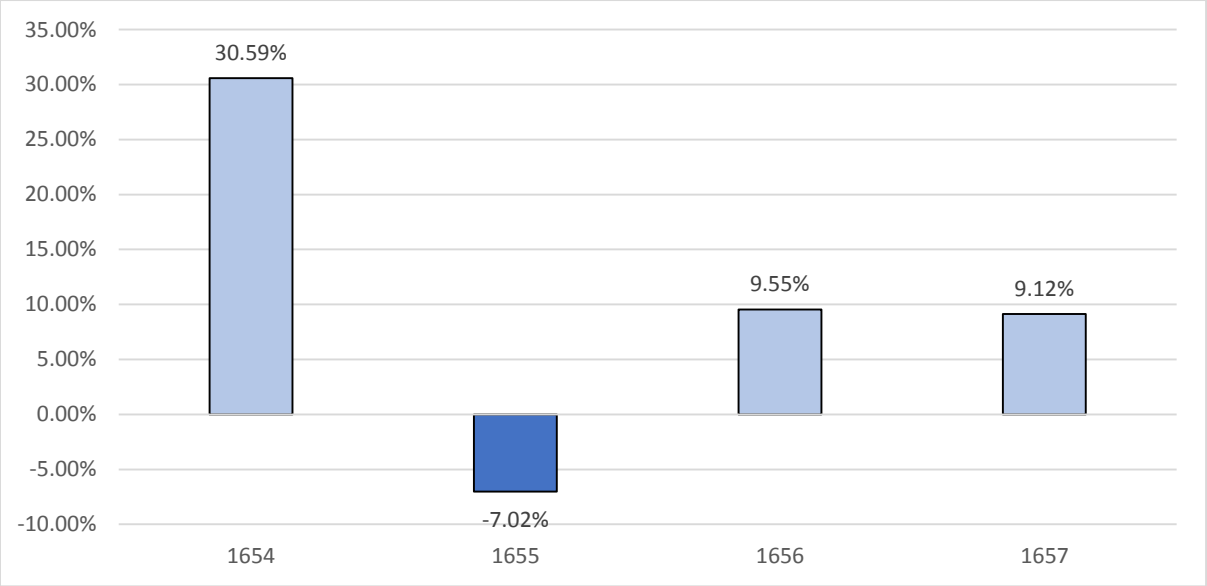
Minority drivers accounted for 47.5% of all drivers stopped in Hamden. Minority drivers are classified as all non-white drivers, but are predominantly made up of black or Hispanic drivers. The resident population (16+) of Hamden is 30.7% minority. On its face this might suggest a wide disparity in the proportion of minority drivers stopped during the study period. In one sense, this is true, in that about one third of the Hamden population is minority but almost one half of the drivers stopped were minority. However, the racial and ethnic makeup of different areas of Hamden varies significantly by census tract, so the disparities compared to the localized minority residential population were more pronounced in some areas than others.

Specifically, four of the 12 census tracts (1654, 1655, 1656, and 1657) showed a higher percentage of minorities stopped than the town-wide average of 45.7% minority stops. The disparities above the town-wide average remained apparent even when only stops involving Hamden residents were counted. These four census tracts made a significant impact on the town's overall minority stop numbers. When they were removed from the overall stop data, the minority driver stop percentage for the rest of Hamden was only 33.2% instead of 45.7%.

Figure 4.1 looks at the four census tracts with respect to how the percentage of minority drivers stopped in each tract compared to the localized minority driving age population living in the tract. Tract 1655 was the only one of the four that showed a negative disparity; that is, the percentage of minority stops made was less than the percentage of minority driving age residents living in the tract. The negative disparity appears due to two factors: the size of the minority population in 1655 and the extent to which non-residents, most likely coming from New Haven, influenced the stop data. The resident driving age population of tract 1655 is 82% minority, by far the highest of any Hamden census tract and more than 2.5 times the town-wide average. It also had the third highest proportion of non-residents stopped, 76% of who were minority drivers. The overall stops made in tract 1655 were 75% minority drivers. The net contribution of non-resident minority drivers to the overall stop total in tract 1655 appears to have been an increase of about two percentage points over the resident-only minority stop rate of 72.8%.

The largest disparity between the minority stop rate and the localized minority population was 30.6 percentage points in Census Tract 1654. This tract also borders New Haven to the east of tract 1655 but had considerable less enforcement activity (3.5% of total stops compared to 22% in tract 1655). The localized minority driving age population in 1654 was 31%. The overall minority driver stop rate was 62%. About 51% of the drivers stopped in 1654 were non-residents. The non-resident minority drivers stopped in the tract appear to have increased the overall minority stop percentage by about 2.6 percentage points above the resident-only rate of 59%.

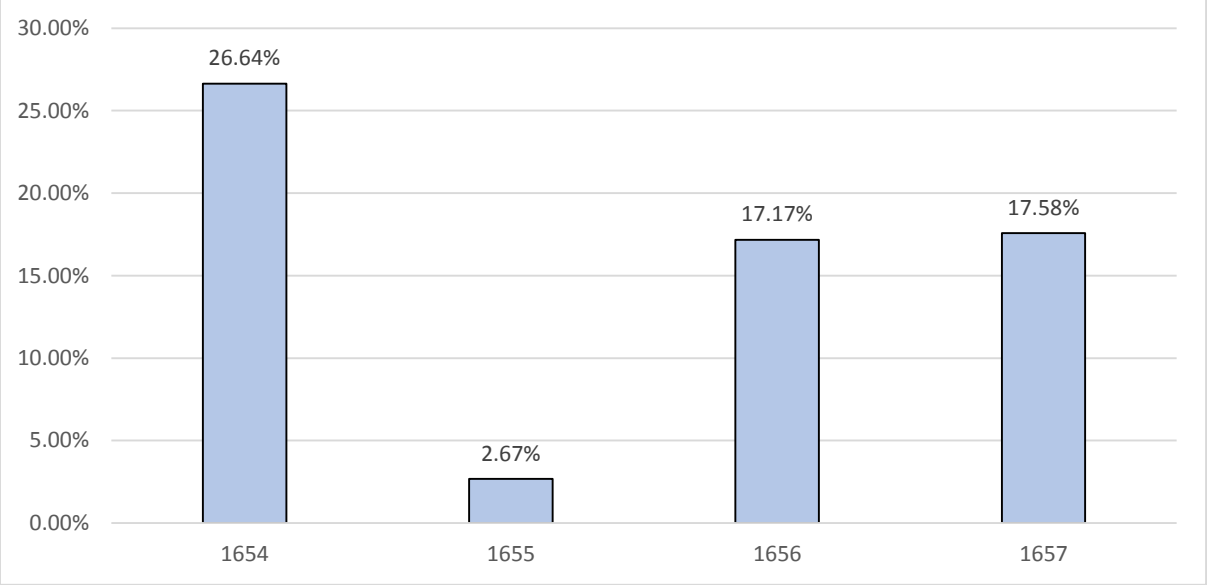
Figure 4.1: Disparity Between Minority Drivers Stopped and Census Tract Population



The overall percentage of Hamden traffic stops involving black drivers was 37.9%. The percentage of black drivers stopped exceeded the town average in four of the 12 census tracts, including two of the four high enforcement activity areas. As was the case for all minority drivers, the stop percentages for these four tracts exceeded the town average even when only resident stops were considered. The high enforcement areas where the black driver stop percentages did not exceed the town-wide average were 1658.01 (31.6% black drivers) and 1660.02 (9.0% black drivers).

Figure 4.2 shows how the proportion of black stops made in the four census tracts that exceeded the town-wide average compares to the proportion of black driving age residents living within the tracts. The greatest disparity of 26.6% was in tract 1654 where 48.2% of the stops involved black drivers while the black driving age population was only 21.5%, but the disparities in tracts 1656 and 1657 were significant as well. The non-residents stopped had a different impact in each of the four census tracts. If they were taken out of the stop totals for each census tract, the disparity over the localized black population would be eliminated for Census Tract 1655 and greatly reduced for tract 1656, but would remain at a slightly reduced level in tracts 6154 and 6157. The reduction effect was greater in tract 1656 than 1655, based upon a greater differential between the non-resident/resident stop proportions and the smaller number of stops made in 1656.

Figure 4.2: Disparity Between Black Drivers Stopped and Census Tract Population



The overall percentage of Hamden traffic stops involving Hispanic drivers was 8.3%. The percentage of Hispanic drivers stopped exceeded the town average in four of the 12 census tracts, including one of the four high enforcement activity areas. The four census tracts were 1651, 1652, 1654, and 1656.

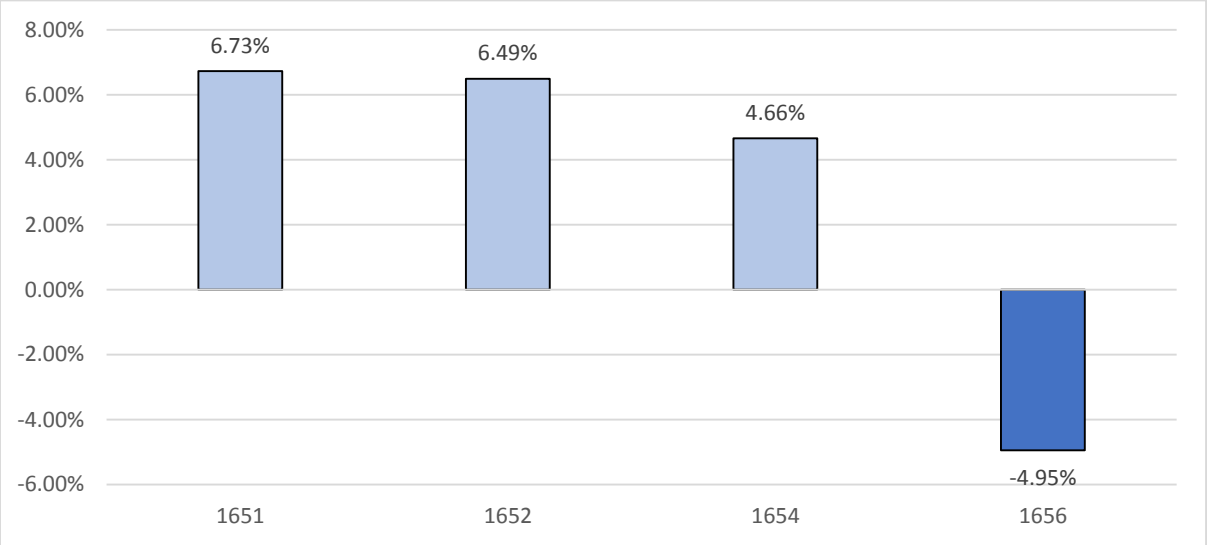
Two of the four tracts, 1651 and 1652, are different from the four tracts analyzed for minority and black drivers. These two tracts cover the southeastern corner of Hamden and account for a little over 12% of the total Hamden stops. The resident driving age population of tract 1651 is 13.8% Hispanic; the population of 1652 is only 3.9% Hispanic. Half of the stops made in 1652 were non-residents (12.8 % Hispanic). The non-resident stop component for tract 1651 was the second highest in Hamden (64%/21.4% Hispanic).

Figure 4.3 shows how the proportion of Hispanic stops made in these four census tracts compares to the proportion of Hispanic driving age residents living within those census tracts. As can be seen from the data, the disparity between Hispanic stops and the localized Hispanic driving age population is a negative disparity in Census Tract 1656 and relatively small positive disparities in the other three tracts.

Of the three census tracts where Hispanic stops exceeded the localized Hispanic population, Census Tract 1651 showed the largest disparity at 6.7 percentage points above the population. Tracts 1652

and 1654 also showed positive disparities. There was a negative disparity in tract 1656. Non-resident Hispanic drivers appear to have accounted for most of the disparity above the localized Hispanic population in tract 1654 and about one-third of it in tracts 1651 and 1652. They had a reverse effect in tract 1656 in that the overall Hispanic disparity in the tract was higher without them than with them included. The resident-only stops exceeded the resident Hispanic population in two tracts, 1651 and 1656.

Figure 4.3: Disparity Between Hispanic Drivers Stopped and Census Tract Population



Traffic Stop Distribution for Hamden Officers

Hamden's total of 5,466 traffic stops is comparable to other towns of its size. During the study period, traffic stop data was reported for 80 officers. The average number of stops made per officer was 68. Of the 80 officers reporting stops, 31 made fewer than 20 stops, seven made between 20 and 50 stops, 19 made between 50 and 100 stops, and 23 made over 100 stops. The 23 officers who made more than 100 stops each accounted for 68% of all stop activity in Hamden. The 10 most active officers account for 34% of the Hamden stops. Although a relatively small portion of its officer force primarily affected the Hamden stop data, the concentration was smaller than for some of the other departments that were evaluated.

Post-Stop Outcome Review

The reasons police use to stop a motor vehicle can vary significantly from department to department. We reviewed the statutory authority that Hamden officers reported as the reason for stopping motor vehicles. The three most common reasons used for stopping a motorist in Hamden made up over 50% of the total stops. The three largest stop categories were for defective, improper, or inoperative lighting (19%); registration violations (18%); and traffic control signal violations (14%). Hamden's stop statistics were heavily influenced by types of stops that, under most circumstances, provide an officer with a higher level of discretion than stops involving more hazardous driving behaviors typically do, such as speeding, traffic light violations, and other types of moving violations. These higher discretion types of stops (missing, inoperative, or defective lighting; display of plates; and window tinting) accounted for 21% of all the stops Hamden made during the study year. A much greater proportion of black drivers were stopped for these violations than were either white or

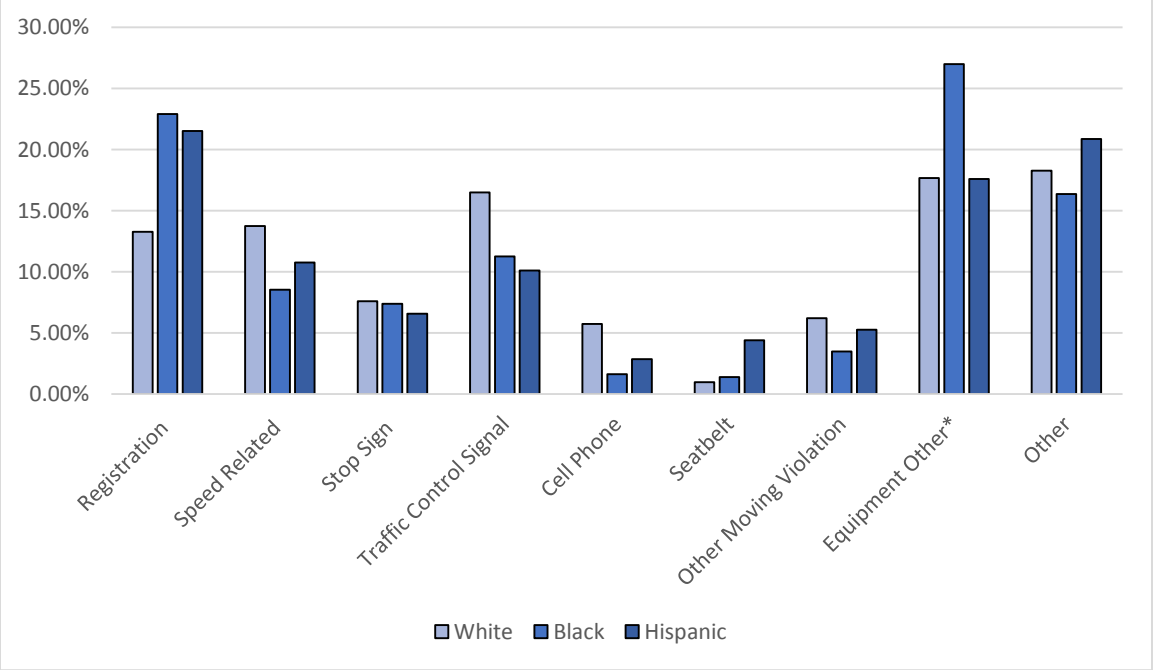
Hispanic drivers. They accounted for 27% of all the black drivers stopped in Hamden but less than 18% of the white drivers stopped.

This disproportionate impact on black drivers appears to have been due more to frequency and location of enforcement than to a greater likelihood of violation by black drivers. Within the three high enforcement census tracts, which accounted for half of all the Hamden stops, the demographic distribution for these stops was 58% black drivers, 35% white drivers, and 7% Hispanic drivers. For the rest of Hamden outside of these three areas, the stop demographics were reversed, with white drivers making up 57% of those stopped, black drivers 35%, Hispanic drivers 6.7%, and Asian drivers 1.5%. This dynamic strongly suggests that the location and greater frequency of these types of stops in higher minority, high activity areas of Hamden were the primary factors in the higher rate at which black drivers were stopped for these violations.

The dynamic for Hamden's registration-related stops was similar. They accounted for 18% of Hamden's stops, but were much more highly concentrated in the three high enforcement census tracts (61% occurred in these tracts, 39% occurred elsewhere in Hamden). Within the three high activity tracts, black drivers accounted for 58% of these stops, white drivers for 33%, and Hispanic drivers 8%. However, outside of these three census tracts black drivers accounted for only 36% of the stops, white drivers for 50%, and Hispanic drivers for 13%. Although the same number of Hispanic drivers were stopped for registration violations inside of the three high enforcement areas as outside of them, the significantly fewer registration-based stops made outside the high enforcement areas made their proportion higher.

Figure 5.1 illustrates the reason officers used to stop a motor vehicle by race and ethnicity.

Figure 5.1: Reason for Traffic Stop

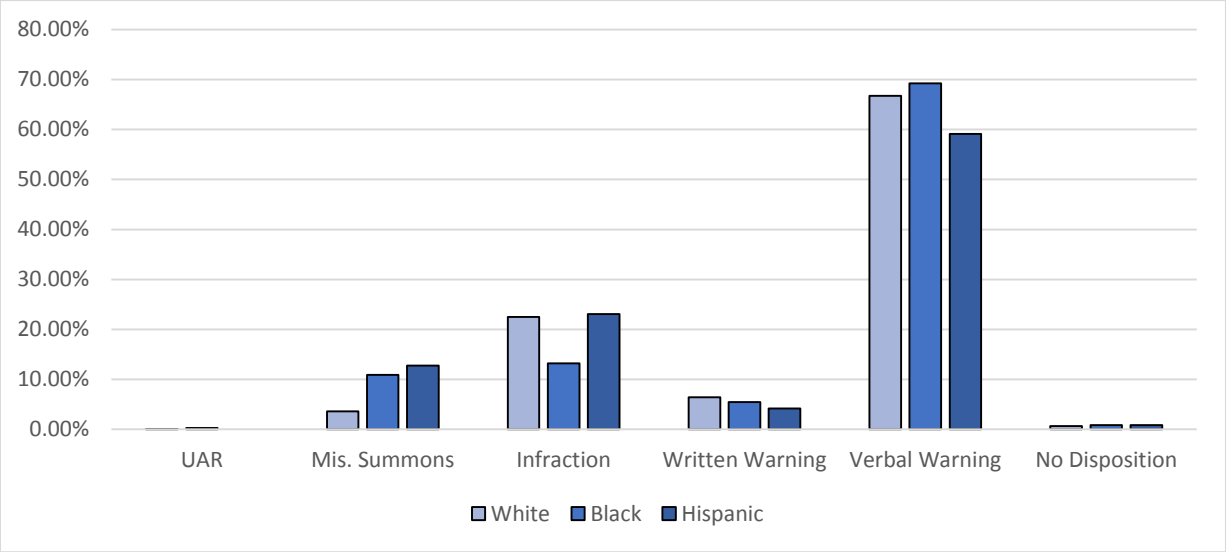


*Equipment Other includes violations for defective lights, excessive window tint, or display of plate violations.

The majority of motor vehicle stops in Hamden resulted in the driver receiving a verbal warning (67%). Figure 5.2 shows the outcomes of motor vehicle stops by race and ethnicity. Black and

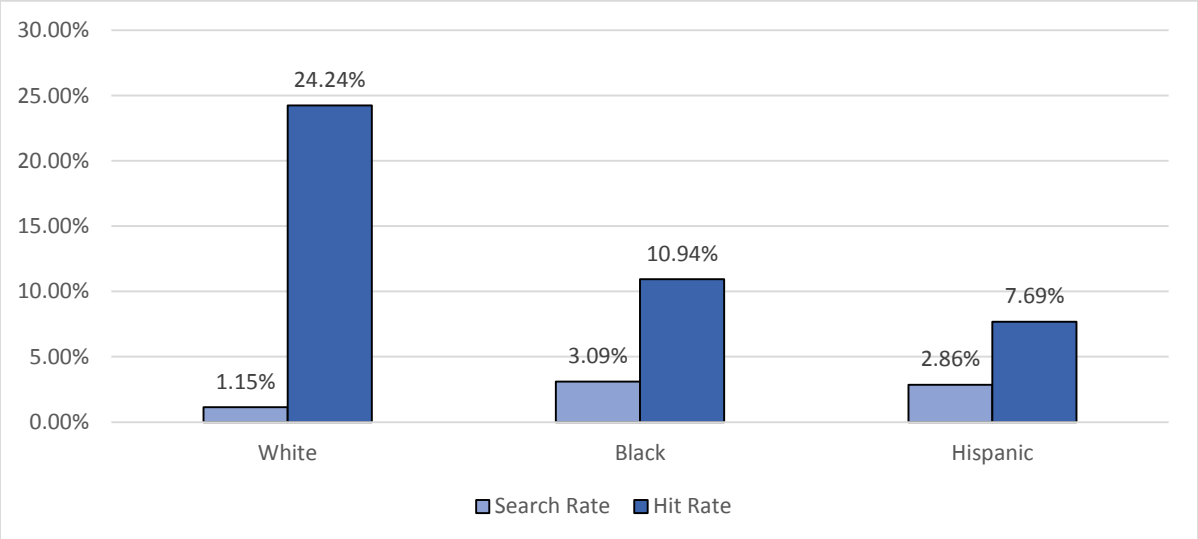
Hispanic drivers were more likely than white drivers to receive a misdemeanor summons as a percentage of their total stops. However, black drivers were less likely to receive an infraction citation compared to white and Hispanic drivers. Hispanic drivers were slightly less likely to receive verbal warnings than either black or white drivers.

Figure 5.2: Outcome of Traffic Stop



Upon reviewing department search information, we found 2% (110) of the drivers stopped in Hamden were subjected to a motor vehicle search. The rate of motor vehicle searches is below the state average of 2.9%, but minority drivers were searched at more than twice the rate of white drivers as a percentage of their total stops. Contraband was found at a significantly lower rate when a minority driver's vehicle was searched (less than half the rate for black drivers and less than one-third the rate for Hispanic drivers compared to white drivers). Figure 5.3 illustrates the motor vehicle search rate and the rate at which contraband was found. The majority of searches in Hamden were conducted based on the officer asking for and being given the driver's consent for a vehicle search.

Figure 5.3: Search and Hit Rate



Additional Contributing Factors

Law enforcement administrators choose to deploy police resources within a community based on a number of different factors. Some of these may include locations where calls for service volume, accident rates, or crime rates are higher. In addition to these factors, police may be more present in areas with higher traffic volume as the result of common factors that draw people into a community such as employment and entertainment. Traffic enforcement is likely to be more prevalent in locations that attract a greater police presence due to some of these factors. In order to provide some context for potential explanations for the deployment of police resources in Hamden, we provided some basic information on crime, accidents, and other economic factors that are worth consideration.

According to the Connecticut Economic Resource Center (CERC) town profiles, Hamden employs approximately 22,000 people and their major employers include Quinnipiac University, Arden House Care and Rehab Center, CT Transit, and AAA of Southern New England. The vast majority of commuters traveling into Hamden for employment travel from New Haven, North Haven, Wallingford, West Haven, and Cheshire. The overall unemployment rate is 5.9%, which is below the unemployment rate for New Haven County and the state.

In 2014, crime in Hamden was reported at a rate of 264.8 per 10,000 residents, compared to the state crime rate of 216.7 per 10,000 residents. According to the 2014 Connecticut Uniform Crime Report[11], there were 1,589 reported crimes in Hamden in 2014. The three most reported crimes were larceny (1,022), burglary (257), and aggravated assault (164).

During our study period, there were approximately 1,380 motor vehicle accidents on roads patrolled by the Hamden Police Department. Accidents were reported as occurring on a total of 185 roads, but 50% of the accidents occurred on just two roads. The roadways with the highest number of accidents were Route 10, also known as Dixwell Avenue, with 595 accidents and Whitney Avenue with 100 accidents. There were only 19 roads with 10 or more accidents and those roads accounted for 74% of all accidents in Hamden. Figure 6.0 illustrates the time of day when traffic accidents were reported and the number of traffic stops that occurred during that same time period. This may help to better understand how closely traffic enforcement is correlated to traffic accidents in Hamden.

[11] The Uniform Crime Report is an index for gauging fluctuations in the overall volume and rate of crime. The crime index includes seven offenses including the violent crimes of murder, rape, robbery, and aggravated assault and the property crimes of burglary, larceny-theft, and motor vehicle theft.

Figure 6.0: Accidents Compared to Traffic Stops by Time of Day

Findings and Recommendations

Hamden identified factors that they believe contributed to the disparity identified in the initial analysis. In particular, the department identified areas with the highest call for service volume and areas with the highest levels of traffic as the same areas with the highest level of motor vehicle enforcement. It is evident by the volume of traffic stops made in a relatively small geographic area that departmental resources are concentrated in certain parts of town, primarily in the southern sections of the community and along Dixwell Avenue. We did not receive any specific information from Hamden regarding crime rates or calls for service that would have permitted an analysis of how closely deployment of resources for traffic enforcement matched these factors.

Traffic enforcement was concentrated in a highly diverse and relatively small geographic area in the southern portion of the town near the New Haven border. Route 10 (Dixwell Ave.) has the greatest impact on traffic enforcement in Hamden. The three census tracts (1655, 1656, and 1658.01) with the highest traffic enforcement activity are part of the Route 10 corridor. All three census tracts have a minority population above the town average, with the largest being tract 1655 which is predominately minority (82%). The population concentration in this tract is more than 2.5 times the town average for minorities and three times the town-wide average for blacks. This census tract accounted for 22% of Hamden's stops during the study year. The census tract immediately to its north, 1656, accounted for another 17% of the stops.

Hamden traffic enforcement activity does not appear to have been driven primarily by population concentrations; that is, the census tracts with the largest population concentrations do not all generate significant levels of traffic enforcement. The three largest population census tracts (1659, 1660.01, and 1660.02) account for 39% of the resident population but 23% of the traffic enforcement. On the other hand, the three census tracts with the most enforcement (1655, 1656, and 1658.01) account for 25% of the resident population, but 50% of the traffic enforcement. Non-

residents accounted for at least 50% of the drivers stopped in these three high enforcement census tracts. The non-resident component of the drivers in the three high enforcement areas was found to have had a small effect on the size of the overall disparities, but not small enough to cause disparities to disappear if all non-residents were removed from the stop totals.

Hamden's high stop rates of black drivers was somewhat unsurprising given where it engaged in the majority of its traffic enforcement activity, i.e., areas with higher proportions of minority residents. The analysis identified four census tracts where the proportion of black driver stops exceeded the town-wide average of black drivers stopped (37.9%) and then looked at the demographics of the localized driving age population within those tracts. The disparities in all four tracts (1654, 1655, 1656, and 1657 exceeded both the town-wide stop average for black drivers and the localized black driving age population living in the tract. The disparities persisted even when the sample in those tracts was restricted to include only residents stopped. The non-resident black drivers stopped had varying effects on the size of the disparity above the localized black population. It had the greatest effect in tract 1656, where the differential between the non-resident/resident proportions was largest and the number of stops was fewer than in tract 1655. The effect in tract 1655 was significant, but less so than in 1656 because even though 116 more non-resident black drivers were stopped than resident drivers, the non-resident/resident proportional split was virtually identical. Non-resident drivers had a measurable but much less significant effect on the disparity in tract 1654 and actually had an inverse effect on the disparity above the localized population in tract 1657.

This does not necessarily mean that profiling exists in these areas, since the disparity could be fueled by other factors such as high levels of movement through the area by residents from other areas of the city, but it does serve to identify those sections of the town where the disparities are most apparent.

There were also 127 drivers that were stopped outside the Hamden town border. Of those drivers stopped, 65.4% were identified as black. These drivers were primarily stopped in New Haven and 79% of them were not Hamden residents. There could be a number of reasons for these stops, including that the violation was witnessed in Hamden and the vehicle didn't stop until they were in New Haven. The percentage of minority drivers stopped is consistent with the percentage of minority drivers stopped in Census Tract 1655, which borders New Haven.

It would be valuable for the Hamden Police Department to evaluate its activities in these census tracts to see if it can gain a better understanding of what decisions may be influencing the data in these particular areas.

Reasons for Stops

Defective, improper, or inoperative lighting (18.6%) was the largest category of stops made in Hamden. The next largest category of stops was for registration violations (17.6%). The third largest category of stops was for traffic control signal violations (13.9%). Black and Hispanic drivers were more likely than white non-Hispanic drivers to be stopped for an equipment violation. In contrast, white non-Hispanic drivers were more likely to be stopped for a moving violation.

Just over 21% of Hamden's stops were made for violations involving defective, missing, or inoperative vehicle lighting, improper display of license plates, and window tinting. These stops occurred more frequently in the three census tracts with the highest enforcement levels than outside of them (59% within the three tracts, 41% in the rest of Hamden). The frequency and location of

these stops in the three high enforcement areas in the southern area of Hamden, all of which have a proportion of minority driving age residents above the town-wide average, appears to have had a large impact on the size of the disparity affecting black drivers in Hamden. They represented 27% of all the black drivers stopped in Hamden. This proportion appears to have been due more to the frequency and location of where stops were made than an inherently higher violation rate by black drivers. Within the three areas, black drivers accounted for 58% of these violations and white drivers accounted for 35%. Outside of these three areas, these demographics were almost exactly reversed (black drivers 35%, white drivers 57%). This dynamic was also present for stops made in Hamden for registration violations.

Based on this analysis, we believe that this was an important factor in the Hamden disparity involving black drivers.

Traffic Stop Outcomes

The proportion of Hamden's traffic stops that resulted in a misdemeanor summons (7.1%) exceeds the state average of 5.5%. Black and Hispanic drivers were more than three times as likely as white non-Hispanic drivers to receive a misdemeanor summons as the result of a stop. White non-Hispanic drivers were slightly more likely to receive an infraction ticket. Overall, almost 67% of all drivers stopped received a verbal warning. Black drivers were more likely than white drivers to receive a verbal warning in the three high enforcement census tracts.

Hamden searched only 2% of drivers it stopped, which is less than the state average of 2.9%. However, black and Hispanic drivers were searched at more than twice the rate of white non-Hispanic drivers. The location for vehicle searches mirrors the census tracts with the highest levels of traffic enforcement. The overall rate of contraband found was lower than the statewide average with contraband only being found 14.5% of the time. The rate of contraband was higher when white drivers were searched (24.2%) compared to black (10.9%) and Hispanic (7.7%) drivers. Of the 110 vehicle searches, the majority were the result of driver consent and contraband was only found 15.9% of the time. The other searches were primarily the result of some other authority (i.e. probable cause, plain view, etc.) and the rate at which contraband was found more closely matches the statewide hit rate of 30%. This data suggests that the police department may want to review its use of consent-based searches and evaluate their overall value to the department.

Additional Note: The relatively high use of higher discretion searches was discussed with the Hamden Police Department at our initial meeting with them, although the detailed analysis of their apparent influence on the overall disparity for black drivers had not yet been undertaken at that time. Preliminary results in Hamden's Year 2 data show an overall reduction of 6% in black driver stops. The data also reflects significant reduction in the combined total of the higher discretion stops involving vehicle lighting, license plate display, and window tinting. Whether there is be a direct relationship between the two cannot be determined until the data is analyzed in detail, but the two were among the most noticeable general changes in the data from Year 1 to Year 2.

II.B (5): MANCHESTER FOLLOW-UP ANALYSIS SUMMARY

This follow-up analysis reviews traffic stops conducted in Manchester from October 1, 2013 – September 30, 2014. An additional 12 months of data has been collected and analyzed in Part I of this report. Below is a summary of reported traffic stops for Manchester over a two-year period.

	2013-2014 Traffic Stop Records		2014-2015 Traffic Stop Records	
White Non-Hispanic	1,928	56.6%	3,077	58.2%
Black Non-Hispanic	837	24.6%	1,195	22.6%
AsPac Non-Hispanic	63	1.8%	119	2.3%
AI/AN Non-Hispanic	35	1.0%	52	1.0%
Hispanic	544	16.0%	775	14.7%
Total	3,407		5,218	

Overview of the April 2015 Traffic Stop Analysis

The April 2015 Traffic Stop Analysis report indicates that for the October 1, 2013 – September 30, 2014 study period the Manchester Police Department made a total of 3,407 traffic stops. Of these, 43.4% were stops of minorities (16% Hispanic, 24.6% black, 2.8% other races). The Manchester Police Department was identified using the four descriptive tests. Manchester was identified as having exceeded the threshold of 10 percentage points in all four descriptive benchmarks and eight of the 12 possible measures. Although it is understood that certain assumptions were made in the design of each of the four benchmarks, it is reasonable to believe that departments with consistent data disparities that separate them from the majority of other departments should be subject to further review and analysis with respect to the factors that may be causing these differences.

Descriptive Analysis of the 2013-2014 Traffic Stop Data

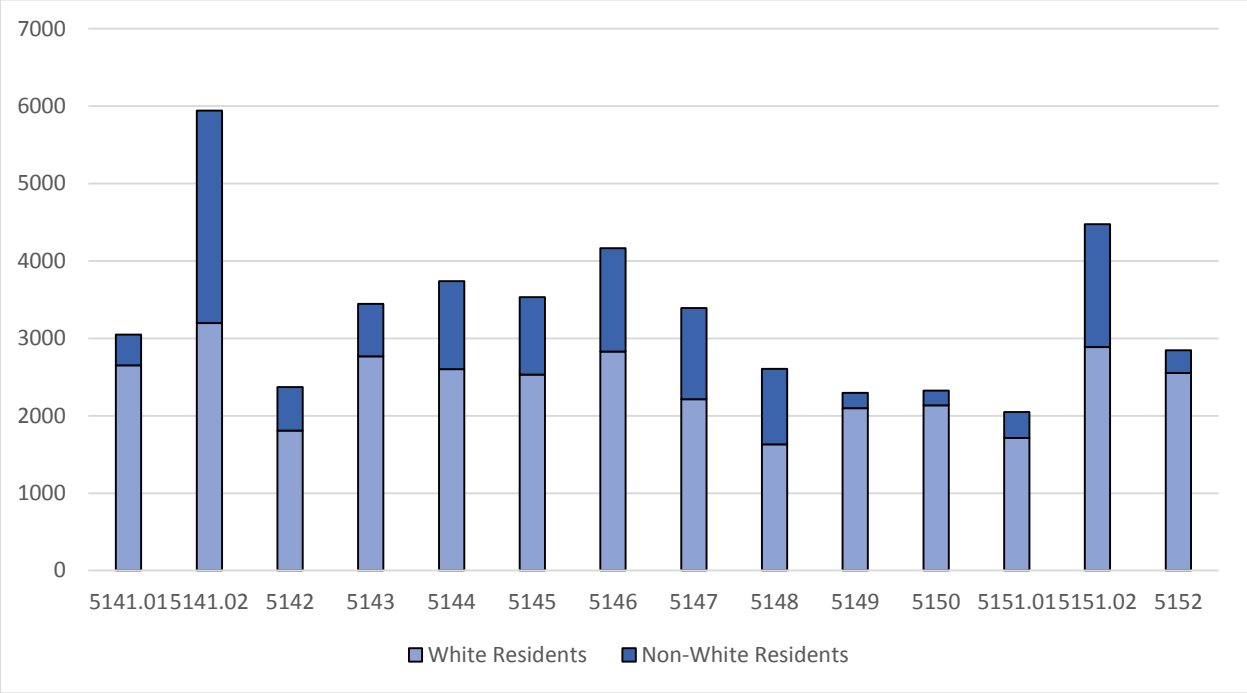
The racial and ethnic disparities in the Manchester Police Department data were explored through a more detailed look at traffic enforcement during the original study period. According to the 2010 census, Manchester is a city with approximately 46,667 residents over the age of 16. Approximately 28% of the driving age population in Manchester is identified as a minority. Figure 1.0 outlines the basic demographic information for Manchester residents over age 16.

Figure 1.0: Manchester Population

Race/Ethnicity	16+ Population Total	% Population Total
White Non-Hispanic	33,624	72.1%
Black Non-Hispanic	4,738	10.2%
AsPac Non-Hispanic	3,516	7.5%
Hispanic	4,617	10.0%
Other	172	0.3%
Total	46,667	

The U.S. Census Bureau divides Manchester into 14 census tracts. Driving age populations of the census tracts vary, ranging from 2,000 to almost 6,000 residents. The demographic breakdown of each census tract varies as well, ranging from a minority population of 46% in Census Tract 5141.02 to only 8% in Census Tract 5150. Figure 2.0 illustrates the variations in population demographics.

Figure 2.0: 16+ Resident Population by Census Tract



Five other municipalities share a common border with Manchester, including South Windsor and Vernon to its north, Bolton to its east, Glastonbury to its south, and East Hartford to its west. With the exception of East Hartford, the four other border towns are predominantly white demographically, with an average driving age white population of 89% (compared to Manchester's white driving age population of 72%). East Hartford borders the western portion of Manchester and has a white driving age population of 48%. Primary access from East Hartford to Manchester is by way of Route 44 (Burnside Avenue).

The percentage of town resident and non-town resident drivers stopped was almost evenly split (51.9% non-residents overall), but there is a considerable range among different census tracts from a low of 33% non-residents in two tracts to as high as 74% non-residents in one tract on the south side of Manchester.

Interstate 84 also runs through the northeastern section of Manchester, while Interstate 384 and Route 6/44 (Center Street) run from west to east through the central portion of Manchester. West Middle Turnpike also runs east to west just north of the Route 6/44 corridor and also carries considerable traffic entering Manchester from I-84.

Figure 3.1 illustrates the volume of traffic enforcement that occurs in each census tract. The majority of traffic enforcement activity (65%) occurred in a relatively concentrated geographical area encompassing four census tracts. Census Tract 5141.02 contributes the largest percentage of traffic enforcement with 21% of the city's traffic stops. Tract 5141.02 is heavily retail in nature and includes the Buckland Hills shopping mall with numerous other retail and dining outlets. In addition, the Promenade Shops at Evergreen Walk, another major shopping center, is located just across the border in South Windsor. Interstate 84 provides much of the non-resident access to these retail areas. The resident/non-resident distribution of drivers stopped in tract 5141.02 is 73.7% non-Manchester

residents, which reflects the nature of this area as an attraction for drivers who do not live in Manchester.

The other three census tracts that comprise the next highest levels of traffic stop activity are 5144, 5145, and 5147 (17%, 9%, and 18% respectively). All three census tracts border each other and cover the main downtown area of Manchester. These census tracts include heavily traveled roads such as Main Street, West Middle Turnpike, and Center Street. The majority of motor vehicle enforcement in these census tracts occurs on these main roadways. Traffic enforcement changes dramatically as you move to the outer parts of the city towards Glastonbury, Bolton, and Vernon. As you move away from the center of Manchester, each census tract generates less than 4% of the overall traffic stop activity.

Figure 3.1: Traffic Stops by Census Tract

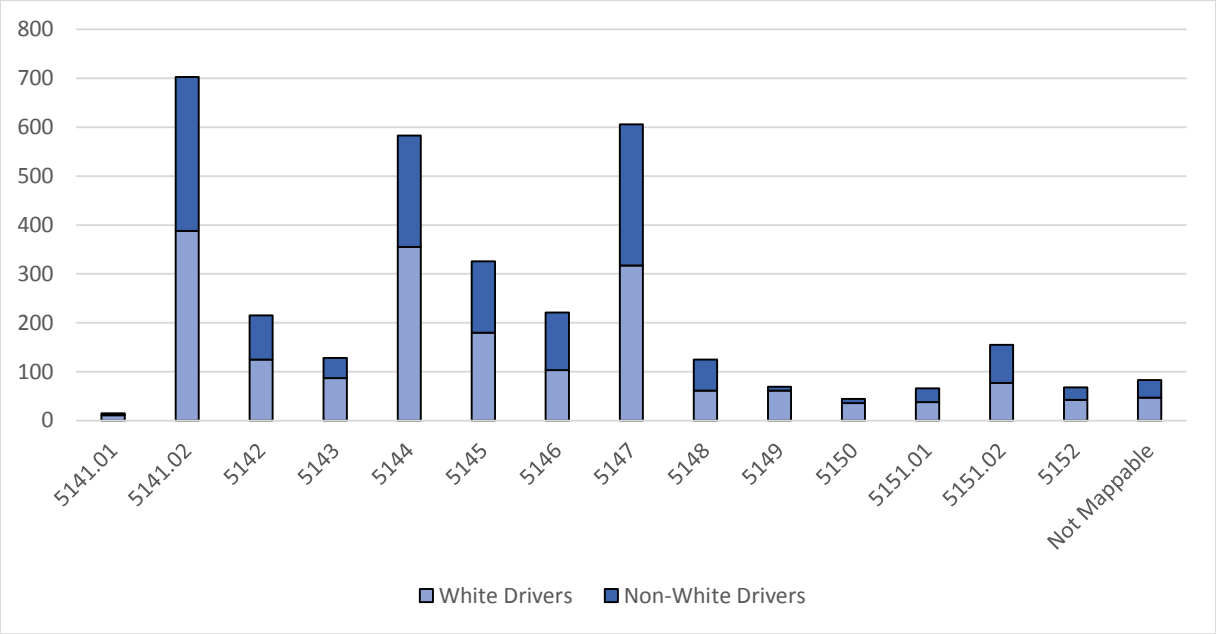
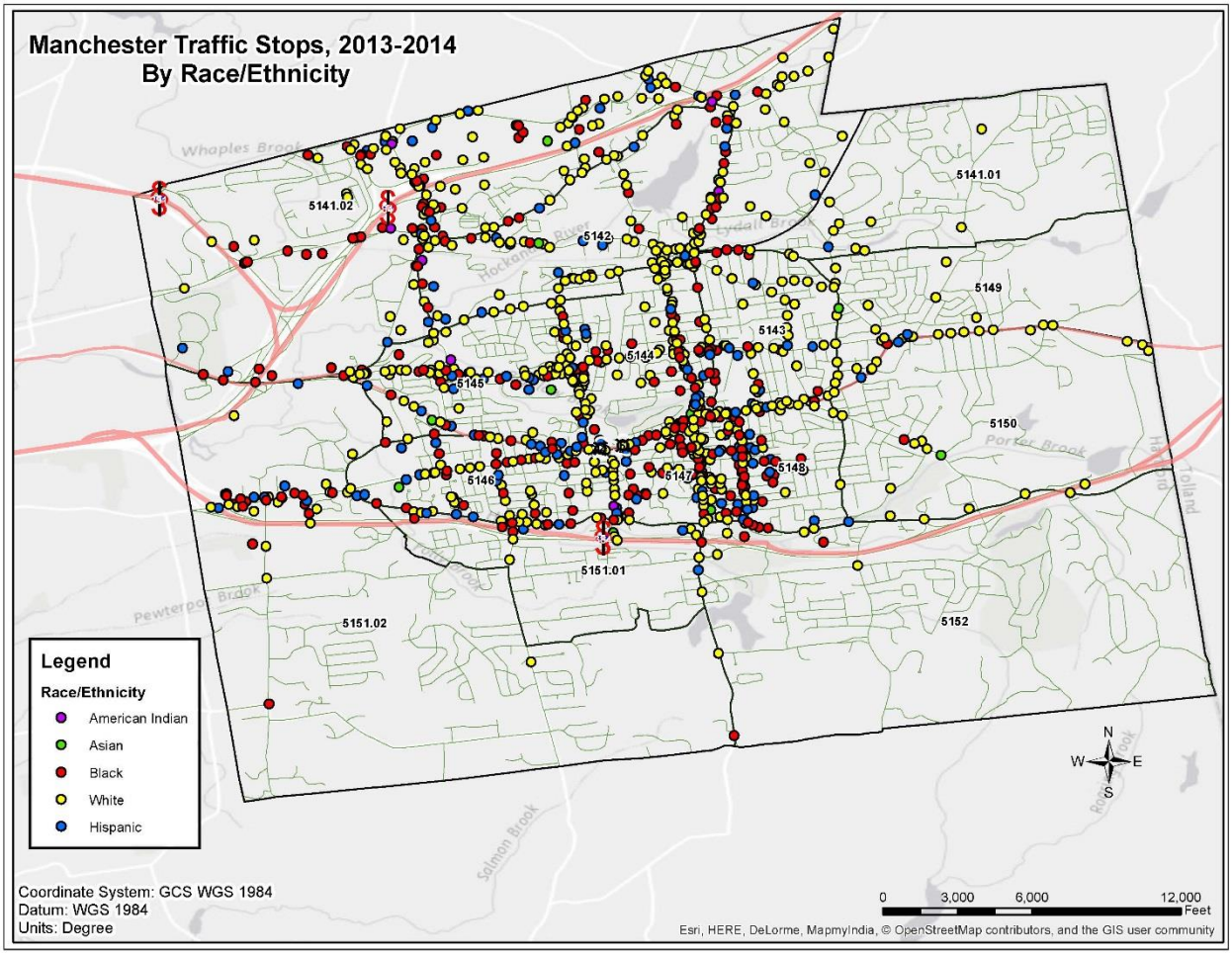


Figure 3.2 is a map of traffic stops made in Manchester. The four census tracts that account for 65% of the traffic enforcement activity make up 36% of the resident population in Manchester. The largest of these four census tracts in terms of population is tract 5141.02 (12.9% of the Manchester driving age population). The resident population through the remaining census tracts is fairly evenly distributed, ranging from 4.5% to 9% of the population. Manchester's resident driving age population is 27% minority, however, 44% of the residents stopped were minority. Minority residents were also stopped at a greater rate in 13 of the 14 census tracts than the resident population would reflect in that census tract.

Figure 3.2: Traffic Stop Map



Traffic Stop Breakdown by Race/Ethnicity

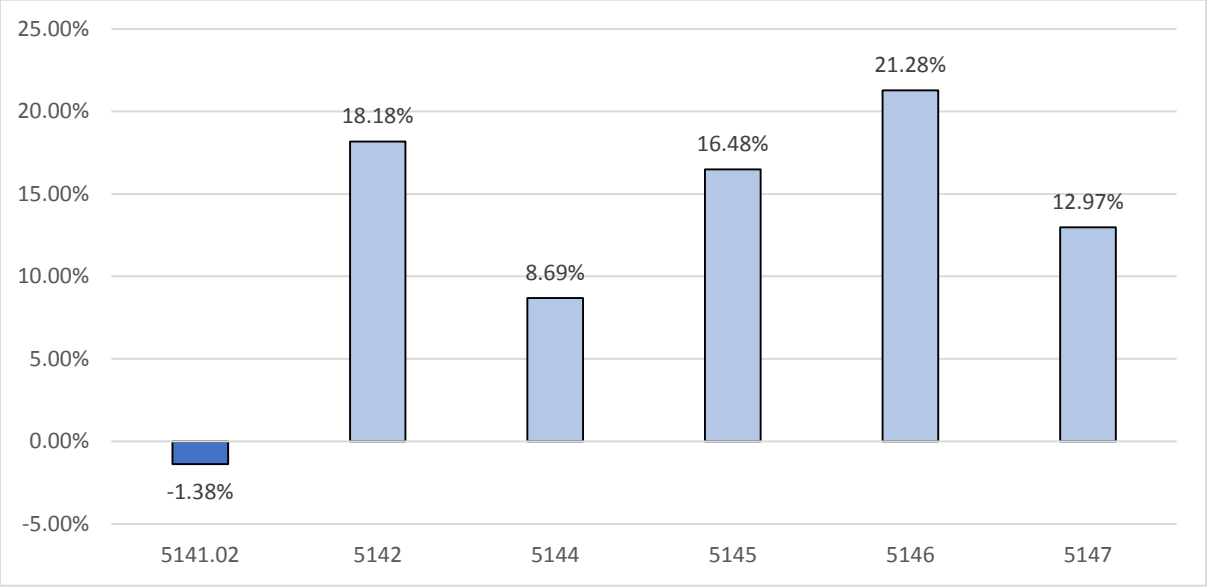
In Manchester, 43.4% of all drivers stopped were minority. Minority drivers are classified as all non-white drivers, but black or Hispanic drivers are predominant. The resident population (16+) of Manchester is 27.3% minority. On its face, this might suggest a wide disparity in the proportion of minority drivers stopped during the study period. In one sense, this is true, in that just over one quarter of the Manchester population is minority but well over 40% of the drivers stopped were minority. However, the racial and ethnic makeup of different areas of Manchester varies significantly by census tract, as do the level of enforcement and the presence of non-resident drivers in the data, so considerable effort was made to examine the data in more detail. Specifically, 80% of traffic stops in Manchester were made in the seven census tracts with localized minority driving age populations above the town average of 27.3%. Conversely, only 11.5% of the traffic stops occurred in the six census tracts where the white driving age population exceeded 80%. Given the fact that the higher levels of traffic enforcement are concentrated in relatively few census tracts, most of which have minority populations above the town-wide average, the disparities involving minority drivers were not surprising.

Taken individually, some of the census tracts with high proportions of minority drivers stopped and high to moderate enforcement activity tend to reflect the presence of a large minority population.

Figure 4.1 highlights some of this information for the high to moderate enforcement census tracts. Census Tract 5141.02 is the only high enforcement area where fewer minorities were stopped than their presence in the localized minority population. Almost 75% of the drivers stopped in 5141.02 were not residents of Manchester, compared to the other high enforcement census tracts where the non-resident component of the stop total was 46% or less. The Buckland Hills Shopping Mall as well as a large amount of other retail activity is located within tract 5141.02, which stimulates the high non-resident presence. Minority drivers accounted for 44% of the non-residents stopped in this census tract.

Non-resident minority drivers also influenced the size of the disparities in the other tracts, but to varying degrees. They accounted for most or all of the disparity above the localized minority population in three of the five census tracts (5144, 5145, and 5147), but had less effect in tracts 5142 and 5146. The disparity above the localized minority population remained at 6.5 percentage points in 6142 and 4 percentage points in 5146, even after the effect of non-resident minority drivers was accounted for.

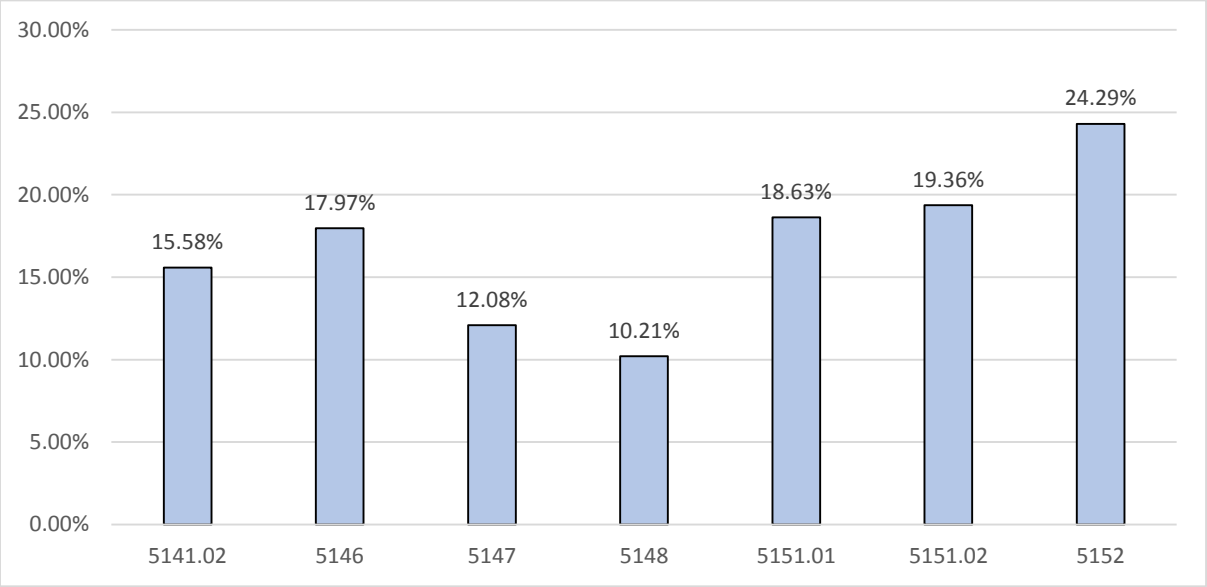
Figure 4.1: Disparity between Minority Drivers Stopped and Census Tract Population



The overall percentage of Manchester traffic stops involving black drivers was 24.6%. The percentage of black drivers stopped exceeded the town average in seven of the 14 census tracts, including three of the six high enforcement activity areas. The exceptions among the six high enforcement areas were census tracts 5142, 5144, and 5145, where the black drivers were stopped at a lower rate than the town average of 24.6%. Figure 4.2 shows how the proportion of black stops made in these seven census tract compares to the proportion of black driving age residents living within the tracts. As can be seen from the comparison, the relative difference between the proportion of stops involving black drivers and the proportion of the black population living within the census tract was fairly significant in most cases. The greatest disparity of 24.3% was in tract 5152, where 28% of the stops involved black drivers while the black driving age population was only 3.7%. When the presence of non-resident black drivers was accounted for, the disparity above the localized black population disappeared in tract 5141.02 but remained in the other six tracts. It was reduced to under three percentage points in three of the six (5146, 5147, and 5151.02) and was four percentage points

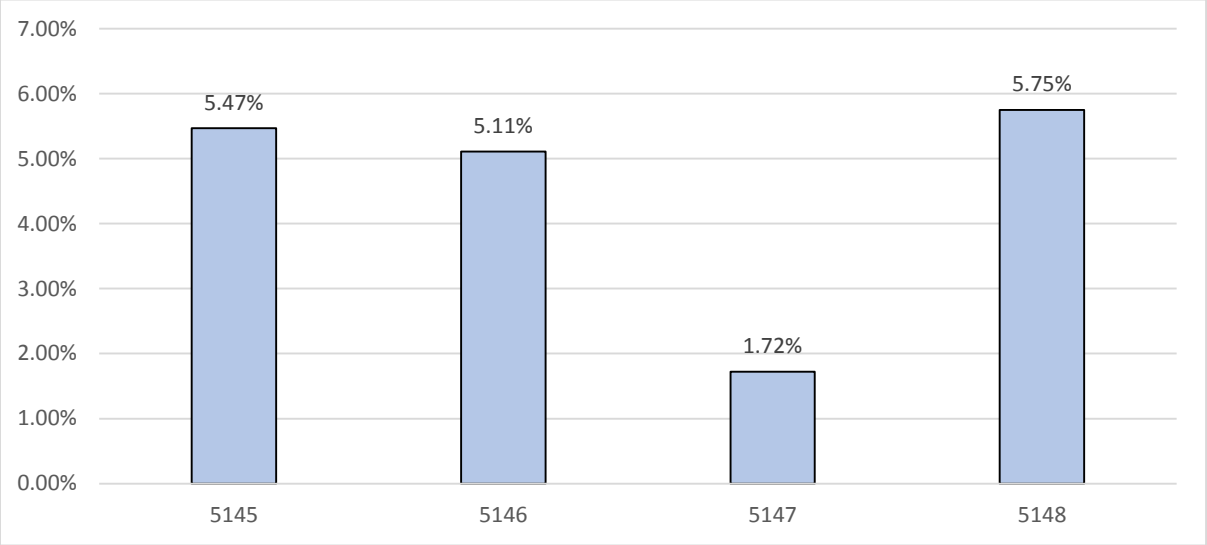
in tract 5148. The residual disparities were more significant in tract 5151.01, at seven percentage points above the localized black population and 16 percentage points in tract 5152. Census Tracts 5148, 5151.01, and 5152 were all areas of low enforcement activity in Manchester, each producing less than 4% of the total traffic enforcement. Nonetheless, while the total number of stops made in these tracts was relatively few, they appeared to affect black drivers disproportionately, particularly in tract 5152.

Figure 4.2: Disparity between Black Drivers Stopped and Census Tract Population



The overall percentage of Manchester traffic stops involving Hispanic drivers was 16.0%. The percentage of Hispanic drivers stopped exceeded the town average in four of the 14 census tracts, including three of the six high enforcement activity areas. Figure 4.3 shows how the proportion of Hispanic stops made in these four census tracts compared to the proportion of Hispanic driving age residents living within those census tracts. Of the four census tracts where Hispanic stops exceeded the localized Hispanic population, tracts 5146 and 5148 showed the largest disparity at 5.11 and 5.75 percentage points respectively. Census Tract 5146 is part of the high enforcement activity area and Census Tract 5148 borders the high enforcement activity area. The presence of non-resident Hispanic drivers in the stop totals had a significant effect on the disparities in the four tracts. The disparities above the localized Hispanic driving age population disappeared once non-resident Hispanic drivers were accounted for. However, it must be noted that Hispanic drivers were also disproportionately represented among the non-resident drivers stopped in all four census tracts, at around 20% in three of the tracts and 39% in tract 5148.

Figure 4.3: Disparity between Hispanic Drivers Stopped and Census Tract Population



Traffic Stop Distribution for Manchester Officers

Manchester's total of 3,407 traffic stops is comparable to other towns of its size. The Manchester Police Department has officers dedicated to a traffic unit that contribute to a significant portion of the motor vehicle enforcement activity. During the study period, traffic stop data was reported for 82 officers. The average number of stops made per officer was 42. Out of all the officers, 36 made fewer than 20 stops, 24 made between 20 and 50 stops, 15 made between 50 and 100 stops, and seven made over 100 stops. The seven officers that made more than 100 stops each accounted for 38% of all the Manchester stops. While Manchester's stop data appears to be significantly influenced by a relatively small number of officers, it is slightly less than some of the other departments that were examined.

Post-Stop Outcome Review

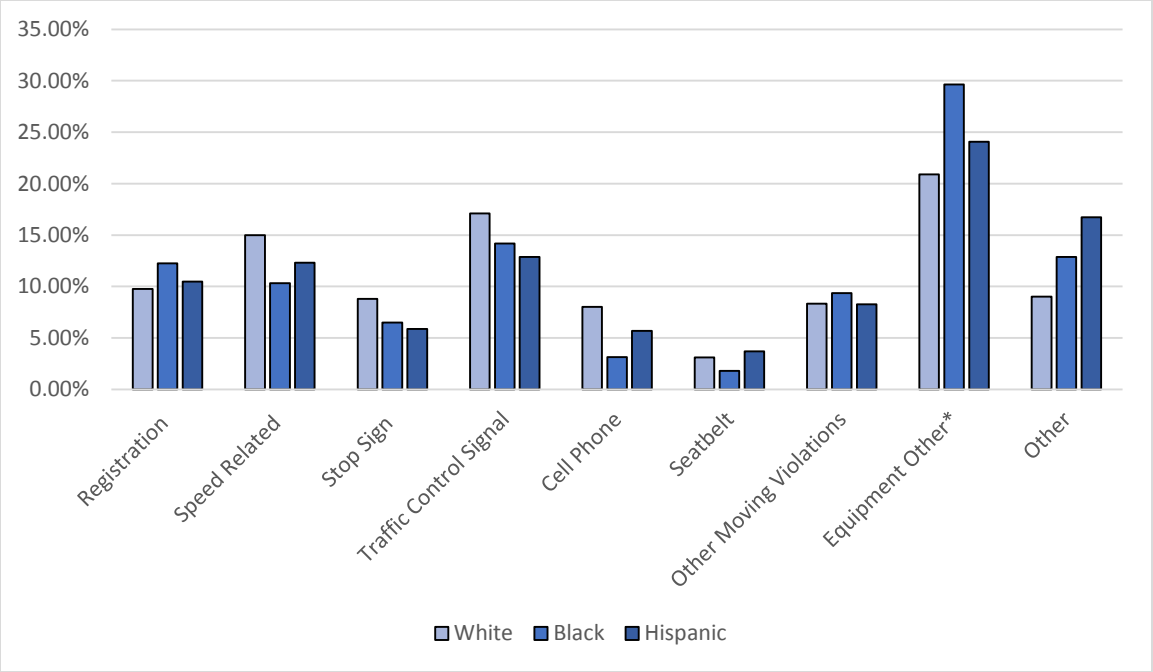
The reasons police use to stop a motor vehicle can vary significantly from department to department. We reviewed the statutory authority that an officer reported as the reason for stopping a motor vehicle. The three most common reasons for stopping a motorist in Manchester, which made up 48% of the total stops, were defective, missing, or improper lighting (19%); traffic control signal violations (16%); and registration violations (13%). Figure 5.1 illustrates the reason officers used to stop a motor vehicle by race and ethnicity of the drivers stopped.

Violations related to defective, missing, or inoperative lighting; display of plates; and excessive window tinting, for the most part, have a higher level of officer discretion involved than violations relating more directly to hazardous or dangerous vehicle operation. As noted above, light-related violations were the largest single category of traffic stops made in Manchester at 19% of the total. When the other two categories (plate display and window tinting) are added to the light-related stops, the total of 811 stops represents 24% of all the stops made. Where officers choose to make these types of stops more frequently in areas where larger minority populations exist, it can have an effect on the size of disparities.

While these types of stops were made in all census tracts in Manchester, the majority (60%) occurred in three census tracts (5141.02, 5144, and 5145). Additionally, 83% happened in the seven tracts

where the minority driving age population exceeded the town-wide average of 27.3%. In general, the greater likelihood that these stops occurred in areas with higher minority populations tended to increase the likelihood that minority drivers were stopped. In the six census tracts where the localized minority population was more than one percentage point above the town-wide average, minority drivers comprised 51.3% of the stops made. In the seven tracts where the localized white driving age population was more than 75%, minority drivers comprised 43.8% of the stops. However, because so many more stops for these violations were made in the higher minority areas, the impact was more significant on minority drivers overall. Even though the stop proportions were approximately equal for white and minority drivers overall for these violations, a greater proportion of all the minority drivers stopped were due to these reasons than were white drivers (27.4% of all minority stops compared to 21.1% of all white stops).

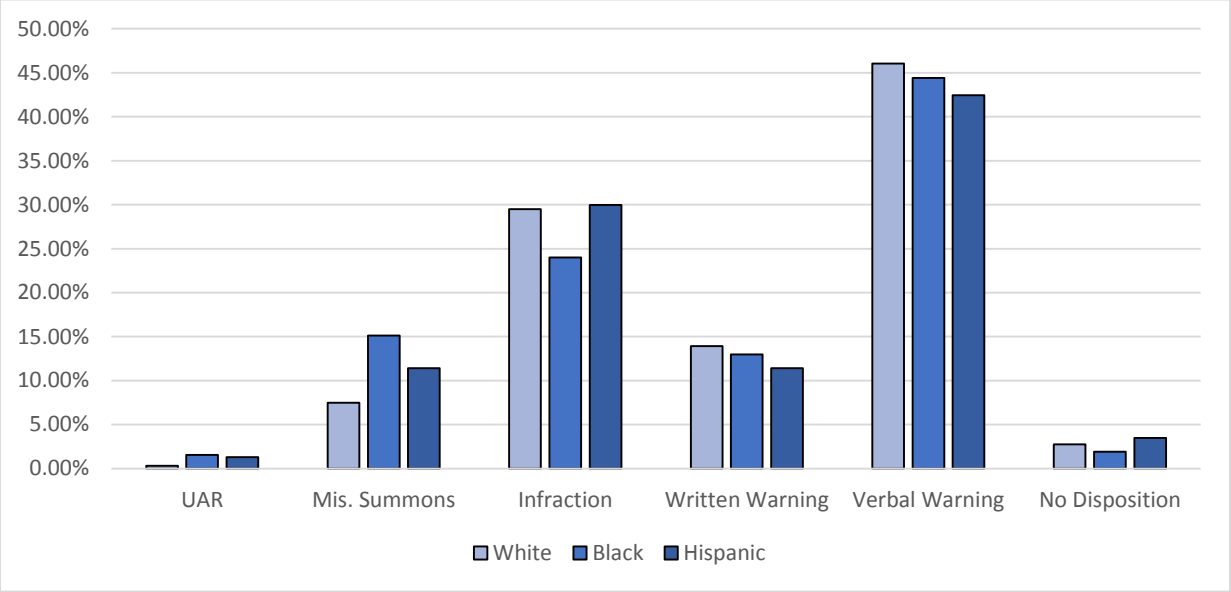
Figure 5.1: Reason for Traffic Stop



*Equipment Other includes violations for defective lights, excessive window tint, or display of plate violations.

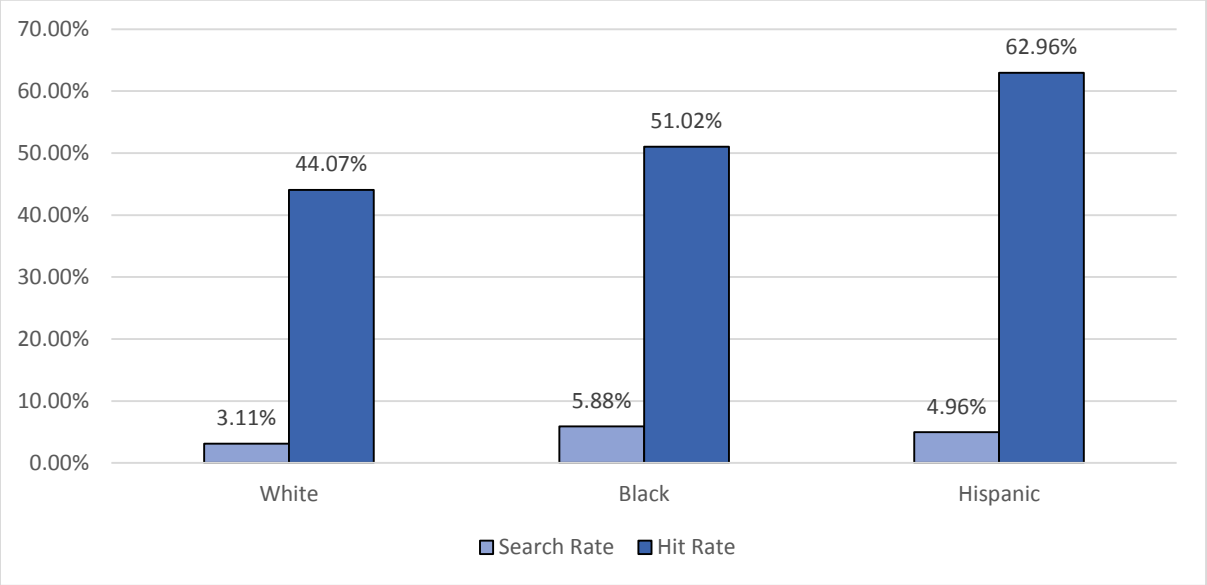
The largest number of motor vehicle stops in Manchester resulted in the driver receiving a verbal warning (45%) followed by issuance of an infraction citation Figure 5.2 outlines the outcome of motor vehicle stops by race and ethnicity. Black and Hispanic drivers were more likely to receive a misdemeanor summons as a percentage of their total stops. Black drivers were less likely to receive an infraction compared to white and Hispanic drivers. White drivers were more likely to receive written or verbal warnings than black or Hispanic drivers, but only slightly so.

Figure 5.2: Outcome of Traffic Stop



In addition, we also reviewed department search information. Four percent (136) of the drivers stopped in Manchester were subjected to a motor vehicle search. The rate of motor vehicle searches is above the state average of 2.9%, but minority drivers are searched at almost twice the rate of white drivers. However, contraband is found at a higher rate when a minority driver's vehicle is searched. Figure 5.3 illustrates the motor vehicle search rate and the rate at which contraband is found.

Figure 5.3: Search and Hit Rate



Additional Contributing Factors

Law enforcement administrators choose to deploy police resources within a community based on a number of different factors. Some of these may include locations where calls for service volume, accident rates, or crime rates are higher. Traffic enforcement is likely to be more prevalent in

locations that attract a greater police presence due to some of these factors. In addition to these factors, police may be more present in areas with higher traffic volume as the result of common factors that draw people into a community, such as employment and entertainment. In order to provide some context for potential explanations for the deployment of police resources in Manchester, we provided some basic information on crime, accidents, and other economic factors that are worth consideration.

According to the Connecticut Economic Resource Center (CERC) town profiles, Manchester employs approximately 31,000 people and their major employers include Manchester Hospital, Manchester Community College, Unison Engine Components, and JC Penney Distribution Center. The vast majority of commuters traveling into Manchester for employment are from East Hartford, Vernon, Hartford, and South Windsor. The overall unemployment rate is currently 6.5%, which is below the unemployment rate for Hartford County and the state. While Manchester has several major traffic generators within its boundaries, including a community college, they tend to be relatively dispersed throughout the town so they do not appear to affect any particular census tract disproportionately except for tract 5141.02, which has a major retail presence.

In 2014, crime in Manchester was reported at a rate of 2,931 per 100,000 residents, compared to the state crime rate of 2,167 per 100,000. According to the 2014 Connecticut Uniform Crime Report[12], there were 1,692 reported crimes in Manchester in 2014. The three most reported crimes were larceny (1,331), burglary (189), and motor vehicle theft (61).

During our study period, there were approximately 1,470 motor vehicle accidents on roads patrolled by the Manchester Police Department. Accidents were reported as occurring on a total of 176 roads, but 50% of the accidents occurred on just five roads. The roadways with the highest number of accidents were Route 44, also known as Center Street, with 259 accidents, Main Street with 187 accidents, Buckland Street with 108 accidents, and Route 30 and 502 with 89 accidents each. There were only 23 roads with 10 or more accidents and those roads account for 80% of all accidents. Figure 6.0 illustrates the time of day when traffic accidents were reported and the number of traffic stops that occur during that same time period. This may help to better understand how closely traffic enforcement is correlated to traffic accidents in Manchester.

[12] The Uniform Crime Report is an index for gauging fluctuations in the overall volume and rate of crime. The crime index includes seven offenses including the violent crimes of murder, rape, robbery, and aggravated assault and the property crimes of burglary, larceny-theft, and motor vehicle theft.

Figure 6.0: Accidents Compared to Traffic Stops by Time of Day

Findings and Recommendations

Manchester conducts high levels of traffic enforcement in a relatively concentrated area of town. Four census tract areas accounted for 65% of the traffic stop activity. These high enforcement areas also have a higher minority population than the town average. While more than 82 law enforcement officers made at least one traffic stop, the vast majority of them (73%) made fewer than 50 stops during the study period. Seven officers made more than 100 stops each and account for 38% of the traffic enforcement.

Census Tracts 5141.02, 5144, and 5147 garner the most traffic enforcement, and according to the police department these areas encompass a combination of high traffic volume routes, high population density, and high crime rates. There are three major east/west routes through town and two major north/south routes. The east/west corridors are Highland Avenue/Hartford Road, East Center Street/Center Street, and East Middle Turnpike/West Middle Turnpike. The north/south corridors are Main Street and Pine/Broad Streets. Census Tracts 5144 and 5147 are bordered by all the major routes in Manchester.

As for Census Tract 5141.02, the department characterized this area as a combination of the Buckland Hills retail district and an area of dense apartment/condominium complexes. This census tract has exits directly off I-84 and generates some of the largest amounts of traffic for the town. The department believes that in addition to the traffic density in these census tracts, Manchester deploys a "community policing" strategy in several parts of the town. This approach means additional police officers are deployed to these locations. Instead of only one officer patrolling an area, community policing areas have three officers. According to the department, the heaviest traffic stop data corresponds with the community policing zones.

Based on the census tract analysis, it is clear that traffic enforcement is primarily occurring in areas with high traffic volume, such as the Buckland Hills retail and the downtown district. The census

tracts within these areas have a higher percentage of minority driving age residents living in them than the rest of the town. Higher levels of enforcement due to traffic volume in the higher minority sections of town may contribute to some of the racial and ethnic disparity in Manchester. Even so, it appears that the high traffic areas were not the only places contributing to the racial and ethnic disparity in the data. Minority drivers were stopped in 13 out of the 14 census tracts at a higher rate than the driving age minority population in those census tracts. On an overall basis, minority drivers represented 44% of all the Manchester residents stopped, although they were only 27% of the resident driving age population.

Slightly more than half (52%) of the drivers stopped in Manchester were not residents of Manchester. Non-residents most heavily affected the Buckland Hills retail district with 74% of the stops involving non-resident drivers, 44% of whom were minority drivers. Even though non-residents had a significant effect on the overall Manchester stop data, the effect varies and it does not account for the disparities above the localized resident minority population in a few census tracts. More specifically, the analysis showed that disparities above the localized minority population persisted in Census Tracts 5142 (seven percentage points) and 5146 (four points) even after non-resident minority drivers stopped in these districts were accounted for. Similar results occurred for black drivers in Census Tracts 5151.01 (seven points) and 5152 (16 points). While non-resident Hispanic drivers accounted for the disparities above the localized Hispanic population in the four census tracts that exceeded the town-wide average for Hispanic stops, they also appear to have been disproportionately represented among all non-residents stopped in these tracts.

The greater likelihood that drivers would be stopped for relatively high discretion violations related to vehicle lighting, plate display, and window tinting in areas with higher minority populations appears to have contributed to the overall disparities to some extent. Manchester made 24% of its traffic stops for these reasons, but 83% of them were made in areas where the localized minority driving age populations exceeded the town-wide average. While the rates at which white and minority drivers were stopped for these violations balanced out on a town-wide basis, the greater number of stops made in the higher minority areas affected the overall proportion of all minority drivers stopped to a greater extent. These violations represented 27% of all the minority drivers stopped compared to 21% of all the white drivers stopped, a difference of six percentage points.

Traffic Stop Outcomes

In addition to the location of traffic stops in Manchester contributing to the racial and ethnic disparity, the outcome of traffic stops varies between racial and ethnic groups. White non-Hispanic drivers were more likely to be stopped for violations such as speeding, traffic light, stop sign, or cell phone violations. Black and Hispanic drivers were more likely to be stopped for equipment-related violations and slightly more likely to have been stopped for registration violations. Minority drivers were also more likely to have received a misdemeanor summons, while white drivers were more likely to receive an infraction ticket. There was no appreciable difference between racial or ethnic categories in the rate verbal or written warnings were issued.

The department also searched a higher percentage of drivers than the statewide average of 2.9%. Consistent with statewide data, minority drivers were searched at almost twice the rate of white drivers. However, inconsistent with the statewide data, the rate at which contraband was found was higher for minority drivers. The overall hit rate in Manchester is significantly higher than the statewide average.

In summary, the disparities identified in the Manchester stop data appear to exist to a great extent because the significant majority of stops were being made in areas of the town with the highest proportions of minority driving age residents. These areas are also some of the busier areas of the town. Non-residents who were stopped in Manchester have an effect on these disparities, particularly with respect to the Buckland Hills retail district, but this effect is greater in some areas than others. Irrespective of the factor, the percentage of minority residents who were stopped significantly exceeded their proportion in the general population. Several census tracts exhibited disparities in minority or black stops even after the possible influence of non-resident drivers was accounted for. One factor that may have contributed to the overall disparities was a reliance on higher discretion equipment-related stops, the majority of which were made in the higher minority population areas. While Manchester searched a higher percentage of drivers than the statewide average and searched minority drivers at about twice the rate of white drivers, its search results appear to have justified the higher minority search rates to some extent, in that contraband was found at a greater rate among minority drivers than white drivers—a result that generally runs counter to statewide search results.

II.B (6): NEW BRITAIN FOLLOW-UP ANALYSIS SUMMARY

The follow-up analysis presented below continued to review traffic stops conducted from October 1, 2013 – September 30, 2014. An additional 12 months of data has been collected and analyzed in Part I of this report. Below is a summary of reported traffic stops for New Britain over a two-year period.

	2013-2014 Traffic Stop Records		2014-2015 Traffic Stop Records	
White Non-Hispanic	2,026	36.6%	3,175	38.1%
Black Non-Hispanic	945	17.1%	1,465	17.6%
AsPac Non-Hispanic	50	0.9%	75	0.9%
AI/AN Non-Hispanic	21	0.4%	14	0.2%
Hispanic	2,491	45.0%	3,434	41.2%
Total	5,533		8,163	

We take note of the significant increase in traffic stops in the Year 1 and Year 2 data. There was a 1.5% increase in white Non-Hispanic drivers stopped, a 0.5% increase in black Non-Hispanic drivers stopped, and a 3.8% decrease in Hispanic drivers stopped. The data in the above table accurately reflects the data for the two years as the department entered it.

Overview of the April 2015 Traffic Stop Analysis

The April 2015 Traffic Stop Analysis report indicates that for the October 1, 2013 – September 30, 2014 study period a total of 5,533 traffic stops were made by the New Britain Police Department. Of these, 63.4% were minority stops, of which 45% were Hispanic drivers and 17% were black drivers. The New Britain Police Department was identified using the four descriptive tests as having exceeded the threshold of 10 percentage points in all four of the descriptive benchmarks and eight of the 12 measures. Although it is understood that certain assumptions have been made in the design of each of the four benchmarks, it is reasonable to believe that departments with consistent data disparities that separate them from the majority of other departments should be subject to further review and analysis with respect to the factors that may be causing these differences.

Descriptive Analysis of the 2013-2014 Traffic Stop Data

The racial and ethnic disparities in the New Britain Police Department data were explored through a more detailed look at traffic enforcement during the original study period. The analysis involves mapping all stops, if possible, using location data provided by the department and any enhancements we were able to make. Unfortunately, the descriptive information on stop locations was only specific to allow accurate mapping of 76% of the traffic stops reported. In most cases, geographical coordinates were not provided to us and traffic stops were manually mapped by using the officer's description of the location of the stop. For the other 24% of the reported traffic stops, the description was too general to be used to identify geographic coordinates that would place the stops in the census tracts where they occurred.

Although mapping 100% of stops is ideal for analytical purposes, the 76% of stops that could be mapped provided an adequate analytical base. The racial and ethnic demographics of the stops that could not be mapped did not vary significantly from the town-wide average for stops, though slightly less white and slightly more black and Hispanic. The combined demographic for minority drivers in the non-mapped sample was only 2.5% higher than the mapped sample, so their overall effect was small.

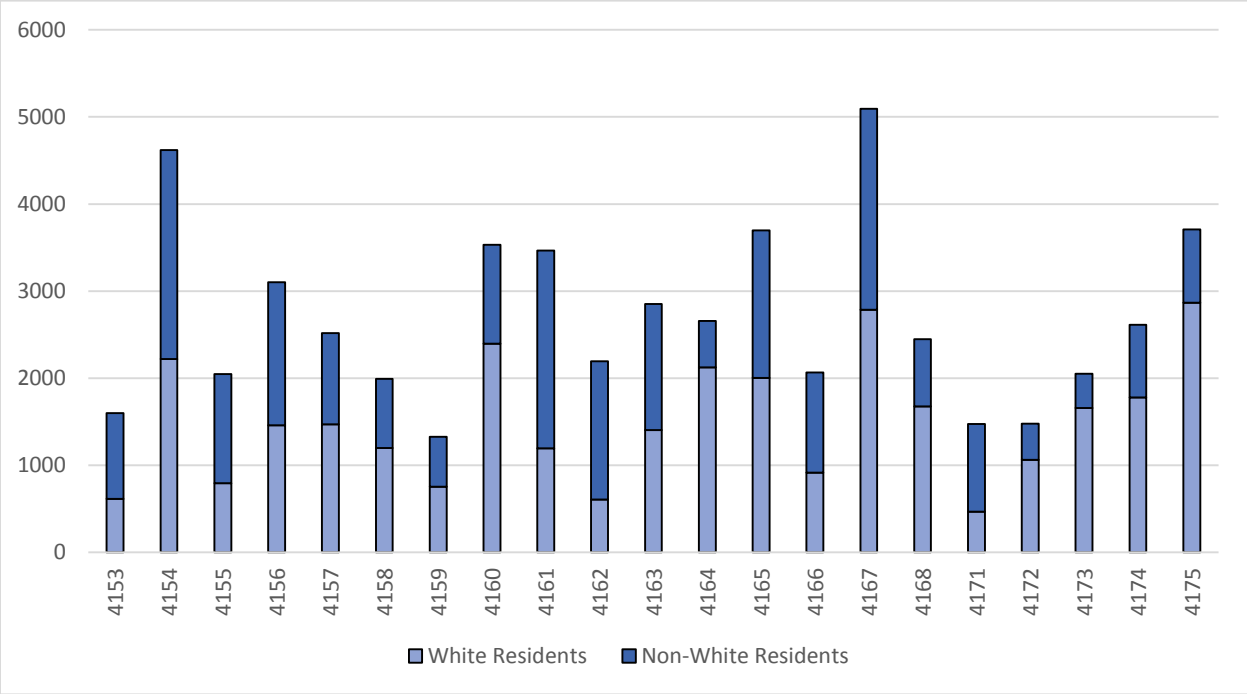
According to the 2010 census, New Britain is a city with approximately 56,523 residents over the age of 16. Approximately 44.4% of the driving age population in New Britain was identified as a minority. Figure 1.0 outlines the basic demographic information for New Britain residents over age 16.

Figure 1.0: New Britain Population

Race/Ethnicity	16+ Population Total	% Population Total
White Non-Hispanic	31,440	55.62%
Black Non-Hispanic	6,024	10.66%
AsPac Non-Hispanic	907	1.60%
Hispanic	18,152	32.11%
Other	0	0.00%
Total	56,523	

The U.S. Census Bureau divides New Britain into 21 census tracts. The resident driving age population varies from one census tract to another from approximately 1,300 to 5,000 people. The demographic breakdown of each census tract varies from a high of almost 73% minority residents in Census Tract 4162 to a low of 19% minority residents in Census Tract 4173. In 12 of the 21 census tracts, the white population forms the majority of the driving age population. Three of the census tracts are majority Hispanic. Figure 2.0 shows the breakdown for each census tract in terms of the numbers of white and non-white driving age residents.

Figure 2.0: 16+ Resident Population by Census Tract



Four other municipalities share a common border with New Britain, including Newington to its east, Berlin to its south, Plainville to its west, and Farmington to its north. These four municipalities are predominantly white demographically, with an average driving age white resident population of 89.3% (compared to New Britain's white driving age population of 55%). While it is reasonable to

believe that the population demographics of towns surrounding a large urban area can have an effect on the mix of race and ethnicity within the driving population at any given time, the fact that 72% of the drivers stopped in New Britain were residents of New Britain makes this less of a factor than in other municipalities. New Britain is also home to Geographical Area 15 Connecticut Superior Court, Central Connecticut State University (CCSU) and several industrial companies. Route 9 runs from north to south and Route 72 runs from west to east through a large part of New Britain.

Figure 3.1 illustrates the volume of traffic enforcement that occurs in each census tract. The majority of traffic enforcement activity (44.3%) occurs in a relatively concentrated geographical area encompassing 5 census tracts. Census Tract 4171 contributes the largest percentage of traffic enforcement with 12.5% of the city's traffic stops. Tract 4171 covers the main downtown area of New Britain. This census tract includes, among other potential traffic generators, City Hall, Central Connecticut State University Downtown Campus, the New Britain Police Department, the Superior Court, and the U.S. Post Office. Access to Route 9 and Route 72 are also available within this census tract.

The other four census tracts that comprise a large percentage of traffic stop activity range from 6.3% to 9.7% of New Britain's total stops. All four census tracts (4159, 4161, 4162, and 4163) border Census Tract 4171 to the north. Traffic enforcement changes dramatically as you move to the outer parts of the city. With the exception of Census Tract 4165, which contributes about 5% of the traffic activity, none of the other census tracts generate more than 2.5% of the traffic stop activity, with most considerably below that level. The main CCSU campus comprises its own census tract (4173).

Figure 3.1: Traffic Stops by Census Tract

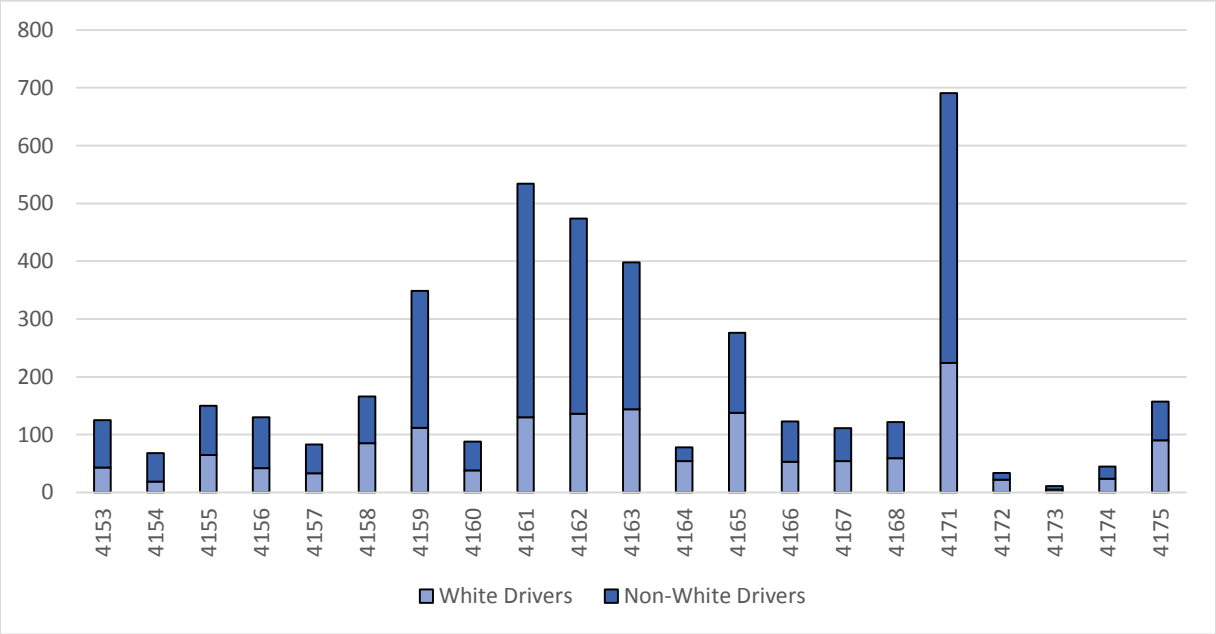
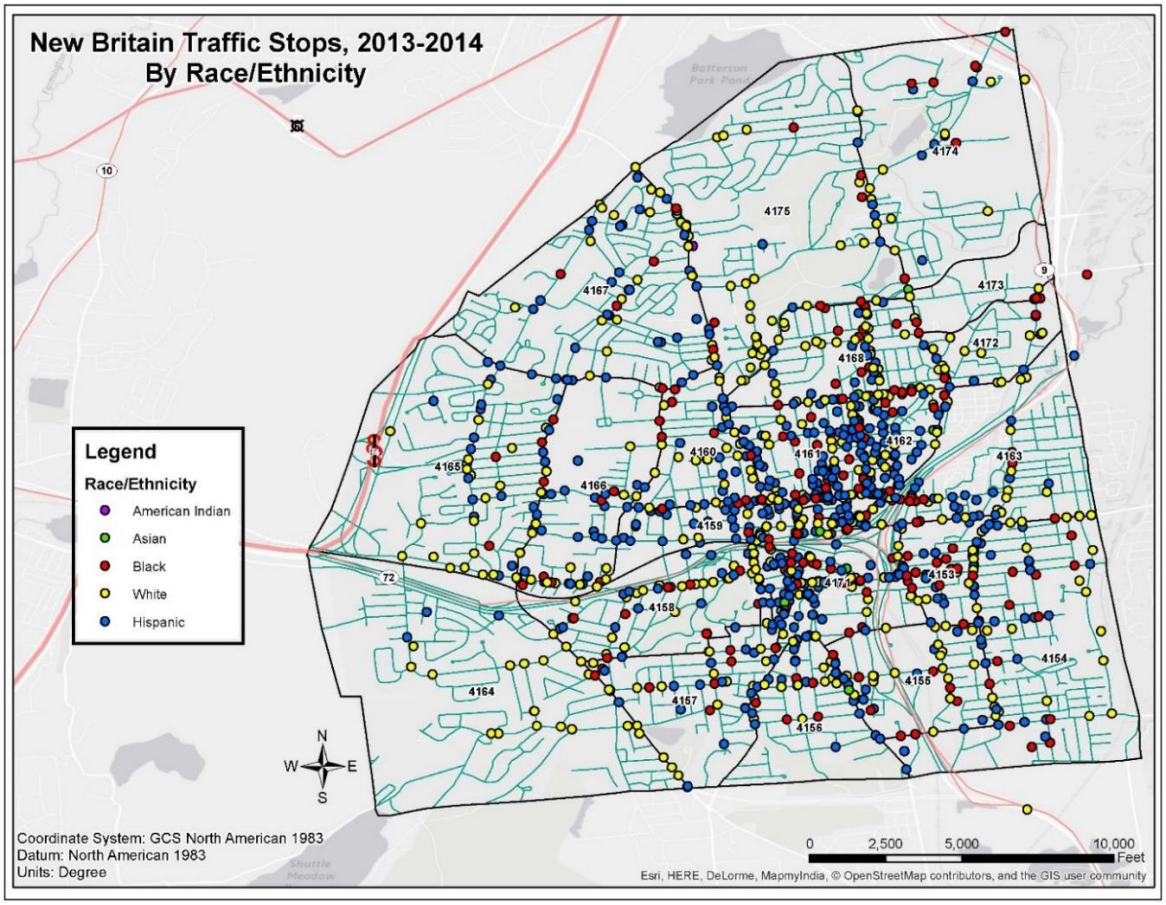


Figure 3.2 is a map of the traffic stops in New Britain that could be mapped accurately. The five census tracts that account for 44.3% of the traffic enforcement activity make up 24.7% of the resident population in New Britain. The two most heavily populated census tracts in New Britain (4154 and 4167) are located outside of this high enforcement activity core.

In addition, 72% of the drivers who were stopped were residents of New Britain, which is significantly above the statewide average**.** New Britain's resident population is 44.4% minority; however, 69.3% of the residents stopped were minority. Minority drivers made up the majority of those stopped in 15 out of 21 census tracts and comprised 50% of stops in one more census tract. Although there are a high percentage of minority residents living in the census tracts with the highest level of traffic enforcement, the disparity is also present in several census tracts where enforcement activity is low and the population demographics are predominantly white.

Figure 3.2: Traffic Stop Map



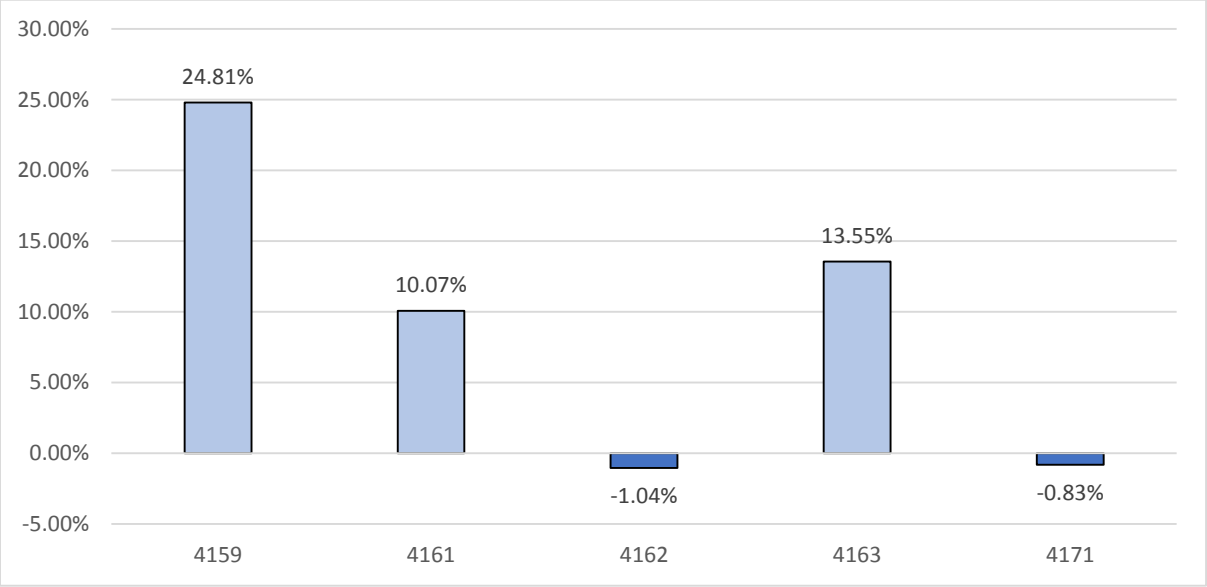
Traffic Stop Breakdown by Race/Ethnicity

In New Britain, 63.4% of all drivers stopped were minority. Minority drivers are classified as all non-white drivers, but this predominantly includes mostly black or Hispanic drivers. The resident population (16+) of New Britain is 44.4% minority. On its face this might suggest a wide disparity in the proportion of minority drivers stopped during the study period. In one sense, this is true, in that less than one-half of the New Britain population is minority but close to two-thirds of the drivers stopped were minority. However, the size and the racial and ethnic makeup of different areas of New Britain vary significantly by census tract. Given the fact that almost 72% of the drivers stopped in New Britain were town residents and the higher levels of traffic enforcement are concentrated in relatively few census tracts, most of which have minority populations well above the town-wide average, the disparities involving minority drivers would appear to be almost inevitable.

Specifically, four of the five census tracts that made up the highest enforcement activity areas in New Britain were among the census tracts with minority populations of 50% or higher. Conversely, six of the seven census tracts in New Britain where fewer than 100 stops were made during the study period had predominantly white driving age populations (58% or higher).

Taken individually, some of the census tracts with high proportions of minority drivers stopped and high to moderate enforcement activity tend to reflect the extremely high proportions of the minority population, but a few do not. Figure 4.1 highlights some of this information for the five high to moderate enforcement census tracts. Two of the tracts showed a negative disparity, that is, the percentage of minority stops made was less than the percentage of the localized minority populations living within the census tracts. The other three census tracts showed positive disparities, with Census Tract 4159 showing the largest disparity of almost 25 percentage points above the localized minority population of 43%. Tract 4159 is the smallest of all New Britain census tracts in terms of the size of the driving age population with only 1,327 residents. It is primarily retail and industrial in nature rather than residential and includes the Stanley Black and Decker facility.

Figure 4.1: Disparity Between Minority Drivers Stopped and Census Tract Population



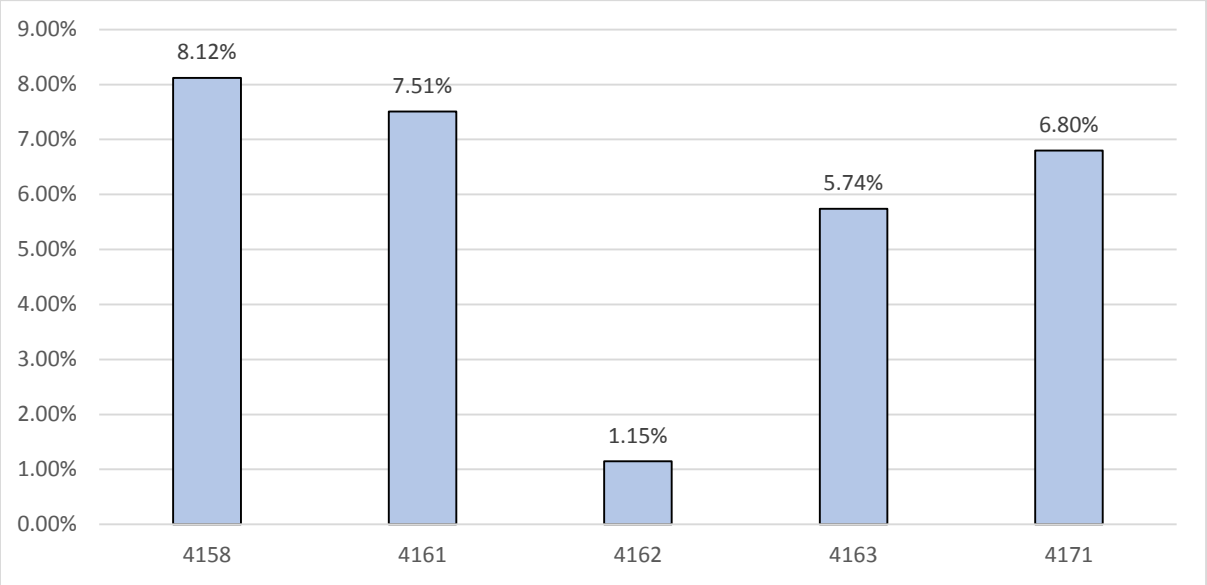
The overall percentage of New Britain traffic stops involving black drivers was 17.1%. The percentage of black drivers stopped exceeded the town average in 10 of the 21 census tracts, including four of the five high enforcement activity areas. The exception among the high enforcement areas was Census Tract 4159, where black drivers comprised only 15.5% of the stops compared to the town average of 17.1%.

Five of the 10 tracts (4153, 4154, 4157, 4173, and 4174) exhibited black driver stop percentages above the town average, but had the lowest stop activity levels in the city, combining for a total of only 75 black driver stops. These census tracts combined account for less than 7% of the total New Britain stops and make the results for these tracts fairly insignificant.

Figure 4.2 shows how the proportion of black driver stops made in five of the 10 census tracts compares to the proportion of black driving age residents living within the tracts. The five tracts with extremely low enforcement activity are excluded from the comparison. The comparison shows

relative differences between the proportion of black stops and the localized black population that were fairly small in some cases and significant in others. The greatest disparity of 8.12% was in tract 4158, where 20.5% of the stops involved black drivers while the black driving age population was only 12.4%.

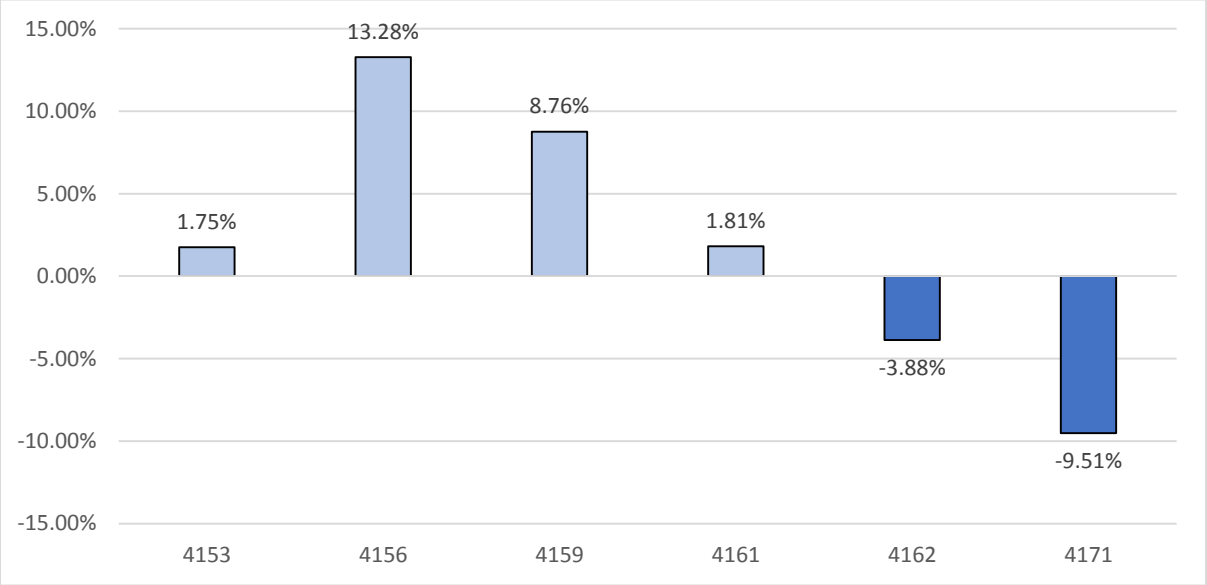
Figure 4.2: Disparity between Black Drivers Stopped and Census Tract Population



The overall percentage of New Britain traffic stops involving Hispanic drivers was 45.02%. The percentage of Hispanic drivers stopped exceeded the town average in six of the 21 census tracts, including four of the five high enforcement activity areas. Two of the census tracts exceeded the town-wide average by less than 1.5 percentage points. As with black drivers, five of these seven census tracts were among the high enforcement activity areas.

Figure 4.3 shows how the proportion of Hispanic stops made in these six census tracts compares to the proportion of Hispanic driving age residents living within those census tracts. As can be seen from the data, the disparity between Hispanic stops and the localized Hispanic driving age population is actually a negative disparity in two of the six census tracts examined. Of the four census tracts where Hispanic stops exceeded the localized Hispanic population, Census Tract 4156 shows the largest disparity at 13.3 percentage points above the population. This census tract borders the high enforcement activity area, and it is worth noting that it contributes less than 3% of the overall stop activity in New Britain.

Figure 4.3: Disparity Between Hispanic Drivers Stopped and Census Tract Population



Traffic Stop Distribution for New Britain Officers

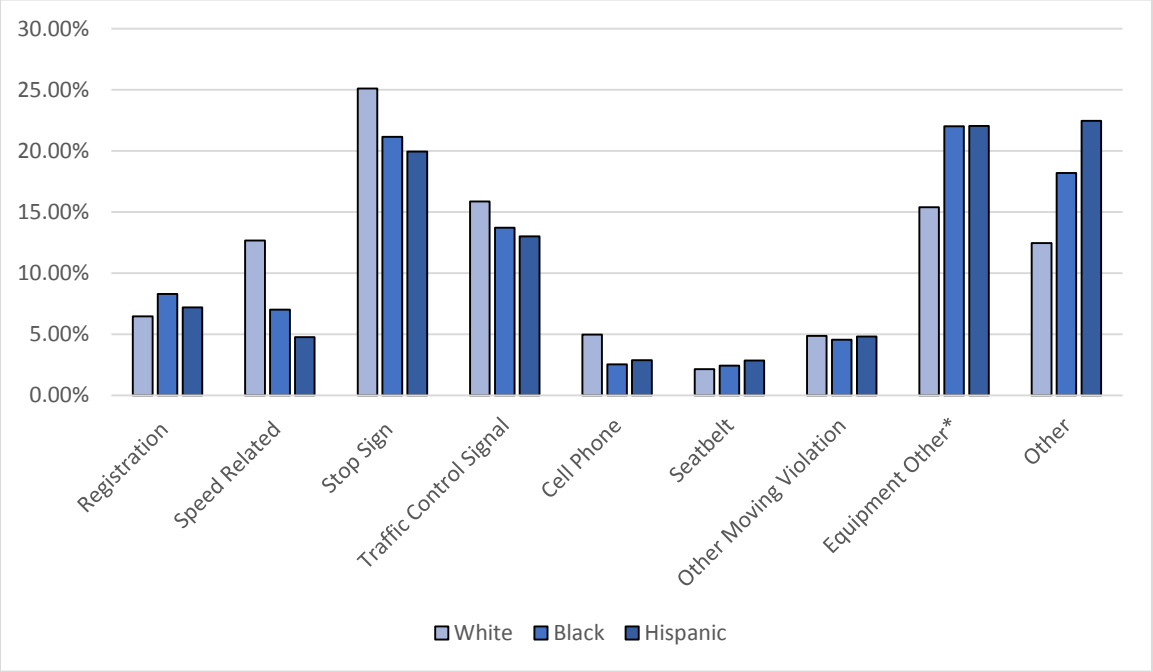
New Britain's total of 5,533 traffic stops is comparable to other cities of its size. The New Britain Police Department has officers dedicated to a traffic unit that contribute to a significant portion of the motor vehicle enforcement activity. During the study period, traffic stop data was reported for 114 officers. The average number of stops made per officer was 48.5. Of the 114 officers reporting stops, 45 made fewer than 20 stops, 26 made between 20 and 50 stops, 27 made between 50 and 100 stops, and 16 made over 100 stops. The 16 officers making more than 100 stops account for 45.5% of the New Britain traffic enforcement, with the six most active officers accounting for 25% of the stops.

Post-Stop Outcome Review

The reasons police use to stop a motor vehicle can vary significantly from department to department. We reviewed the statutory authority that New Britain officers reported as the reason for stopping motor vehicles. The three most common reasons used for stopping a motorist in New Britain make up over 49% of the total stops. The three largest stop categories were for stop sign violations (22%); traffic control signal violations (14%); and defective, inoperative, or improper lighting (13%). Figure 5.1 illustrates the reason officers used to stop a motor vehicle by race and ethnicity.

In general, white drivers were more likely to be stopped for unsafe driving violations such as speeding, traffic control signal violations, and stop sign violations than black or Hispanic drivers. Conversely, black and Hispanic drivers were more likely to be stopped for certain equipment violations (defective, improper, or inoperative vehicle lighting; display of plate violations; and window tinting) and slightly more likely to be stopped for registration-related violations. These types of vehicle equipment violations, under most circumstances, involve a higher level of officer discretion in terms of decision to stop than do hazardous moving violations.

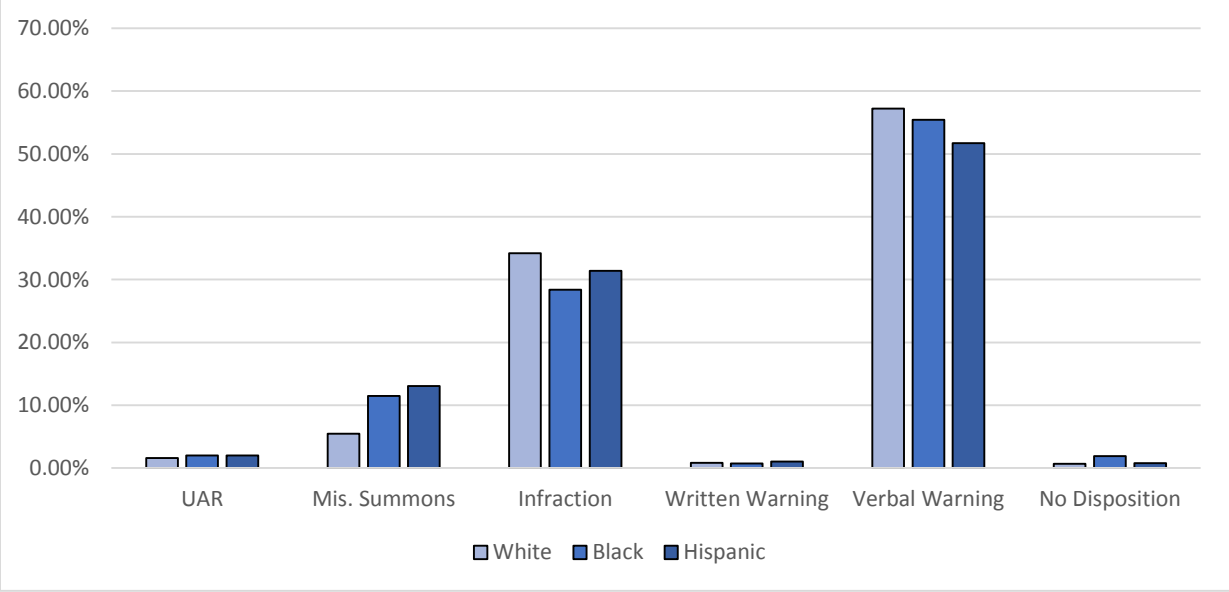
Figure 5.1: Reason for Traffic Stop



*Equipment Other includes violations for defective lights, excessive window tint, or display of plate violations.

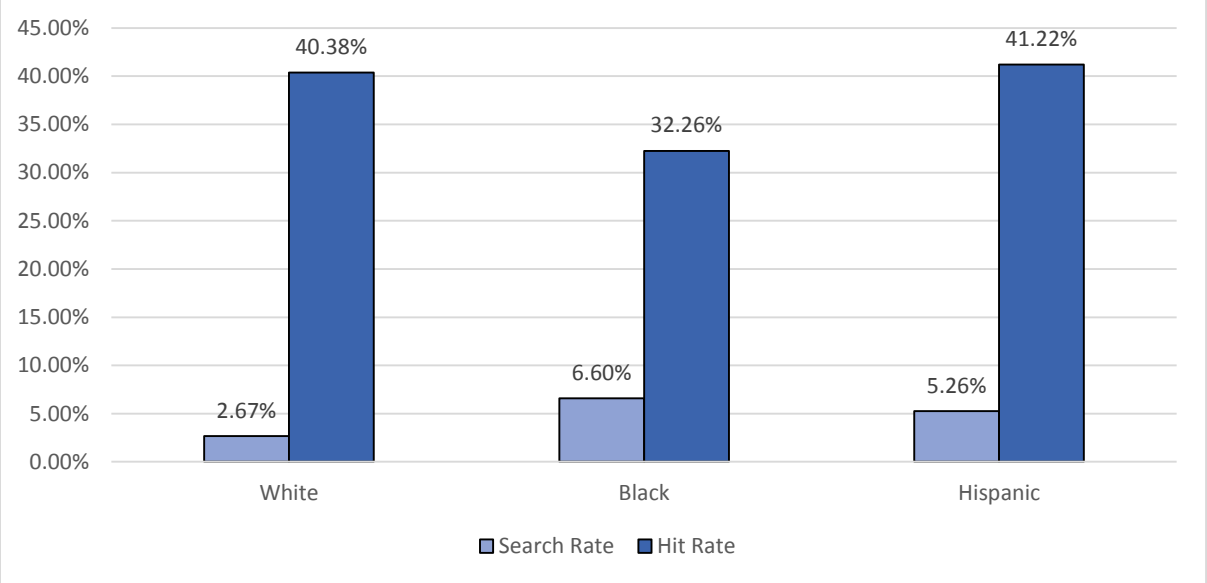
The majority of motor vehicle stops in New Britain resulted in the driver receiving a verbal warning (55%). Figure 5.2 outlines the outcome of motor vehicle stops by race and ethnicity. Black and Hispanic drivers were more likely to receive a misdemeanor summons as a percentage of their total stops. However, black drivers were slightly less likely to receive an infraction citation compared to white and Hispanic drivers. Verbal warning rates were only slightly lower for Hispanic drivers than white or Black drivers.

Figure 5.2: Outcome of Traffic Stop



We also reviewed department search information. In particular, 4.5% (248) of the drivers stopped in New Britain were subjected to a motor vehicle search. The rate of motor vehicle searches was above the state average of 2.9% and minority drivers were searched at more than twice the rate of white drivers. Contraband was found at a lower rate when a black driver's vehicle was searched than for either white or Hispanic drivers. Search rate success in finding contraband was about the same for white and Hispanic drivers, but Hispanic drivers were subjected to searches twice as frequently as the percent of stops made. Figure 5.3 illustrates the motor vehicle search rate and the rate at which contraband was found.

Figure 5.3: Search and Hit Rate



Additional Contributing Factors

Law enforcement administrators choose to deploy police resources within a community based on a number of factors. Some of these may include locations where calls for service volume, accident rates, or crime rates are higher. In addition to these factors, police may be more present in areas with higher traffic volume as the result of common factors that draw people into a community such as employment and entertainment. Traffic enforcement is likely to be more prevalent in locations that attract a greater police presence due to some of these factors. In order to provide some context for potential explanations for the deployment of police resources in New Britain, we provided some basic information on crime, accidents, and other economic factors that are worth consideration.

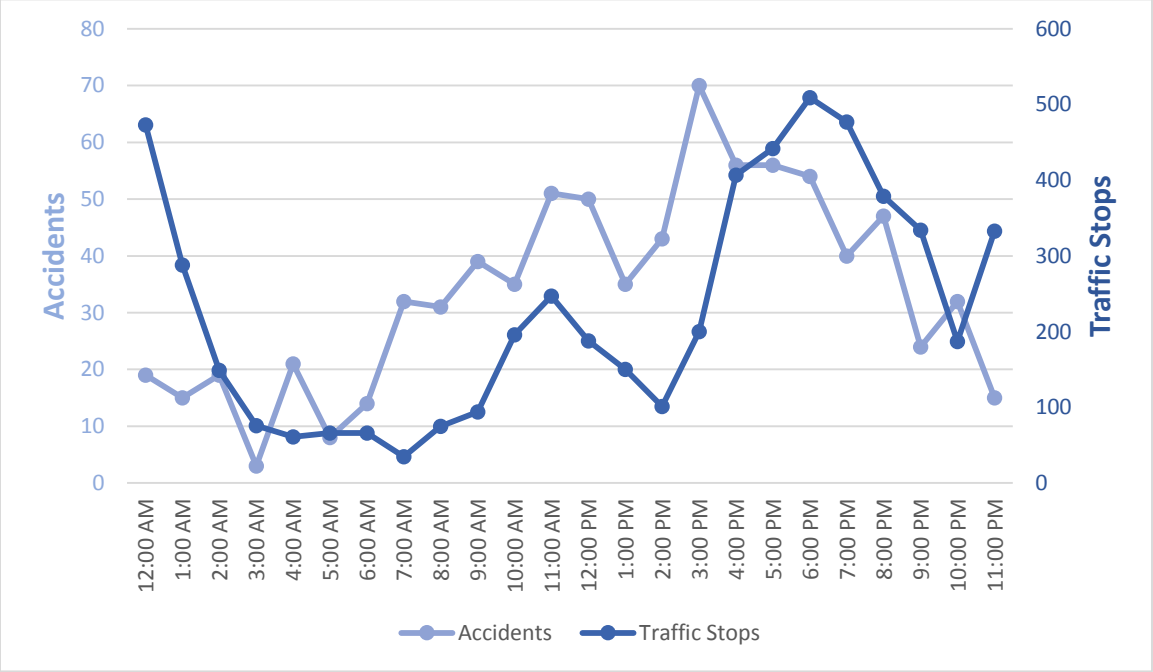
According to the Connecticut Economic Resource Center (CERC) town profiles, New Britain employs approximately 30,000 people and the major employers include Hospital of Central Connecticut, Central Connecticut State University, Stanley Fastening Systems LP, and the Hospital for Special Care. The vast majority of commuters traveling into New Britain for employment are from Bristol, Hartford, Southington, and Berlin. The overall unemployment rate is currently 9.5%, which is above the unemployment rate for Hartford County and the state.

In 2014, crime in New Britain was reported at a rate of 323.2 per 10,000 residents compared to the state crime rate of 216.7 per 10,000 residents. According to the 2014 Connecticut Uniform Crime

Report[13], there were 2,439 reported crimes in New Britain in 2014. The three most reported crimes were larceny (1,361), burglary (553), and motor vehicle theft (204).

During our study period, there were approximately 800 motor vehicle accidents on roads patrolled by the New Britain Police Department. Accidents were reported on a total of 186 roads. The roadways with the highest number of accidents were Route 71 with 111 accidents and Route 372 with 53 accidents. There were only 17 roads with 10 or more accidents and those roads accounted for 54% of all accidents. Figure 6.0 illustrates the time of day when traffic accidents were reported and the number of traffic stops that occur during that same time period. This may help to better understand how closely traffic enforcement is correlated to traffic accidents in New Britain.

Figure 6.0: Accidents Compared to Traffic Stops by Time of Day



Findings and Recommendations

The New Britain Police Department identified factors they believe contribute to the disparity identified in the initial analysis. In particular, Police Chief James Wardwell stated that traffic enforcement resources are largely deployed to areas based on community traffic safety complaints. The department often attends neighborhood meetings and when residents complain about drivers speeding, running through stop signs, or talking on their cell phones, the police respond with enhanced traffic enforcement in those areas. According to the department, the areas of town with the highest levels of community complaints reflects the highest levels of traffic enforcement.

While New Britain had some material that may support its assertions, it was in a form that made it difficult to effectively analyze how closely deployment of resources for traffic enforcement matched these factors. The disparities in New Britain's traffic stop data for Year 2, while decreased from Year

[13] The Uniform Crime Report is an index for gauging fluctuations in the overall volume and rate of crime. The crime index includes seven offenses: the violent crimes of murder, rape, robbery, and aggravated assault and the property crimes of burglary, larceny-theft, and motor vehicle theft.

1, were still sufficient for them to be identified using the descriptive benchmarks. Departments that were subjected to a full follow up analysis based on Year 1 data and showed disparities sufficient for identification in Year 2 as well will undergo a limited follow up analysis intended to confirm if the Year 1 analysis remains valid. One of the primary goals of New Britain's Year 2 limited follow up will be an effort to compile and get a better understanding of how its data on calls for service and response to community complaints correlates with its deployment of traffic enforcement resources.

We recommend that the New Britain Police Department make a concerted effort when participating in neighborhood meetings where increased levels of traffic enforcement is a topic for discussion to inform the public that a consequence of deploying these additional resources could be a greater likelihood of contact with residents of that area.

Stop Rate Anomalies by Area

New Britain traffic stops were made in a relatively small geographic area. New Britain traffic enforcement activity does not appear to be primarily driven by population concentrations; that is, the census tracts with the largest population concentrations do not all generate significant levels of traffic enforcement. For example, Census Tract 4167 accounts for 9% of the resident population but only 2% of the traffic stops, as opposed to Census Tract 4171, which accounts for 2.6% of the resident population but 12.5% of the traffic stops.

New Britain's high stop rates of Hispanic drivers is somewhat unsurprising given where it engages in the majority of its traffic enforcement activity, i.e., areas with the highest populations of minority residents. We identified all the census tracts where the proportion of stops exceeded the town-wide average for a racial/ethnic group and then looked at the driving age population within those tracts to try and understand localized disparities. This is an effective way to assess some of these disparities, because such a high proportion of stops involved residents of New Britain. The possible influence of out of town drivers is less of a factor than it might be in other communities.

In effect, this process identified six of the 21 census tracts where the stop disparity exceeded the relevant localized population by at least five percentage points. These were Census Tracts 4158, 4159, 4161, 4163, and 4171. They included four of the city's five high enforcement areas. This does not necessarily mean that profiling exists in these areas, since the disparity could be fueled by other factors such as high levels of movement through the area by residents from other areas of the city, but it serves to identify those sections of the city where the disparities are most apparent. Essentially, in these five census tracts, the disparities could not be accounted for solely on the basis of the proportion of minority residents living in the area.

Census Tract 4171, the city's highest enforcement area, showed a 6.8 percentage point disparity in black stops above the localized black population. Census Tract 4158 showed disparities for both black stops (8.1 points) and Hispanic stops (8.8 points). Census Tract 4163 showed disparities for black stops (5.7 points) and all minority stops (13.6 points). Census Tract 4161 showed disparities for black stops (7.5 points) and all minority stops (10 points). Census Tract 4159 showed a disparity for all minority stops (24.8 points). Census Tract 4156 showed a disparity for Hispanic stops (13.3 points).

Disparities do not mean bias. There are other possible explanations that do not involve officer bias. But bias, even if unconscious, is one possibility among all the others. The reasons for disparities in one area could be different from those in another. We recommend that the New Britain Police

Department evaluate its activities in these census tracts to see if it can gain a better understanding of what may be influencing the data in these areas compared to other areas of the city. This endeavor could prove valuable for both the department and the public.

Traffic Stop Outcomes

Stop sign violations (22.1%) were the largest category of stops made in New Britain. The next largest category of stops were for traffic control signal violations (14.2%). The prevalence of stops made for these two reasons (36% of all stops) would appear to support the department's assertion that it focuses on moving violation complaints raised by local residents. White non-Hispanic drivers were more likely to be stopped for a moving violation.

The next largest category of stops was for defective, improper, or inoperative lighting (13%). When the two other categories of higher discretion stops are added to the light-related violations in New Britain, they account for nearly one out of five stops made (19.7%). Black and Hispanic drivers are typically more likely than white non-Hispanic drivers to be stopped for an equipment violation, usually because they are more frequently used in neighborhoods with higher minority populations. This tends to be the case in New Britain as well, particularly in the five high enforcement areas. These five areas accounted for 67% of all the lighting, plate display, and window tinting stops made that could be mapped (49% of all such stops including those that could not be accurately mapped). We recommend that the New Britain Police Department review its use of these higher discretion stops to ensure that they are not being used in a way that disproportionately affects its minority residents.

The proportion of New Britain's traffic stops that result in a misdemeanor summons (9.9%) exceeds the state average of 5.5%. Black and Hispanic drivers were more than twice as likely as white non-Hispanic drivers to receive a misdemeanor summons as the result of a stop. White non-Hispanic drivers were slightly more likely to receive an infraction ticket. Overall, almost 55% of all drivers stopped received a verbal warning.

While a portion of the New Britain stops that resulted in the misdemeanor charges were apparently misdemeanor violations at the outset based on the data entered in the system, 164 of the 546 began as infraction violations. If officers were to follow the data entry requirements properly, they would have entered the statutory citations that led to the more severe misdemeanor outcome in a separate field. Unfortunately, this secondary citation data was missing for these 164 misdemeanor outcome stops. Thus it is not possible to analyze the progression of how these stops moved from infractions to misdemeanors from the available data. It is important that the police department improve upon this shortcoming by assuring that its officers input all the necessary data into the system.

Lastly, New Britain searched the vehicles of 4.5% of drivers stopped, which is more than the state average of 2.9%. Black and Hispanic drivers are searched at more than twice the rate of white non-Hispanic drivers. The location for vehicle searches mirrors the five census tracts with the highest levels of traffic enforcement. The rate of contraband found is higher when white drivers are searched compared to black drivers but almost equivalent to the contraband rate for Hispanic drivers. Of the 248 vehicle searches, almost half were the result of drivers' consent and the other half were due to some other authority (i.e. probable cause, plain view, etc.) The rate at which contraband is found is only 25% for consent searches, but 58% for "other" searches. We believe the department would benefit from reviewing the role consent searches play in its traffic stop data.

Summary

To summarize, the disparities in New Britain's traffic stop data tend to reflect a concentration of enforcement in central areas of the city which tend to have higher concentrations of minority residents. The department asserts that its traffic enforcement resources are largely deployed to areas based on community traffic safety complaints. Although we were unable to analyze this effectively, the prevalence of stops for stop sign and traffic light violations in its data tends to support the notion that this may be happening.

When New Britain's stop disparities were analyzed by census tract, taking into account the localized populations within each tract, six of the 21 census tracts in New Britain showed disparities even after the relevant populations were taken into account. We recommend that the department review the data for these identified tracts to attempt to find the reasons for these disparities.

We also recommend that the department (1) continue to refine its officer training to improve the location description data it enters into the system to reduce the number of stops that cannot be accurately mapped, thereby improving the quality of future stop analysis; (2) make a greater effort to ensure that its officers provide the required secondary charge data when stops made for one reason end with the driver being charged with a different, more serious charge than the original reason for the stop; (3) review its use of higher discretion equipment-related stops to ensure that they are not being used in a way that disproportionately affects minority residents; (4) review the role consent searches play in its overall traffic stop efforts to ensure that its officers are not overly relying upon this as a traffic stop technique; and (5) take whatever steps it deems appropriate to educate the public at the neighborhood meetings it attends on traffic safety issues to ensure that the public comprehends how this is likely to increase driver-police contact at the local level.

II.B (7): STRATFORD FOLLOW-UP ANALYSIS SUMMARY

The follow-up analysis presented below continues to review traffic stops conducted from October 1, 2013 – September 30, 2014. An additional 12 months of data has been collected and analyzed in Part I of this report. Below is a summary of reported traffic stops for Stratford over a two-year period.

	2013-2014 Traffic Stop Records		2014-2015 Traffic Stop Records	
White Non-Hispanic	1,563	52.9%	1,464	46.6%
Black Non-Hispanic	850	28.8%	1,017	32.4%
AsPac Non-Hispanic	20	0.7%	37	1.2%
AI/AN Non-Hispanic	3	0.1%	10	0.3%
Hispanic	521	17.6%	579	18.4%
Total	2,957		3,107	

Overview of the April 2015 Traffic Stop Analysis

The April 2015 Traffic Stop Analysis report indicated that for the October 1, 2013 – September 30, 2014 study period a total of 2,957 traffic stops were made by the Stratford Police Department. Of these, 47% were minority stops, of which 17.6% were Hispanic drivers and 28.8% were black drivers. The Stratford Police Department was identified using the four descriptive tests. Stratford was identified as having exceeded the threshold of 10 percentage points in all four of the descriptive benchmarks used and eight of the 12 possible measures. Although it is understood that certain assumptions have been made in the design of each of the four benchmarks, it is reasonable to believe that departments with consistent data disparities that separate them from the majority of other departments should be subject to further review and analysis with respect to the factors that may be causing these differences.

Descriptive Analysis of the 2013-2014 Traffic Stop Data

The racial and ethnic disparities in the Stratford Police Department data were explored through a more detailed look at traffic enforcement during the original study period. Part of the analysis involved mapping all the stops, if possible, using the location data provided by the department and any enhancements we were able to make. Stratford was able to supply latitude and longitude coordinates that allowed mapping of almost all of its stops.

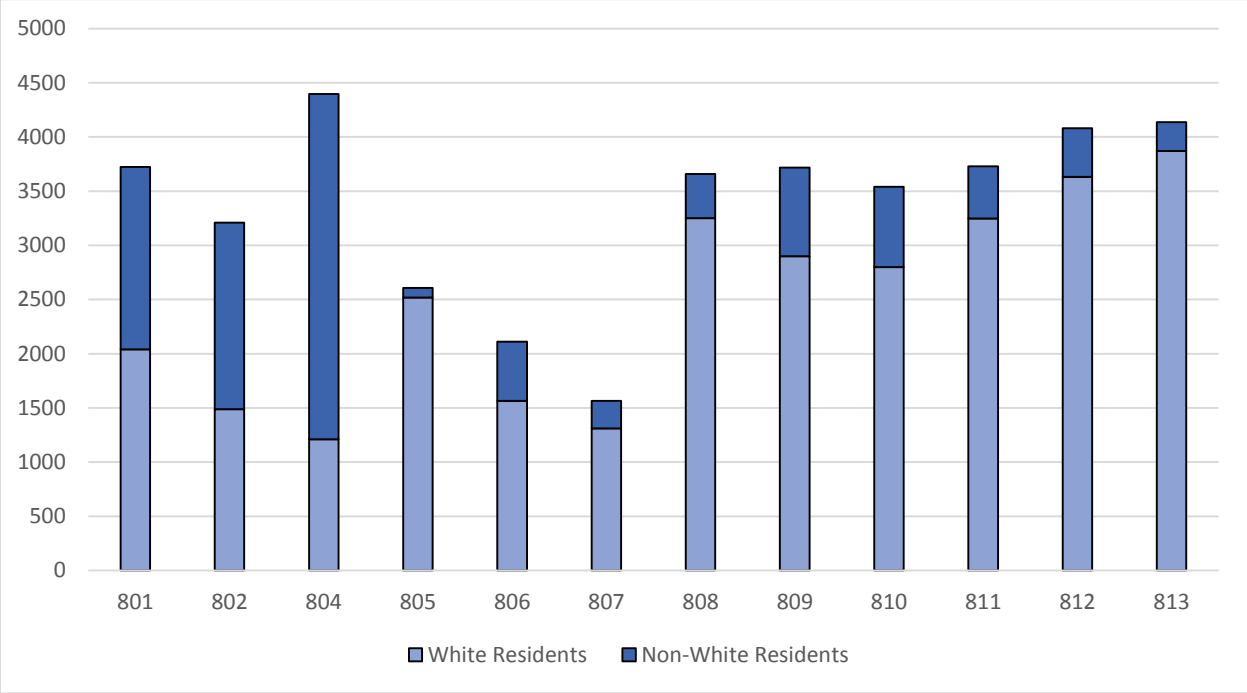
According to the 2010 census, Stratford is a town with approximately 40,478 residents over the age of 16. Approximately 26% of the driving age population in Stratford is identified as a minority. Figure 1.0 outlines the basic demographic information for Stratford residents over age 16.

Figure 1.0: Stratford Population

Race/Ethnicity	16+ Population Total	% Population Total
White Non-Hispanic	29,835	73.7%
Black Non-Hispanic	5,193	12.8%
AsPac Non-Hispanic	565	1.4%
Hispanic	4,885	12.1%
Other	0	0.0%
Total	40,478	

The U.S. Census Bureau divides Stratford into 12 census tracts. The resident driving age population varies from one census tract to another, from about 1,500 to 4,400 people. The demographic breakdown of each census tract varies, from a high of over 72% minority driving age residents in Census Tract 604 to a low of only 3.4% in tract 605. Figure 2.0 shows the distribution for each census tract in terms of white and non-white driving age population.

Figure 2.0: 16+ Resident Population by Census Tract



Four other municipalities share a common border with Stratford, including Shelton to its north, Milford to its east, and Bridgeport and Trumbull to its west. With the exception of Bridgeport, the three other border towns are predominantly white demographically, with an average driving age white population of 89% (compared to Stratford's white driving age population of 73%). Bridgeport borders part of the western portion of Stratford and has a white driving age population of 27%. Of the drivers stopped in Stratford on an overall basis, 41% were Stratford residents and 59% lived elsewhere.

Interstate 95 and Route 1 run through Stratford from Bridgeport to Milford, and Route 15 runs through Stratford from Trumbull to Milford. The largest private employer in Stratford, which accounts for a large percentage of the workforce, is Sikorsky Aircraft in the northeastern corner of the town.

Figure 3.1 illustrates the volume of traffic enforcement that occurred in each Stratford census tract. A large percentage of traffic enforcement activity (42%) occurred in a relatively concentrated geographical area encompassing three census tracts (802, 804, and 807). Census Tract 804 contributes the largest percentage of traffic enforcement with 16% of the town's traffic stops. This tract borders an area of Bridgeport that is almost 97% minority. Access to Stratford from this section of Bridgeport is primarily via I-95 and Lordship Boulevard. St. Michael's Catholic cemetery covers a

large section of the western portion of this tract, with a mix of residential and commercial property covering the other portions.

The other two census tracts that comprise large areas of traffic stop activity are 802 and 807. These tracts border 804 to the north. Route 1, a heavily traveled road in Stratford, runs along the northern side of the two tracts. Approximately 22% of all traffic enforcement occurred on Route 1. I-95 runs through the eastern corner of 802 and through the center of 807 to the Milford town line.

The other census tracts that border high minority areas of Bridgeport include tract 802, which borders part of the same Bridgeport census tract as 804 as well as two other Bridgeport census tracts with more than 85% minority population, and census tract 801, which borders two Bridgeport census tracts with 65% and 82% minority populations.

As you move away from the center of town and Route 1, where the majority of traffic enforcement occurs, no other census tract contributes more than 4% of the total stop activity. In fact, the heavily traveled census tract in northeastern Stratford that includes Sikorsky Aircraft (813) has the lowest level of stop activity throughout the town (2.4% of the stops).

Figure 3.1: Traffic Stops by Census Tract

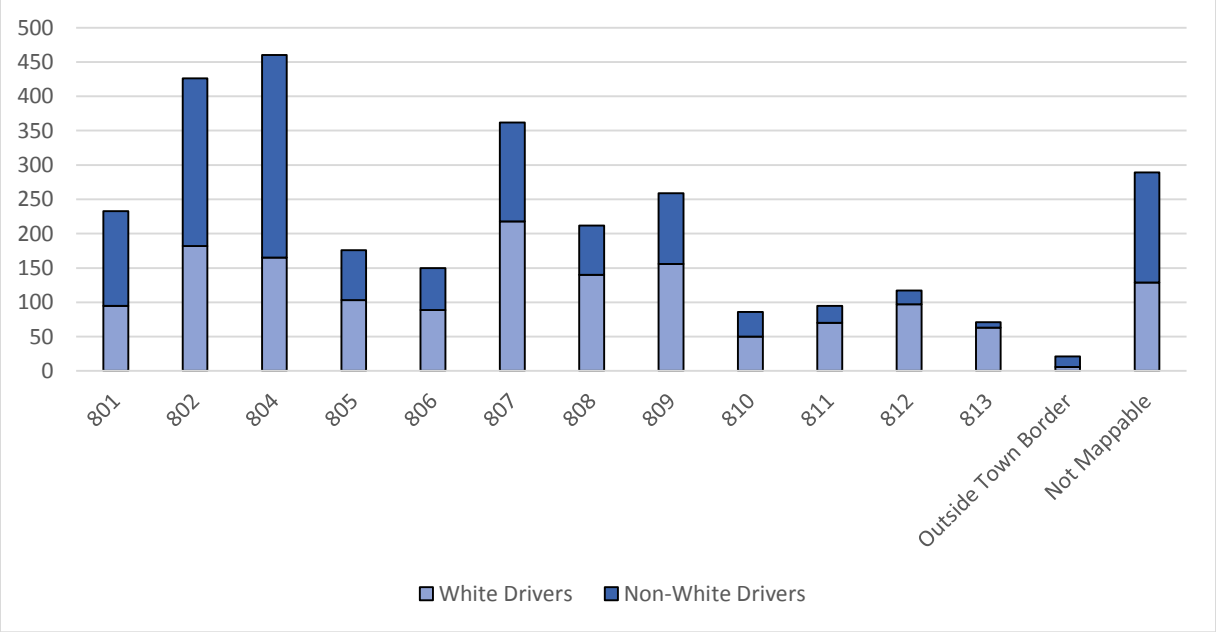
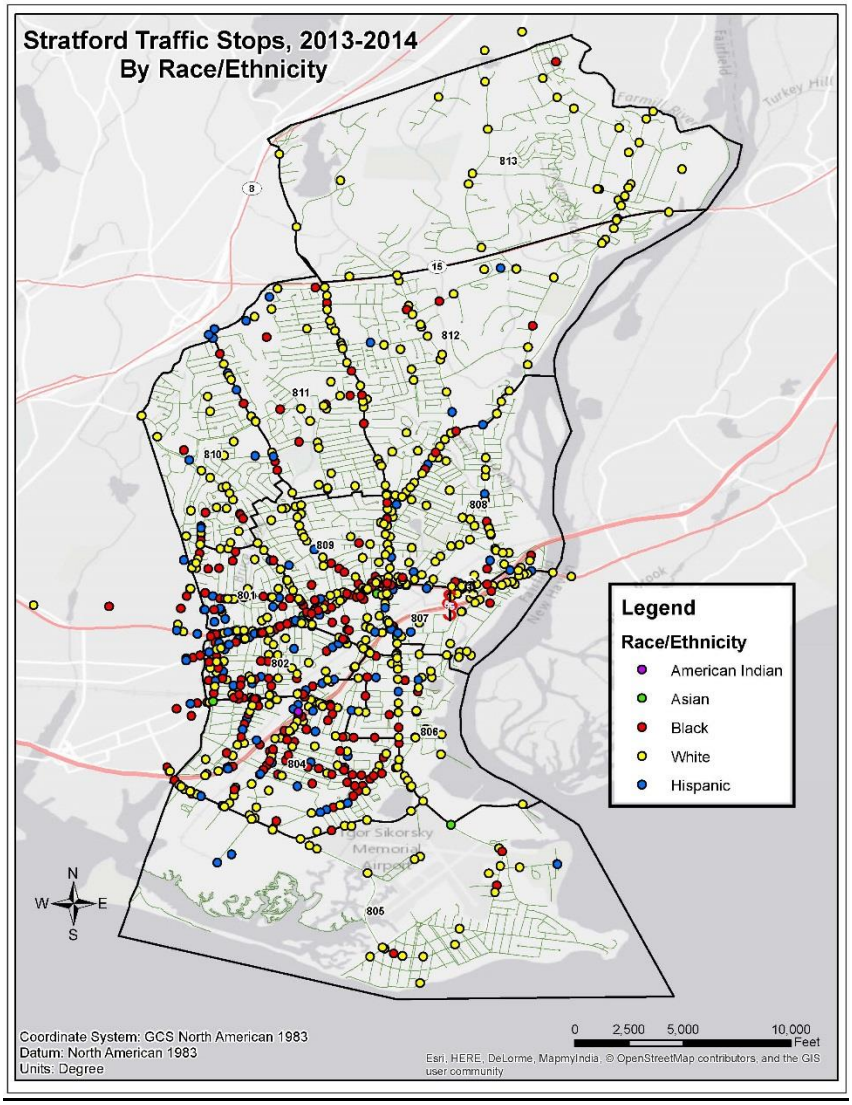


Figure 3.2 is a map of traffic stops made in Stratford. The three census tracts that account for 42% of the traffic enforcement activity make up 22.7% of the resident population in Stratford. The largest of these three tracts in terms of population is tract 804 with almost 11% of the town population. Two of the other most heavily populated census tracts in Stratford (812 and 813) are located outside of this high enforcement activity core.

Stratford's overall resident population is 26% minority; however, 41% of all Stratford residents who were stopped were minority. Resident minority drivers were stopped in 10 of the 12 census tracts at a rate that exceeded their representation in the localized minority driving age population in the tract. The two census tracts where this was not the case (802 and 804) have the highest proportion of minority driving age residents in Stratford.

Figure 3.2: Traffic Stop Map



Traffic Stop Breakdown by Race/Ethnicity

Minority drivers accounted for 47.1% of all drivers stopped in Stratford. Minority drivers are classified as all non-white drivers, but are predominantly made up of black or Hispanic drivers. The resident population (16+) of Stratford is 26.3% minority. On its face, this might suggest a wide disparity in the proportion of minority drivers stopped during the study period. In one sense, this is true, in that about one quarter of the Stratford population is minority but close to one half of the drivers stopped were minority. However, the racial and ethnic makeup of different areas of Stratford varies significantly by census tract, so the disparities were more pronounced in some areas compared to others.

Specifically, three of the 12 census tracts (801, 802, and 804) showed a higher percentage of minorities stopped than the town average of 47% minority stops. The disparities above the town-wide average remained apparent even when only stops involving Stratford residents were counted, particularly in Census Tract 604.

Three census tracts (802, 804, and 807) make up the highest enforcement activity areas in Stratford, accounting for just over 42% of the stops made. Tracts 802 and 804 had minority driver stop percentages above the town average of 47.1% (57% and 64% respectively). Tract 807 had 40% minority stops.

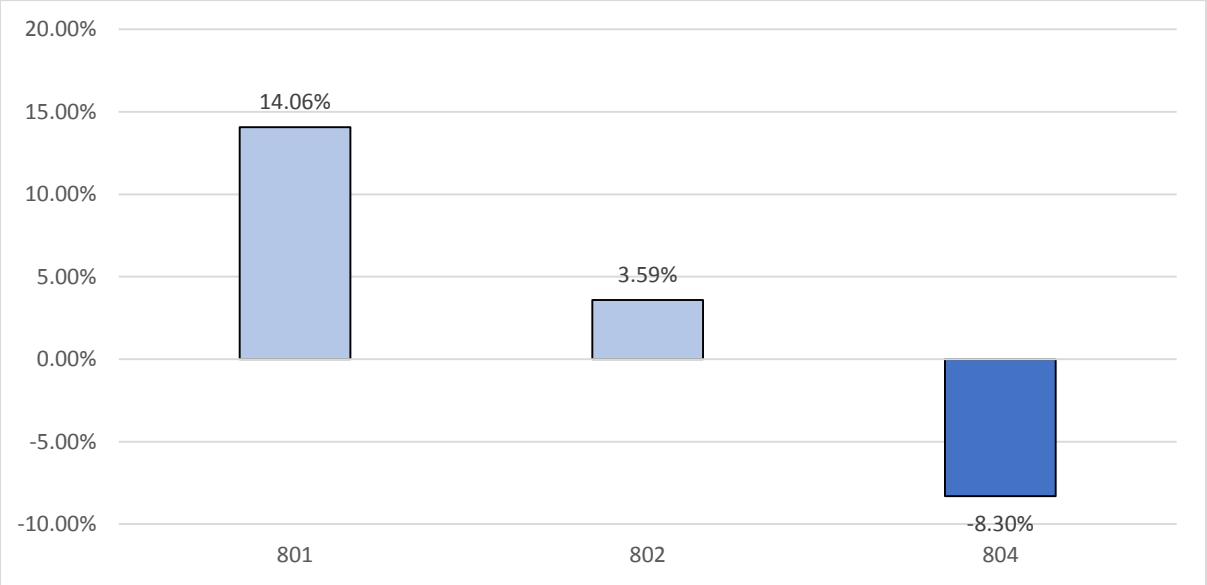
Figure 4.1 shows the amount by which the minority stop disparity exceeded the localized minority driving age populations in Census Tracts 801, 802, and 804. The disparity in tract 804 was a negative disparity; that is, the minority stop percentage was less than the localized minority population. Tract 802 had a small positive disparity. Tract 801 had a more significant disparity.

Almost 63% of the minority drivers stopped in tract 801 were not Stratford residents. The non-residents were 34% white, 36% black, and 28% Hispanic. In contrast, the residents stopped in tract 801 were 53% white, 29% black, and 18% Hispanic.

In tract 802, a high enforcement activity area, 64.5% of the drivers stopped were not Stratford residents. The non-residents were 40% white, 37% black, and 23% Hispanic; residents stopped in tract 802 were 48% white, 35% black, and 17% Hispanic.

In Census Tract 804, another high enforcement activity area, 56% of the drivers stopped were not Stratford residents. The non-residents stopped were 36% white, 42% black, and 21.4% Hispanic. The Stratford residents stopped were 34% white, 49% black, and 15% Hispanic.

Figure 4.1: Disparity Between Minority Drivers Stopped and Census Tract Population

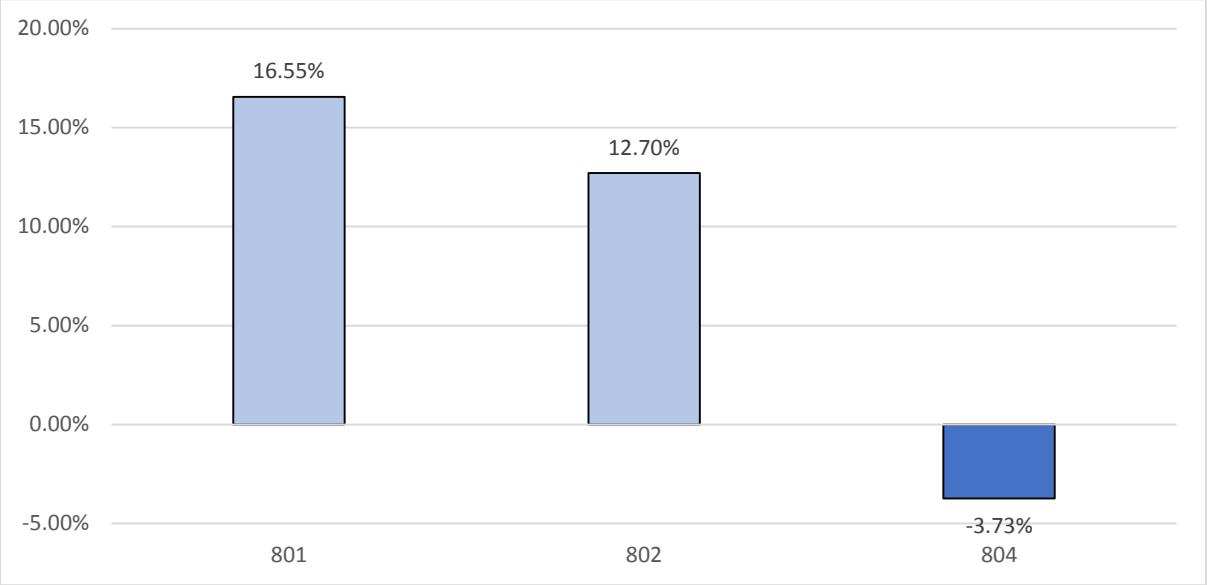


The overall percentage of Stratford traffic stops involving black drivers was 28.8%. The percentage of black drivers stopped exceeded the town average in three of the 12 census tracts (801, 802, and 804), including two of the three high enforcement activity areas. The third high enforcement area, tract 807, was the exception among the three high enforcement areas with only 22% black driver stops, which was almost seven percentage points below the town-wide average.

Figure 4.2 shows the proportion of black stops made in three of the 12 census tracts where the percentage of black drivers stopped exceeded the town-wide average. As was the case for all minority drivers stopped in these three census tracts, there was a positive disparity above the localized black

driving age population in tracts 801 and 802 and a negative disparity in tract 804. However, the negative disparity in tracts 804 was less than half the size of the disparity for all minority drivers. The black driver disparity in tract 801 was about the same size as it was for all minority drivers in that tract, but the black driver disparity above the localized black driving age population in tract 802 was three times as large as it was for all minority drivers.

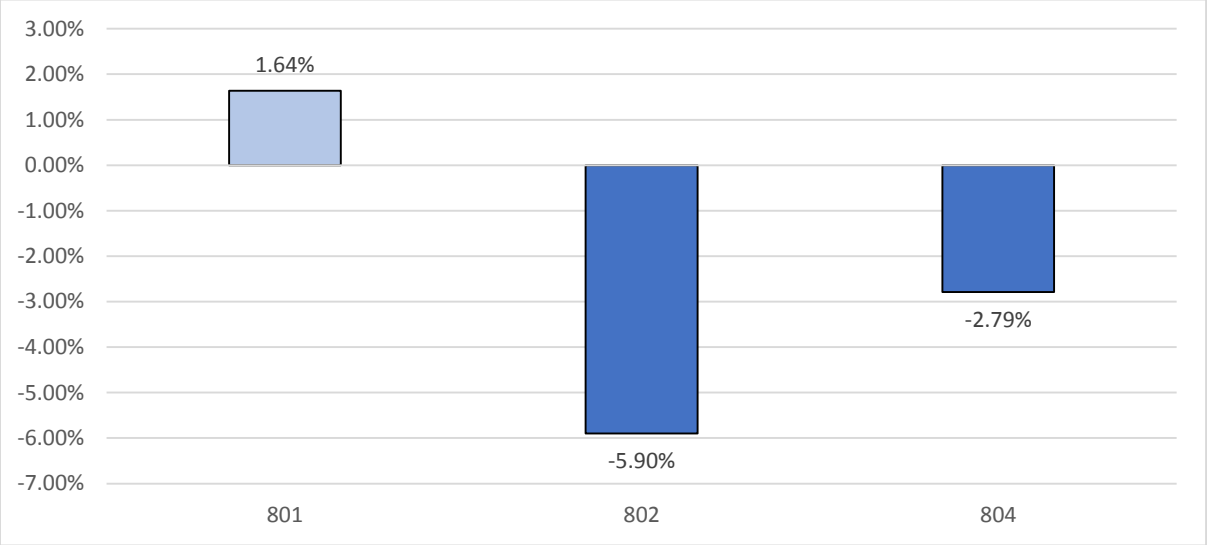
Figure 4.2: Disparity Between Black Drivers Stopped and Census Tract Population



The overall percentage of Stratford traffic stops involving Hispanic drivers was 17.6%. The percentage of Hispanic drivers stopped exceeded the town average in the same three census tracts (801, 802, and 804) highlighted in the previous figures.

Figure 4.3 shows the proportion of Hispanic stops made in these three census tracts compared to the proportion of Hispanic driving age residents living within those census tracts. In this case, negative disparities showed in both Census Tracts 802 and 804. There was a positive disparity above the localized Hispanic driving age population in tract 801, but it was relatively small.

Figure 4.3: Disparity between Hispanic Drivers Stopped and Census Tract Population



Traffic Stop Distribution for Stratford Officers

Stratford's total of 2,957 traffic stops is comparable to other towns of its size. During the study period, traffic stop data was reported for 77 officers. The average number of stops made per officer was 38. Of the 77 officers reporting stops, 40 made fewer than 20 stops, 17 made between 20 and 50 stops, 11 made between 50 and 100 stops, and nine made over 100 stops. The nine most active officers making over 100 stops each collectively accounted for 45% of the Stratford stops. Thus, a relatively small portion of its officer force influences Stratford's stop data.

Post-Stop Outcome Review

The reasons police use to stop a motor vehicle can vary significantly from department to department. We reviewed the statutory authority that Stratford officers reported as the reason for stopping motor vehicles. The three most common reasons used for stopping a motorist in Stratford make up over 38% of the total stops. The three largest stop categories were for registration violations (20%); defective, improper or inoperative lighting (10%); and stop sign signal violations (9%). While white drivers were stopped more frequently than black or Hispanic drivers for more hazardous driving violations as a percentage of their total stops, black and Hispanic drivers were stopped more frequently for equipment-related and registration-related violations than white drivers as a percentage of their total stops.

The data shows that, with respect to the racial and ethnic demographics of those stopped, registration-related and equipment-related (defective, improper, or inoperative lighting; display of plates; or window tinting) can be very sensitive to the frequency and location where they are made. If made more frequently in locations where there are higher concentrations of minority drivers, they tend to result in higher proportions of minority drivers being stopped than white drivers. However, in many places, the data has also shown that when these same types of stops are made in areas of higher concentrations of white drivers, the stop demographics shift toward white drivers, suggesting that the potential to find violators is more dependent on location than race.

The Stratford data tends to confirm these observations. Of all the black driving age residents living in Stratford, 69% live in Census Tracts 801, 802, and 804. These three tracts are also the residential

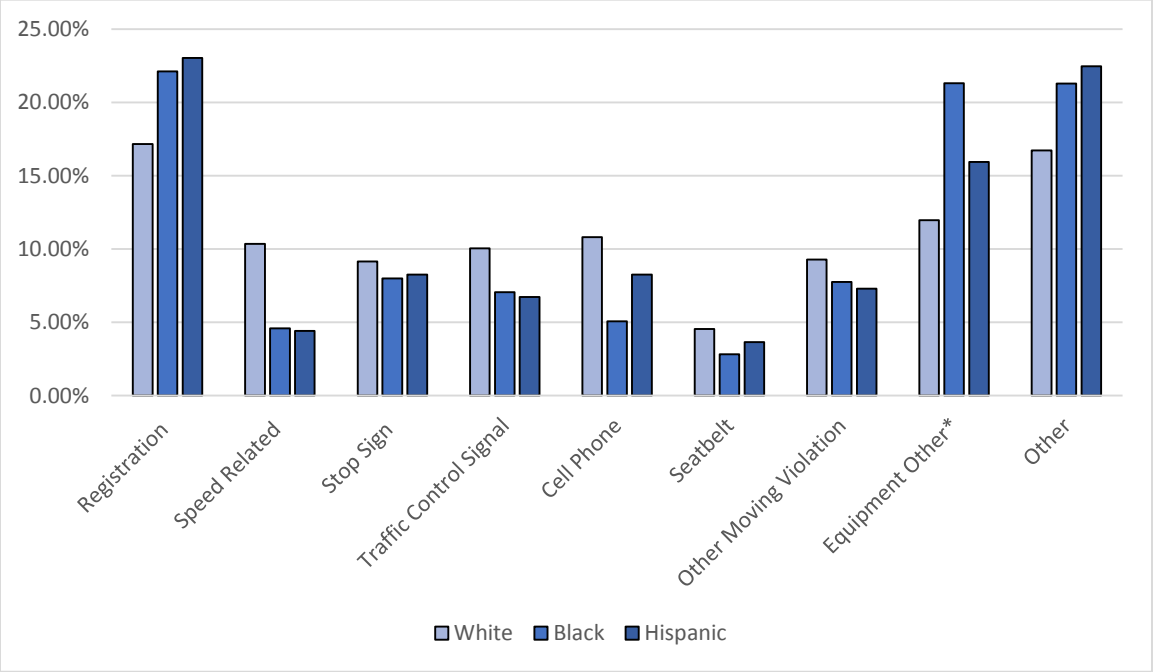
areas for 54% of all Hispanic driving age residents. Just over 47% of all fairly high discretion equipment-related stops for lighting, plate display, and window tinting were made in these three tracts. The demographics for these stops were 21% Hispanic drivers, 47% black drivers, and 31% white drivers, with 1% other races. The other 53% of these stops were made outside of these three census tracts, where only 31% of the black driving age residents and 46% of the Hispanic driving age residents live. For those stops, the demographics were 16% Hispanic drivers, 33% black drivers, 50% white drivers, and less than 1% other races.

The registration-related stops made in Stratford showed a similar pattern. About 42.5% of the registration-related stops were made in the three high minority proportion census tracts. The demographics for these stops were 20.6% Hispanic drivers, 41% black drivers, 38% white drivers, and less than 1% Asian drivers. The other 57.5% of the registration-related stops conducted in the rest of the town showed stop demographics of 20.4% Hispanic drivers, 26% black drivers, 52% white drivers, and just over 1% other races.

These patterns seem to suggest that where these types of stops are made is a more important factor in the stop demographics than inherent differences in the frequency various races may violate these laws.

Figure 5.1 illustrates the reason officers used to stop a motor vehicle by race and ethnicity.

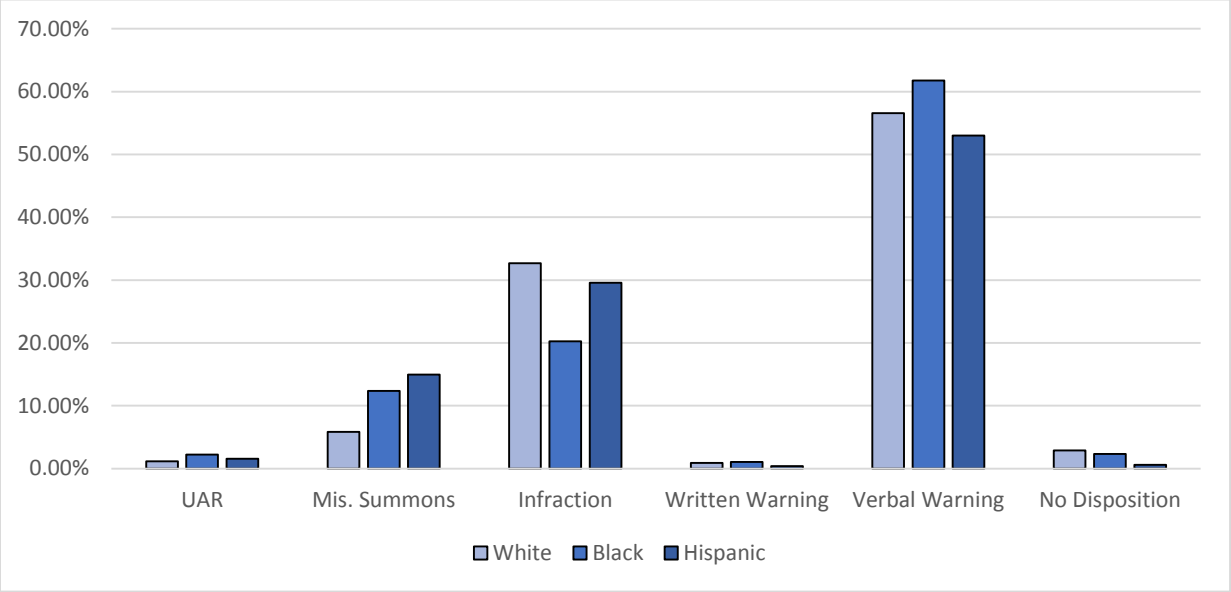
Figure 5.1: Reason for Traffic Stop



*Equipment Other includes violations for defective lights, excessive window tint, or display of plate violations.

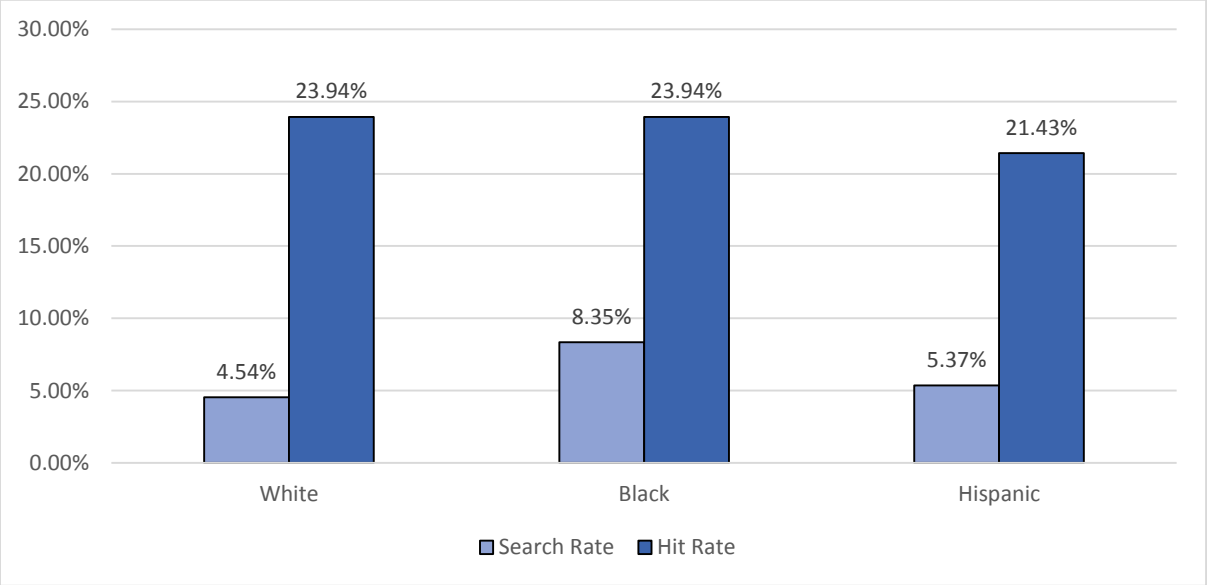
The majority of motor vehicle stops in Stratford resulted in the driver receiving a verbal warning (57%). Figure 5.2 outlines the outcome of motor vehicle stops by race and ethnicity. Black and Hispanic drivers were more likely to receive a misdemeanor summons as a percentage of their total stops. However, black drivers were less likely to receive an infraction compared to white and Hispanic drivers, but more likely to receive a verbal warning.

Figure 5.2: Outcome of Traffic Stop



Upon reviewing department search information, we found that 5.8% (172) of the drivers stopped in Stratford were subjected to a motor vehicle search. The rate of motor vehicle searches is above the state average of 2.9%, and minority drivers were searched close to twice the rate of white drivers. Contraband was found at almost the same rate across all racial groups. Figure 5.3 illustrates the motor vehicle search rate and the rate at which contraband was found.

Figure 5.3: Search and Hit Rate



Additional Contributing Factors

Law enforcement administrators choose to deploy police resources within a community based on a number of different factors. Some of these may include locations where call for service volume, accident rates, or crime rates are higher. In addition to these factors, police may be more present in

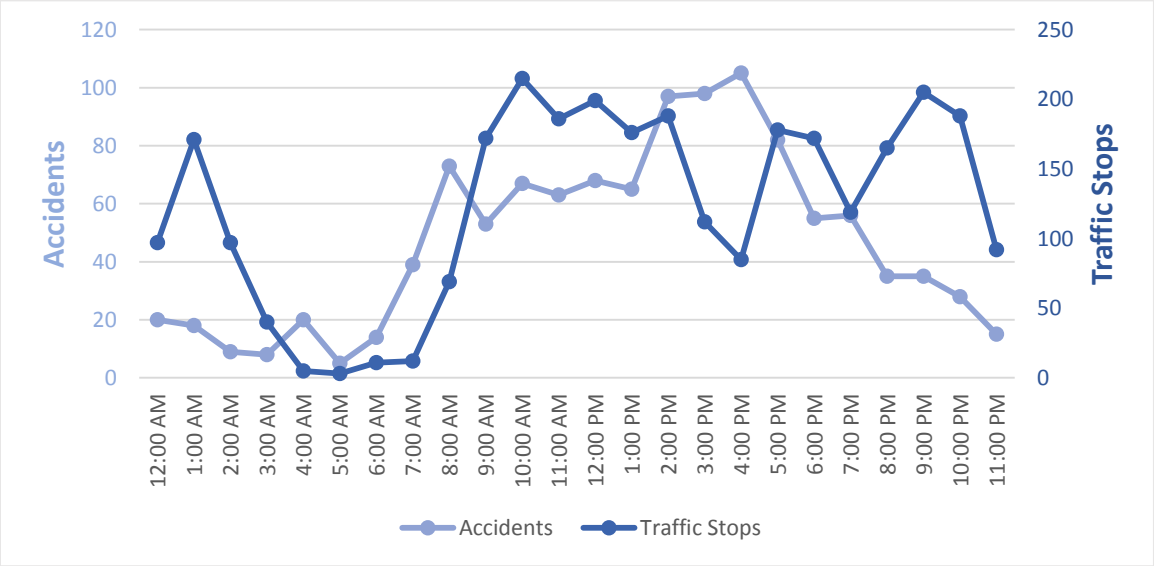
areas with higher traffic volume as the result of common factors that draw people into a community such as employment and entertainment. Traffic enforcement is likely to be more prevalent in locations that attract greater police presence due to some of these factors. In order to provide some context for potential explanations for the deployment of police resources in Stratford, we provided some basic information on crime, accidents, and other economic factors worth consideration.

According to the Connecticut Economic Resource Center (CERC) town profiles, Stratford employs approximately 27,000 people and its major employers include Sikorsky Aircraft Corporation, William B. Meyer Inc., Lord Chamberlain Nursing Home, UPS Customer Center, and Ashcroft Inc. The vast majority of commuters traveling into Stratford for employment are from Bridgeport, Milford, Shelton, and West Haven. The overall unemployment rate is 7.5%, which is above the unemployment rate for Fairfield County and the state.

In 2014, crime in Stratford was reported at a rate of 261.8 per 10,000 residents, compared to the state crime rate of 216.7 per 10,000 residents. According to the 2014 Connecticut Uniform Crime Report[14], there were 1,380 reported crimes in Stratford in 2014. The three most reported crimes were larceny (964), burglary (225), and motor vehicle theft (125).

During our study period, there were approximately 1,100 motor vehicle accidents on roads patrolled by the Stratford Police Department. Accidents were reported as occurring on a total of 201 roads. The roadways with the highest number of accidents were Main Street with 176 accidents, Route 1 with 165 accidents, and East Main Street with 113 accidents. There were only 13 roads with 10 or more accidents and those roads account for 67% of all accidents in Stratford. Figure 6.0 illustrates the time of day when traffic accidents were reported and the number of traffic stops that occurred during that same time period. This may help to better understand how closely traffic enforcement is correlated to traffic accidents in Stratford.

Figure 6.0: Accidents Compared to Traffic Stops by Time of Day



[14] The Uniform Crime Report is an index for gauging fluctuations in the overall volume and rate of crime. The crime index includes seven offenses: the violent crimes of murder, rape, robbery, and aggravated assault and the property crimes of burglary, larceny-theft, and motor vehicle theft.

Findings and Recommendations

Stratford identified factors they believe contributed to the disparity identified in the initial analysis. In particular, the department identified areas with the highest call for service volume and areas with the highest levels of traffic as some of the same areas with the highest level of motor vehicle enforcement. It is evident by the volume of traffic stops made in a relatively small geographic area that departmental resources are concentrated in certain parts of town. We did not receive any specific information from Stratford regarding crime rates or calls for service that would have permitted an analysis of how closely deployment of resources for traffic enforcement matched these factors.

Traffic enforcement is concentrated in a highly diverse and relatively small geographic area on the western portion of the town near the Bridgeport border and in the downtown area. Route 1, which runs from Bridgeport to Milford, has the greatest impact on traffic enforcement in Stratford. Two of the three high traffic enforcement census tracts (802 and 807) are part of the Route 1 corridor. Census Tract 804 has the greatest percentage of traffic enforcement and borders Bridgeport. Census Tracts 802 and 804 have a minority population above the town average, the largest being tract 804 which is predominately minority (72%).

Stratford's traffic enforcement activity did not appear to be driven primarily by population concentrations; that is, the census tracts with the largest population concentrations do not all generate significant levels of traffic enforcement. Two of the three largest population census tracts (812 and 813) account for 20% of the resident population but 6% of the traffic enforcement. The only exception is Census Tract 804, which accounts for 11% of the population and 16% of the stop activity. The three census tracts with the highest level of enforcement (802, 804, and 807) account for 23% of the resident population, but 42% of the traffic enforcement. Non-residents accounted for 60% or more of the drivers stopped in the three high enforcement census tracts.

Stratford's high stop rate for minority drivers is somewhat unsurprising given where it engages in the majority of its traffic enforcement activity, i.e., areas with the highest populations of minority residents. The analysis identified all the census tracts where the proportion of stops exceeded the town-wide average of minority drivers stopped (47.1%) and compared this to the localized minority driving age population within those tracts. This process identified three of 12 census tracts (801, 802, and 804) where the disparity exceeded the town-wide average for minority driver stops. These three census tracts accounted for 55% of all minority stops in Stratford. Two of the three census tracts (801 and 802) also exceeded the localized minority resident population, although only the disparity in tract 801 could be considered significant.

The analysis identified the same three census tracts with respect to black drivers. Almost 69% of the black driving age residents of Stratford live in these three tracts. Although tract 804 once again showed a negative disparity compared to the localized black driving age population, it was less than half as much as the negative disparity for all minority drivers. The positive disparity in tract 801 was only slightly larger than it was for all minority drivers, but the positive disparity in tract 802 was more than three times the size of the disparity for all minority drivers in the tract. These results indicate that the size of the disparities for black drivers is essentially driving the overall disparity for all minority drivers in these three tracts.

The same three tracts were once again identified with regard to Hispanic drivers. Hispanic stops exceeded the town-wide average in all three tracts. These three tracts are the most heavily Hispanic

areas in Stratford. More than half of all the driving age Hispanic residents in Stratford live in these tracts (54%). However, the analysis showed that the rate of Hispanic stops in Census Tracts 802 and 804 did not exceed the localized Hispanic driving age populations (negative disparities). The positive disparity in tract 801 was less than two percentage points. This result tends to confirm the finding that it is the number of black drivers stopped in these areas that is the primary determinant of the overall disparities.

On average, 59% of the drivers stopped in Stratford were not residents. This influences the size of the disparities in many of the census tracts to varying degrees. While in many cases the non-resident component of minority drivers stopped may explain a significant portion of the disparities above the localized minority population, especially in tracts 801, 802, and 804 where the non-resident component of the stop totals were 60% or more, there are exceptions. In some cases, the disparities above the localized population persisted even after the non-resident stops were accounted for. In six of the 12 census tracts, including the high enforcement areas of tracts 801 and 802, the proportion of black stops involving only Stratford residents exceeded the localized black driving age population by at least 10 percentage points. In six of the 12 census tracts the resident-only stops of all minority drivers exceeded the localized minority driving population by at least 10 percentage points. Three of these tracts were the same as the ones for black drivers (805, 807, and 811); three were different.

There were 21 drivers stopped outside the Stratford town border. Although this constitutes a small number overall, 71% were identified as Black or Hispanic. These drivers were primarily stopped in Bridgeport and 66% of them were not Stratford residents. There could be a number of reasons for these stops, including that the violation was witnessed in Stratford but the vehicle was pulled over in Bridgeport. The majority of drivers stopped in Bridgeport were stopped near Census Tracts 802 and 804. The percentage of minority drivers stopped out-of-town was consistent with the percentage of minority drivers stopped in Census Tracts 802 and 804.

Stratford has 77 officers that made at least one traffic stop during the study period. The average stops made per officer was 38, but nine officers (just under 12% of the officer force) accounted for 45% of all the traffic stops. When a relatively small portion of the officer force makes a significant portion of all the stops, the specific duties, patrol areas, and shifts of these officers might have a great deal to do with the overall stop demographics.

Traffic Stop Outcomes

White non-Hispanic drivers were more likely to be stopped for driver-related safety issues like speeding, cell phone, stop sign, traffic light, and seat belt violations as a percentage of their total stops than were either black or Hispanic drivers. On the other hand, black and Hispanic drivers had higher percentages of stops due to registration, equipment, and other violations than did white drivers. When these types of stops, which can sometimes be more discretionary in nature, occur with greater frequency in areas with high minority populations than they do in areas where driving age populations are predominantly white, there is the potential for disparities to appear in the data even though violation rates for these offenses could be similar across racial categories. In Stratford, when these registration and equipment-related stops were made in the three census tracts that were most heavily populated by black and Hispanic driving age residents, they tended to be the ones most frequently found in violation. However, in other areas where these stops were made and the resident population was predominantly white, the stop demographics were also predominantly white rather than black. This suggests that the frequency with which these enforcement choices occurred and,

more importantly, where they occurred, were more important to the overall stop demographics, particularly for black drivers, than racially inherent differences in the overall likelihood of violation.

With regard to stop outcomes, minority drivers were more likely to receive a misdemeanor summons, whereas white drivers were more likely to receive an infraction citation. Stops involving black drivers were less likely to result in an infraction citation than either white or Hispanic drivers but slightly more likely to result in a verbal warning.

Stratford searched almost 6% of drivers it stopped, which was twice the state average of 2.9%. However, black drivers were searched at close to twice the rate of white non-Hispanic drivers and Hispanic drivers were searched only slightly more than white non-Hispanic drivers. Interestingly, Stratford searched the same number of black and white drivers (71), but the search rate of total drivers stopped was almost twice the rate for black drivers. The location for vehicle searches mirrored the census tracts with the highest levels of traffic enforcement. The overall rate of contraband found was lower than the statewide average, with contraband found 23.3% of the time. The rate of contraband was the same for white and black drivers (23.9%) and slightly lower for Hispanic drivers (21.4%). Of the 172 vehicle searches, the department only reported the search authority in 133 cases. Of the searches where the authority was properly recorded, 64 were the result of driver consent and 29 were the result of some other authority (i.e. probable cause, plain view, etc.). Contraband was found in the case of a consent search 17.2% of the time and in the case of some other authority 52% of the time. This data suggests that the police department may want to explore searches as the result of consent and evaluate the frequency of their use within the department. Stratford didn't accurately record the search authority in 39 cases and it is important for them to refine their data collection efforts for future analysis.

To summarize, while Stratford is a relatively diverse community with about 12% Hispanic driving age residents and 13% black driving age residents, these two minorities tend to be concentrated in three census tracts (801, 802, and 804). Within these three tracts live 69% of all black driving age residents in Stratford and 54% of all Hispanic driving age residents. The three tracts account for 36% of Stratford's stops, with 52% of its stops involving black drivers and 44% of its stops involving Hispanic drivers. These areas border sections of Bridgeport with large minority populations and non-resident minority drivers form at least 60% of those stopped in all of the tracts. However, with respect to black drivers, the proportion of resident-only stops exceeds the localized black driving age population in tracts 801 and 802 by 10 percentage points or more. The traffic enforcement activity in these three tracts has a great deal to do with the size of the town's overall disparities.

While white drivers are more likely to be stopped in Stratford than black or Hispanic drivers for most types of hazardous driving behaviors, black and Hispanic drivers are more likely to be stopped for vehicle equipment and registration violations. Our analysis indicates, however, that this difference may be due primarily to the frequency and location of these stops within the three large minority population census tracts than to inherently greater likelihood that minority drivers violate these laws with greater frequency than white drivers.

Based on the overall follow up analysis of the Stratford data, it is recommended that the Stratford Police Department: (1) review its traffic enforcement policies in tracts 801, 802, and 804 to evaluate the extent to which they may have a disproportionate effect, particularly with respect to black drivers; (2) evaluate both the location and frequency of use of stops that do not directly involve unsafe driving behavior to better understand the impact they may be having on minority drivers; and

(3) consider the role vehicle searches based on seeking and receiving the driver's consent have in their overall traffic safety approach. Also, with respect to search data, the department should assure that its officers properly enter search authority data into the records system so that all vehicle searches are attributed to the appropriate three categories.

II.B (8): WATERBURY FOLLOW-UP ANALYSIS SUMMARY

The follow-up analysis presented below continued to review traffic stops conducted from October 1, 2013 – September 30, 2014. An additional 12 months of data has been collected and analyzed in Part I of this report. Below is a summary of reported traffic stops for Waterbury over a two-year period.

	2013-2014 Traffic Stop Records		2014-2015 Traffic Stop Records	
White Non-Hispanic	613	35.2%	1,076	44.3%
Black Non-Hispanic	541	31.1%	653	26.9%
AsPac Non-Hispanic	9	0.5%	8	0.3%
AI/AN Non-Hispanic	1	0.1%	1	0.0%
Hispanic	578	33.2%	664	27.3%
Total	1,742		2,402	

Overview of the April 2015 Traffic Stop Analysis

The April 2015 Traffic Stop Analysis Report indicates that for the October 1, 2013 to September 30, 2014 study period a total of 1,742 traffic stops were made by the Waterbury Police Department. Of these, 64.8%[15] were minority stops, of which 33.2% were Hispanic drivers and 31.1% were Black motorists. The "Veil of Darkness" for the subsample of motor vehicle violations showed a marginally significant racial disparity across all racial definitions except for Hispanics alone. Minority motorists, for these demographic groups, were more likely to have been stopped during daylight as opposed to darkness hours. The results were strongest in the sample that was restricted to motor vehicle violations and were potentially being masked by the inclusion of equipment violations in the combined sample. The results of the post-stop analysis also indicated that minority motorists, as compared to their Caucasian counterparts, were being searched more frequently relative to the rate at which they were found with contraband. The results of the pre- and post-stop analyses both indicated the presence of a significant racial and ethnic disparity in Waterbury.

In addition to being identified in the "Veil of Darkness" and post-stop statistical analysis, Waterbury was also identified using the descriptive tests. Waterbury was identified as having exceeded the threshold of 10 percentage points in all four of the descriptive benchmarks and 8 of the 12 measures. Although it is understood that certain assumptions have been made in the design of each of the four benchmarks, it is reasonable to believe that departments with consistent data disparities that separate them from the majority of other departments should be subject to further review and analysis with respect to the factors that may be causing these differences.

Descriptive Analysis of the 2013-2014 Traffic Stop Data

The racial and ethnic disparities in the Waterbury Police Department data were explored through a more detailed look at traffic enforcement during the original study period, October 1, 2013 – September 30, 2014. Part of this analysis involves mapping all stops if possible using the location data provided by the department and any enhancements to this data we were able to make. According to the 2010 census, Waterbury is a city with approximately 82,823 residents over the age

[15] The minority stop percentage is derived from all non-Caucasian drivers stopped, which does not include drivers identified as White and Hispanic.

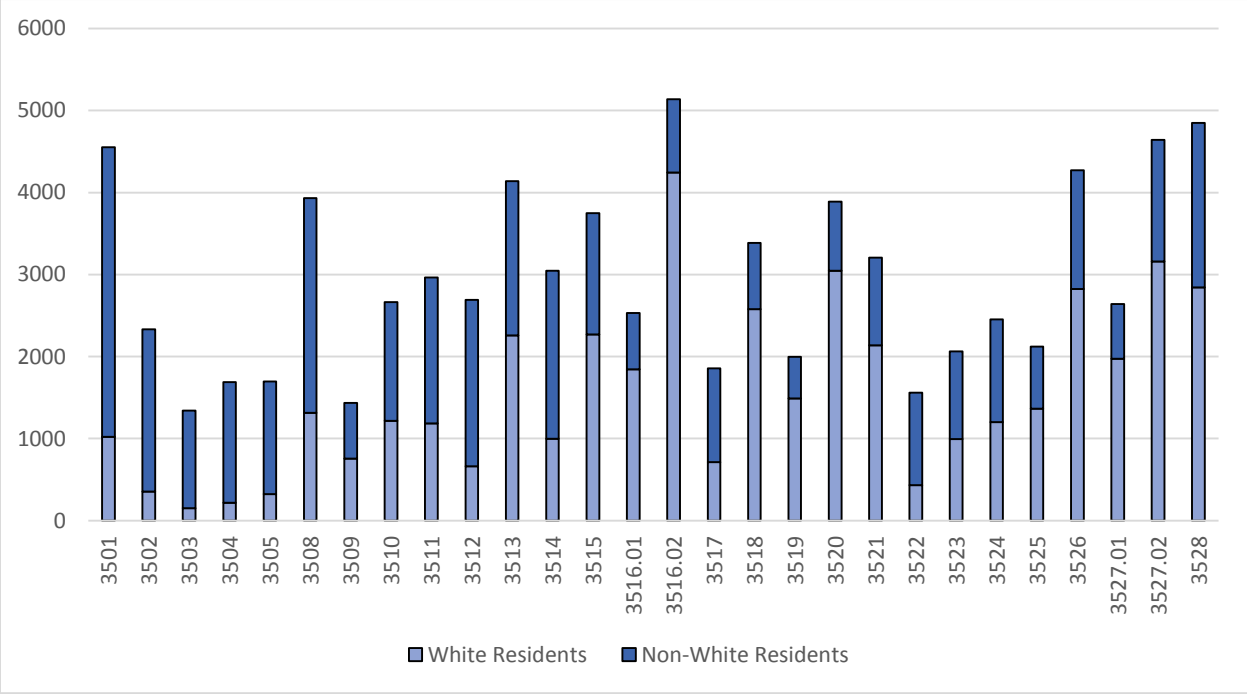
of 16. Approximately 47.4% of the driving age population in Waterbury is identified as a minority. Figure 1.0 outlines basic demographic information for Waterbury residents over 16.

Figure 1.0: Waterbury Population

Race/Ethnicity	16+ Population Total	% Population Total
White Non-Hispanic	43,579	52.7%
Black Non-Hispanic	14,586	17.6%
AsPac Non-Hispanic	701	0.9%
Hispanic	23,667	28.6%
Other	290	0.4%
Total	82,823	

The U.S. Census Bureau divides Waterbury into 28 census tracts (CTs). Indicated in Figure 2.0, the resident population varies from one census tract to another. The demographic breakdown of each census tract varies as well. For example, almost 90% of census tract 3503 is minority residents compared to only 17% in census tract 3516.02.

Figure 2.0: 16+ Resident Populations by Census Tract



Seven other municipalities share common borders with Waterbury, including Watertown and Plymouth to its north, Wolcott and Cheshire to its east, Naugatuck and Prospect to its south, and Middlebury to its west. These seven municipalities are predominantly white demographically, with an average driving age white resident population of 93.1% (compared to Waterbury's white driving age population of 51.9%). In addition, Interstate 84 cuts through the city from east to west and Route 8 cuts through the city from north to south. While it is reasonable to believe that the population demographics of towns surrounding a large urban area can have an effect on the mix of race and ethnicity within the driving population at any given time, the fact that close to 80% of the drivers

stopped in Waterbury during the study period were residents of Waterbury makes this significantly less of a factor there than it might be in some other municipalities.

Figure 3.1 illustrates the volume of traffic enforcement that occurs in each census tract. The majority of traffic enforcement activity in Waterbury (56.5%) occurred in a relatively concentrated geographical area encompassing seven census tracts. Census tract 3501 contributes the largest percentage of traffic enforcement with 20.4% of all of the city's traffic stops. Tract 3501 covers the main downtown area of Waterbury from I-84 to just north of Grove Street, with Cherry Street forming most of the border on the east and the Metro North Rail Line forming the western border of the tract. Tract 3501 includes St. Mary's Hospital, the Waterbury Arts Magnet School, the University of Connecticut Waterbury Branch, and several government facilities including the Police Department, and is bisected by Main Street. It is located adjacent to Brass City Mall, which is located in Tract 3504.

The other six census tracts that comprise the majority of traffic stop activity range from 5.2% of total stops to 7.4%. Five of them (3502, 3503, 3504, 3508, and 3510) border census tract 3501 to the north and east. The sixth, Tract 3523, lies to the west of 3501 and runs predominantly north and south from I-84 to the northern border of Waterbury, generally following the Route 8 corridor. The average non-White driving age population living in these seven tracts is 73%, which is more than 25 percentage points above the town-wide average.

Traffic enforcement changes dramatically as you move to the outer parts of the city. With the exception of the three tracts directly east of the downtown area, none of the other census tracts generates more than 3.2% of the traffic stop activity, with most considerably below that level.

Figure 3.1: Traffic Stops by Census Tract

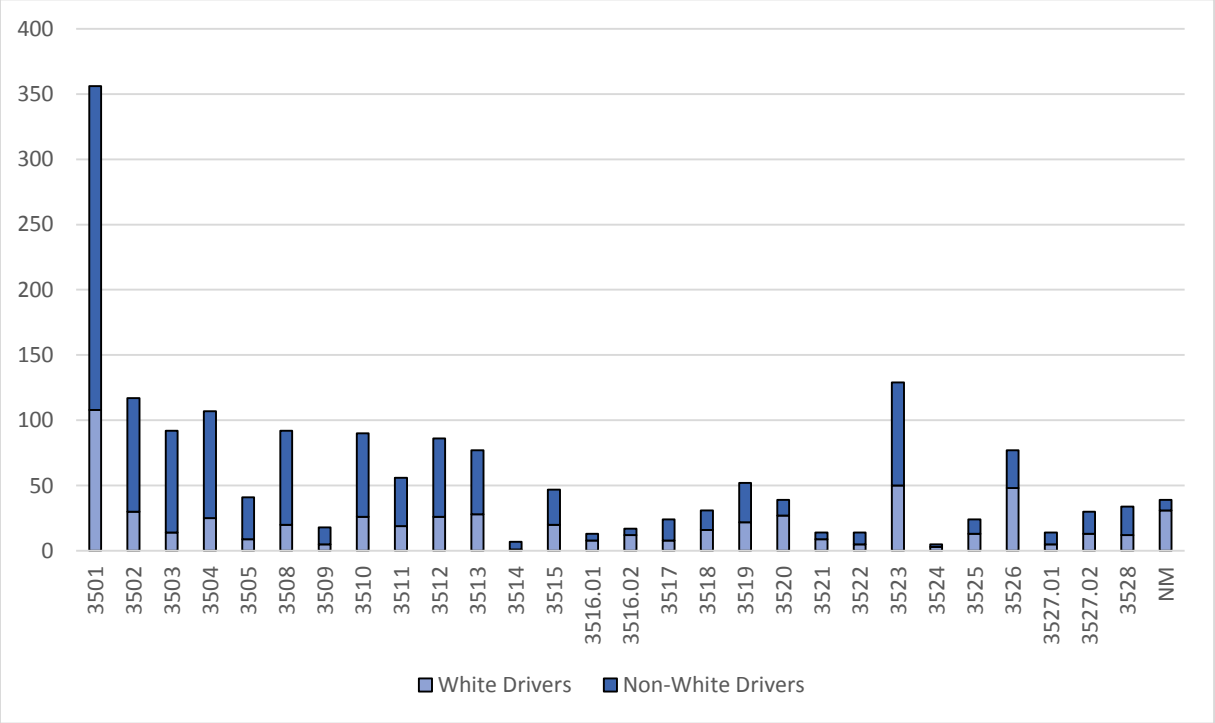
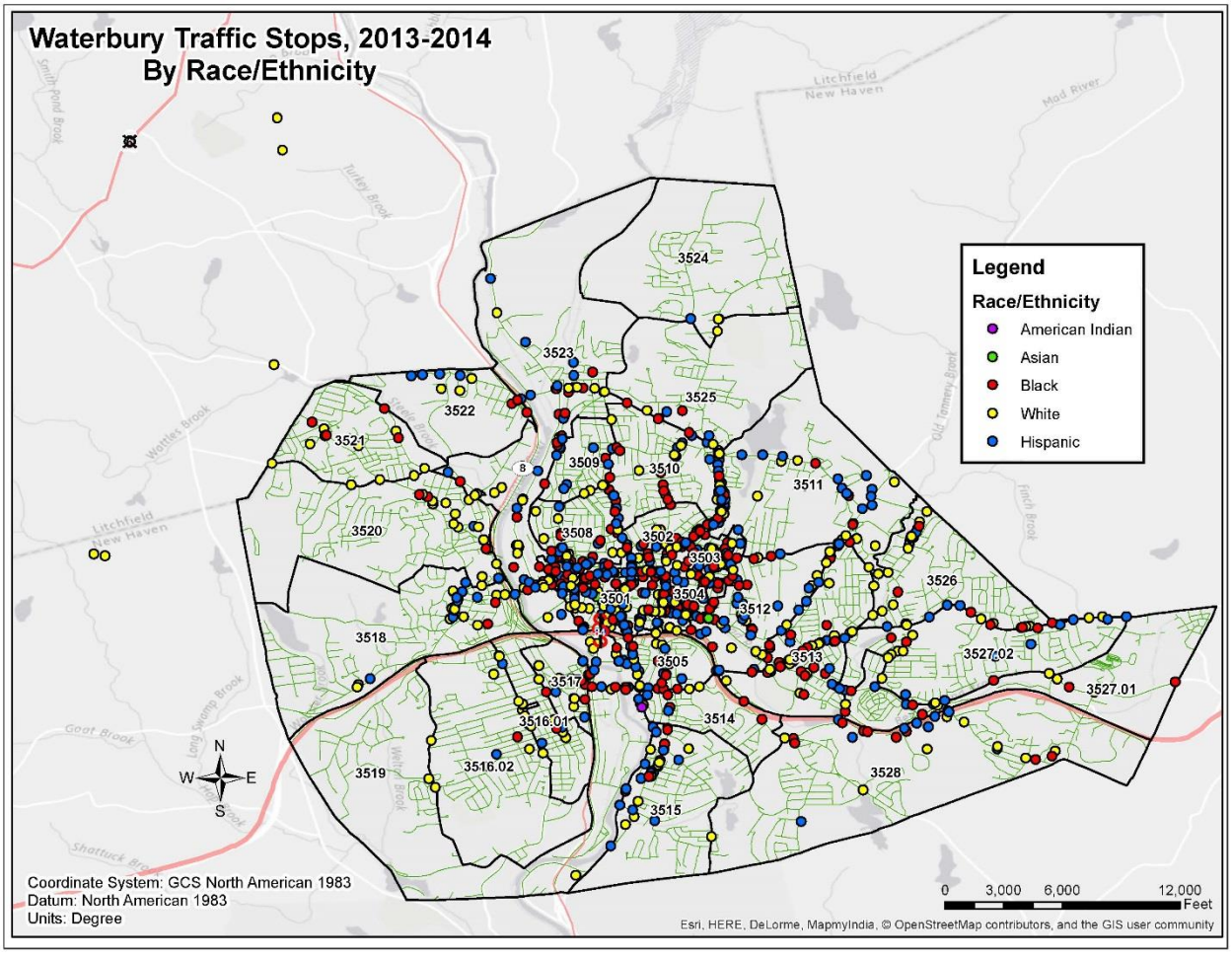


Figure 3.2 is a map of traffic stops made in Waterbury. The seven census tracts that account for 56.4% of the traffic enforcement activity make up 22.4% of the resident population in Waterbury. The two

largest of these seven tracts in terms of population are Tracts 3501 (5.5%) and 3508 (4.75%). The three most heavily populated census tracts in Waterbury (3516.02, 3527.02, and 3528) are located outside of this high enforcement activity core and are predominately white in terms of the local driving age population. Population concentration does not appear to be a primary driver of traffic enforcement patterns in that Tract 3501 accounts for 20.4% of all the traffic stops in Waterbury while the three predominantly white tracts combine for a total of only 17.7% of Waterbury traffic stops.

In addition, 80% of the drivers who were stopped were residents of Waterbury, which is significantly above the statewide average**.** Waterbury's resident population is 47.4% minority; however, 72.8% of the residents stopped were minority. Minority drivers were stopped in 24 out of 28 census tracts more than 50% of the time. Although there is a high percentage of minority residents living in the census tracts with the highest level of traffic enforcement, the disparity is present in most census tracts.

Figure 3.2: Traffic Stop Map



Traffic Stop Breakdown by Race/Ethnicity

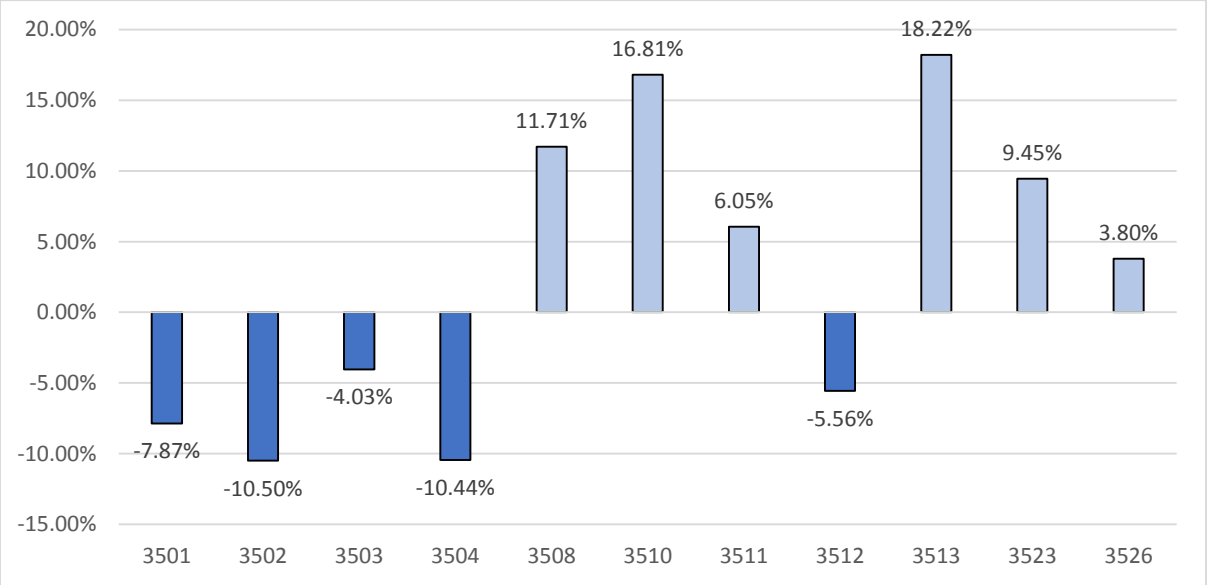
In Waterbury, 64.8% of all drivers stopped were minority. Minority drivers are classified as all non-white drivers, but are predominantly made up of Black or Hispanic drivers. The resident population (16+) of Waterbury is 47.4% minority. On its face this might suggest a wide disparity in the

proportion of minority drivers stopped during the study period. In one sense, this is true, in that just less than one half of the Waterbury population is minority but almost two-thirds of the drivers stopped were minority. However, the racial and ethnic makeup of different areas of Waterbury varies significantly by census tract. Given the fact that almost 80% of the drivers stopped in Waterbury were town residents and the higher levels of traffic enforcement are concentrated in relatively few census tracts, most of which have minority populations well above the town wide average, the disparities involving minority drivers would appear to be almost inevitable.

Specifically, all seven of the census tracts that make up the highest enforcement activity in Waterbury and the two census tracts with moderate enforcement activity are among the census tracts with minority populations above the town average of 47.4%. Conversely, 11 of the census tracts in Waterbury had fewer than 50 stops made during the study period and the population in those census tracts was predominantly White.

Taken individually, some of the census tracts with high proportions of minority drivers stopped and high to moderate enforcement activity tend to reflect the extremely high proportions of the minority population, but a few do not. Figure 4.1 highlights some of this information for the high to moderate enforcement census tracts.

Figure 4.1: Disparity between Minority Drivers Stopped and Census Tract Population

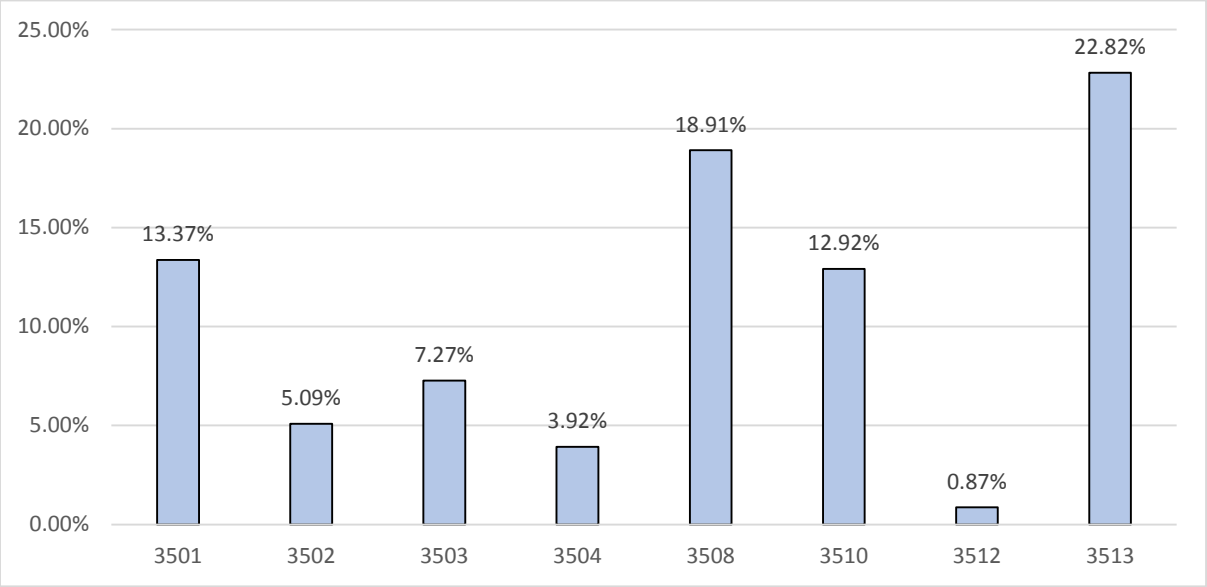


The overall percentage of Waterbury traffic stops involving black drivers was 31.1%. The percentage of black drivers stopped exceeded the town average in 11 of the 28 census tracts, including six of the seven high enforcement activity areas. The exception among the seven high enforcement areas was census tract 3523, where Black drivers comprised only 24.0% of the stops compared to the town average of 31.1%. Three of the 11 tracts (3514, 3517, and 3527.01) exhibited Black driver stop percentages above the town average, but only made a combined total of 45 stops. The stops in these census tracts are part of the lowest enforcement activity areas in the city and make the results for these tracts fairly insignificant. The two remaining tracts (3512 and 3513) exceeded the town average for Black stops and areas with moderate traffic enforcement activity, accounting for 4.9%

and 4.4% of the stop activity. They are located immediately to the east of the central downtown area with I-84 serving as their southern boundary.

Figure 4.2 shows how the proportion of Black stops made in eight of the 11 census tracts compares to the proportion of Black driving age residents living within the tracts. The three tracts with extremely low enforcement activity are excluded from the comparison. As can be seen from the comparison, the relative difference between the proportion of stops involving Black drivers and the proportion of the Black population living within the census tract was fairly small in some cases and significant in others. The greatest disparity of 22.8% was in Tract 3513, where 37.7% of the stops involved Black drivers while the Black driving age population was only 14.8%. The next largest disparity was 18.9% in Tract 3508, where the Black stop percentage was 43.5% compared to a local residential Black driving age population of 24.6%.

Figure 4.2: Disparity between Black Drivers Stopped and Census Tract Population



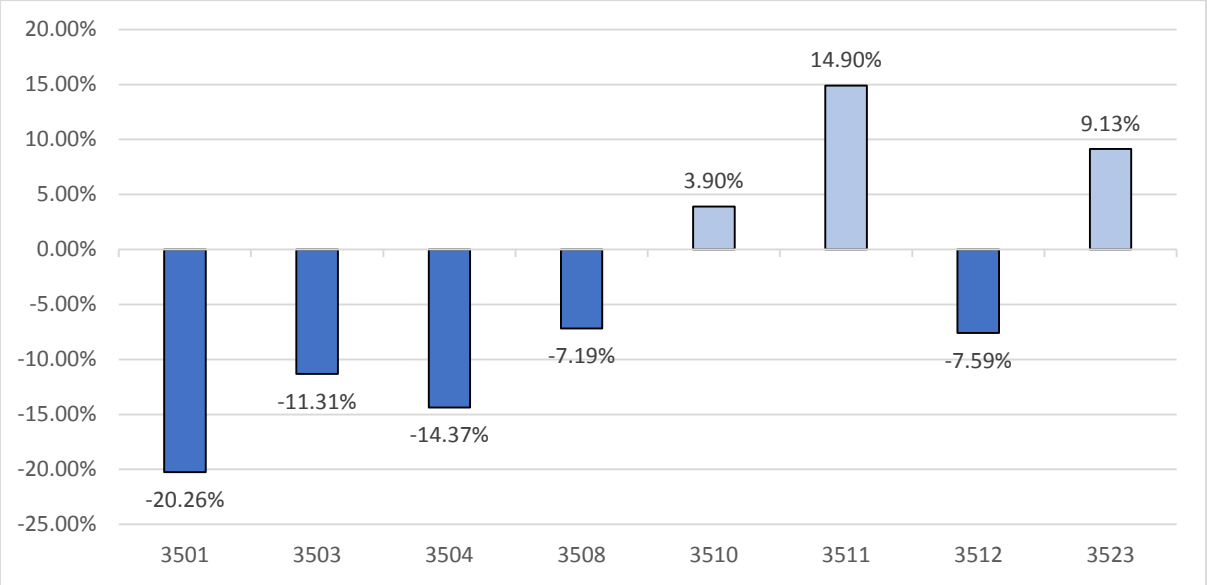
Although there are more census tracts (16 of 28) where the percentage of stops involving Hispanic drivers is larger than the town-wide average of 33.18%, the differences are very small in many of them. Three of the census tracts exceed the town-wide average by less than one percentage point. Three other census tracts had very few stops (18, 14, and 34). Thus, these six census tracts are relatively insignificant analytically. Two other census tracts, 3505 and 3515, also had relatively few stops (41 and 47 respectively) but the relatively high proportion of Hispanic drivers represented in the stop data is worth noting in passing (48.8% and 42.6% respectively).

The remaining eight census tracts had at least 50 traffic stops and exceeded the town average of Hispanic drivers stopped by at least 1.5 percentage points. As with Black drivers, six of these eight census tracts were among the high enforcement activity areas. Census tracts 3511 and 3512 had the smallest number of stops (56 and 86 respectively) but the largest proportion of Hispanic drivers stopped (39.3% and 37.21%).

Figure 4.3 shows how the proportion of Hispanic stops made in these eight census tracts compares to the proportion of Hispanic driving age residents living within those census tracts. As can be seen from the data, the disparity between Hispanic stops and the localized Hispanic driving age population

is actually a negative disparity in five of the eight census tracts examined. The Hispanic resident population in five of the census tracts ranges from approximately 42% in 3508 to 58% in 3501. Of the three census tracts where Hispanic stops exceeded the localized Hispanic population, census tract 3511 shows the largest disparity at 14.9 percentage points above the population.

Figure 4.3: Disparity between Hispanic Drivers Stopped and Census Tract Population



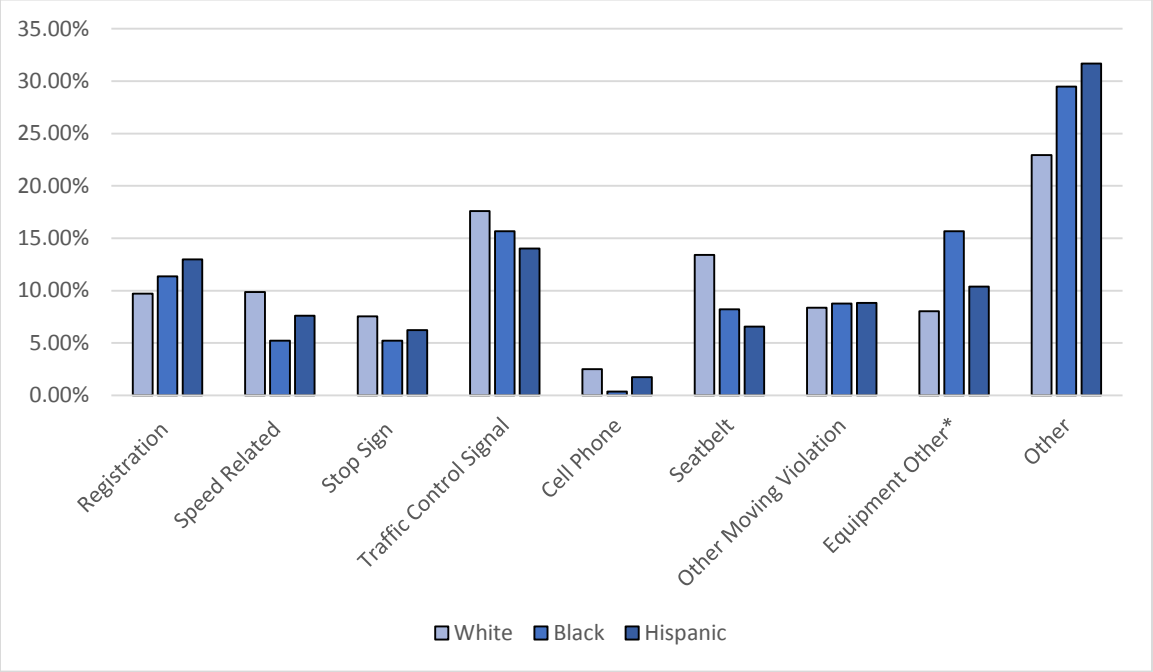
Traffic Stop Distribution for Waterbury Officers

Waterbury's total of 1,742 traffic stops for the study period is relatively small for a municipality of its size. One reason for this appears to be due to the fact that Waterbury does not have a Traffic Division within its police department, as do a number of the other large municipalities. The relatively low number of stops along with the fairly large number of officers on patrol yields low stop totals for the majority of Waterbury officers. During the study year, traffic stop data was reported for a total of 153 officers. The average number of stops made per officer was 11.4. Of the 153 officers reporting stops, 130 (85.0%) made fewer than 20 stops. The other 23 officers accounted for 60.7% of the Waterbury stops with the six most active accounting for almost one-third of the stops (32.1%). Thus, a fairly small portion of its officer force primarily drives Waterbury's stop data.

Post-Stop Outcome Review

The reasons police use to stop a motor vehicle can vary significantly from department to department. We reviewed the statutory authority that Waterbury officers reported as the reason for stopping motor vehicles. The three most common reasons used for stopping a motorist in Waterbury make up 37% of the total stops. The three largest categories were for traffic control signal violations (16%), registration violations (11%) and seatbelt violations (10%). Figure 5.1 illustrates the reason officers used to stop a motor vehicle by race and ethnicity.

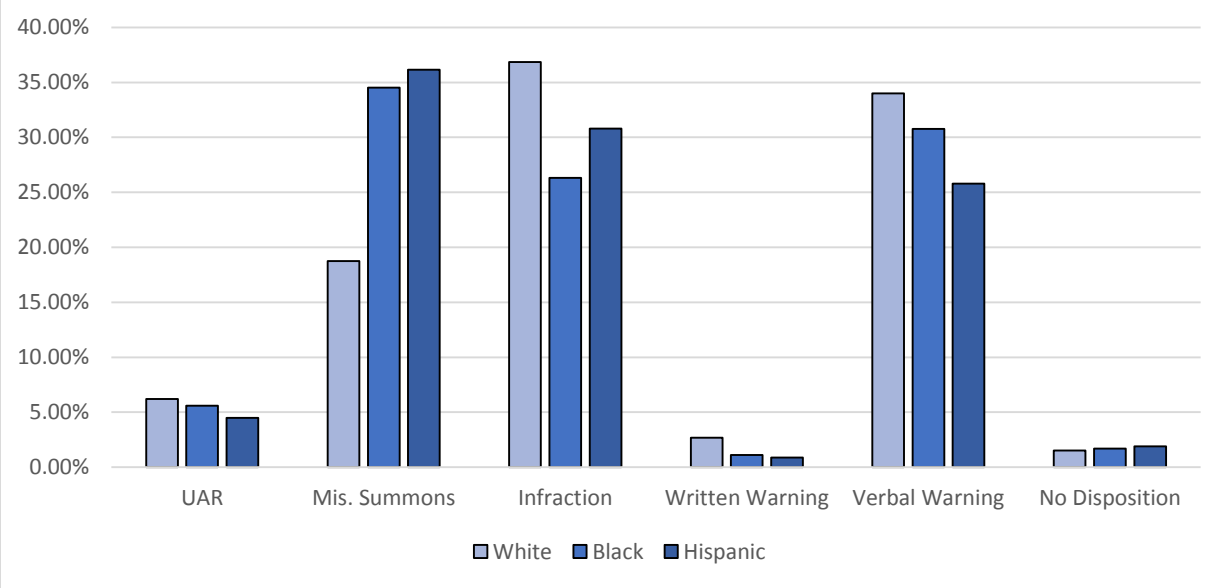
Figure 5.1: Reason for Traffic Stop



*Equipment Other includes violations for defective lights, excessive window tint, or display of plate violations.

The result of motor vehicle stops in Waterbury split fairly evenly between misdemeanor summons, infractions, and verbal warnings. Figure 5.2 shows the outcomes of motor vehicle stops by race and ethnicity. Black and Hispanic drivers were more likely than White drivers to receive a misdemeanor summons as a percentage of their total stops. White drivers were more likely to receive an infraction or verbal warning as a result of the stop.

Figure 5.2: Outcome of Traffic Stop



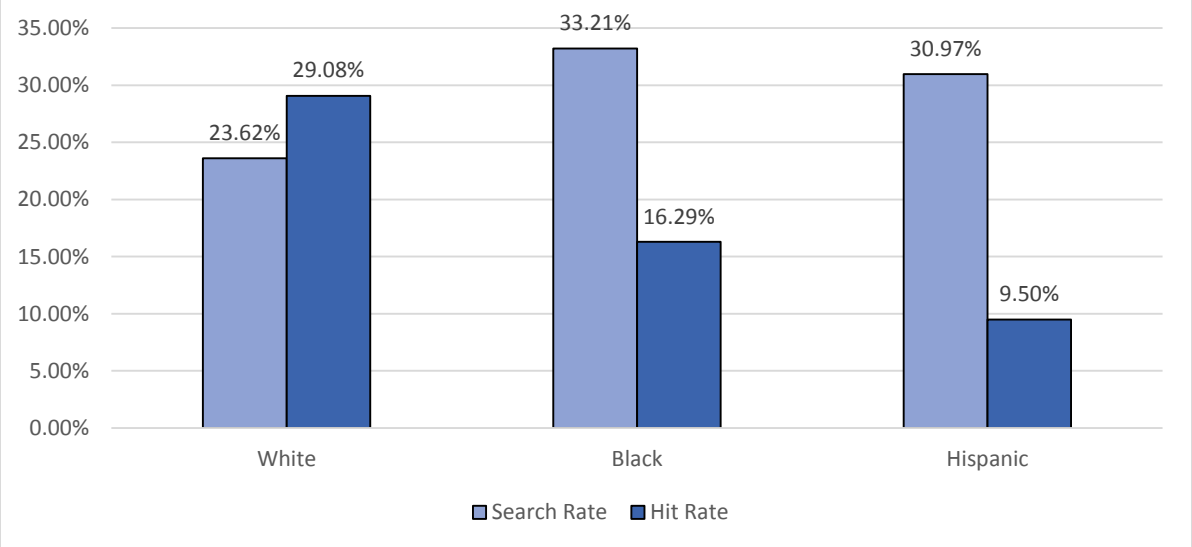
We also reviewed disparities in post-stop activity. In particular, 29% of the drivers stopped in Waterbury were subjected to a motor vehicle search. The rate of motor vehicle searches is 10 times the state average and more than two and one-half times larger than the next closest municipality, Bridgeport, which had a search rate of 11.1%. Further analysis of the Waterbury search data has revealed that the Waterbury Police Department's strict inventory search policy may have a significant effect on its overall search numbers. Police officers have the legal authority to search a motor vehicle under several circumstances. One of those circumstances is for the purpose of taking inventory of the items in a motor vehicle prior to taking custody of the vehicle. Connecticut General Statute requires motor vehicles to be impounded when certain violations occur such as driving an unregistered vehicle. The Waterbury Police Department is fairly aggressive in terms of vehicle towing. Of the 1742 traffic stops it made in the study year, 506 (29%) were towed.

The Waterbury Police Department motor vehicle inventory policy states,

> "*It is the policy of the Waterbury Police Department that whenever it becomes necessary to tow or impound a motor vehicle, the officer conducts an inventory of the contents, including items in all compartments and containers of the automobile prior to its being removed. The purpose of an inventory is to protect the owner's property while it is in police custody, to protect the officer against claims of loss or damages of impounded properties, and to protect the officer, the department, and the public from any potential harm that may be posed by a vehicle or its contents."*

Almost 73% of car searches were inventory searches and contraband was found 9.4% of the time. Consent and other searches made up 27% of the searches and contraband was found 38% of the time. Inventory searches had a significant impact on the overall hit rate for Waterbury. When consent and other searches are analyzed excluding inventory searches, the overall search rate is still almost 3 times the state average. Contraband is found for White drivers 63% of the time, Black drivers 28% of the time, and Hispanic drivers 20% of the time. A significant disparity of the rate of contraband found as a result of a motor vehicle search is still present after excluding inventory searches. Figure 5.3 illustrates the motor vehicle search rate and the rate at which contraband is found.

Figure 5.3: Search and Hit Rate



Additional Contributing Factors

Law enforcement administrators choose to deploy police resources within a community based on a number of different factors. Some of these may include locations where calls for service volume, accident rates, or crime rates are higher. Traffic enforcement is likely to be more prevalent in locations that attract a greater police presence due to some of these factors. In addition to these factors, police may be more present in areas with higher traffic volume as a result of common factors that draw people into a community, such as employment and entertainment. In order to provide some context for potential explanations for the deployment of police resources in Waterbury, we provide some basic information on crime, accidents, and other economic factors that are worth consideration.

According to the Connecticut Economic Resource Center (CERC) town profiles, Waterbury employs approximately 45,000 people and their major employers include Waterbury Hospital, Naugatuck Valley Community College, VNA Homemaker Service, and Grandview Adult Behavioral Health. The vast majority of commuters traveling into Waterbury that doesn't live in the city travels from Watertown, Naugatuck, Wolcott, and Bristol. The overall unemployment rate is currently 10.7%, which is above the unemployment rate for New Haven County and the state.

In 2014, crime in Waterbury was reported at a rate of 4,418 per 100,000 residents, compared to the state crime rate of 2,167 per 100,000 residents. According to the 2014 Connecticut Uniform Crime Report[16], there were 4,999 reported crimes in Waterbury in 2014. The three most reported crimes were larceny (3,422), motor vehicle theft (709), and burglary (460).

The Waterbury Police Department identified areas with the highest violent crime rate as the same areas with the highest level of motor vehicle enforcement. According to the police department, violent crime is one of the largest contributing factors that determine the level of police presence in an area and subsequent traffic enforcement. According to the Waterbury violent crime statistic maps shared with researchers, a similar pattern is present for the location of reported violent crime and traffic enforcement. This may be one explanation for the presence of law enforcement in a highly concentrated geographic area.

During our study period, there were approximately 3,660 motor vehicle accidents on roads patrolled by the Waterbury Police Department. Accidents were reported as occurring on a total of 500 roads. The roadways with the highest number of accidents were Meriden Road with 372 accidents, Thomaston Ave with 221 accidents, East Main Street with 153 accidents, and North Main Street with 134 accidents. There were 68 roads with 10 or more accidents and those roads account for 75% of all accidents. Figure 6.0 illustrates the time of day when traffic accidents were reported and the number of traffic stops that occur during that same time period. This may help to better understand how closely traffic enforcement is correlated to traffic accidents in Waterbury.

[16] The Uniform Crime Report is an index for gauging fluctuations in the overall volume and rate of crime. The crime index includes seven offenses, including the violent crimes of murder, rape, robbery, and aggravated assault and the property crimes of burglary, larceny theft, and motor vehicle theft.

Figure 6.0: Accidents Compared to Traffic Stops by Time of Day

Findings and Recommendations

Waterbury conducts a relatively small number of traffic stops compared with other jurisdictions of its size. Traffic enforcement is concentrated in a highly diverse and relatively small geographic area of the city north of I-84. These areas have a non-White driving age population well above the town average. While more than 150 officers in Waterbury made at least one traffic stop, the vast majority of them (85%) made fewer than 20 stops during the study year. The other 15% of the officers made 61% of the traffic stops.

Traffic Stops and Crime in Waterbury

Waterbury traffic enforcement activity does not appear to be primarily driven by population concentrations, that is, the census tracts with the largest population concentrations do not all generate significant levels of traffic enforcement. The Waterbury Police Department maintains that based on the violent crime data they provided some relationships do appear to exist between Waterbury's high traffic enforcement area and its violent crime patterns. This is particularly true with respect to the highest crime areas of census tracts 3501, 3508, and 3510, and to a lesser extent, census tracts 3202, 3203, and 3204. These relationships are less apparent with respect to the census tracts south of I-84 and the primary downtown area where the violent crime "heat map" shows moderate levels of crime activity but traffic enforcement activity is relatively low (census tracts 3505, 3514, 3517, and 3516.01). Thus, while the connection between crime rates and traffic enforcement levels seems fairly clear for the highest crime areas in the main downtown area north of I-84, it seems to be more tenuous in the areas south of the highway.

Stop Rate Anomalies by Area

As the analysis indicates, Waterbury's high stop rates of Black and Hispanic drivers is somewhat unsurprising given where it engages in the majority of its traffic enforcement activity, i.e., areas with the highest populations of minority residents. We identified all the census tracts where the proportion of stops exceeded the town-wide average for a racial/ethnic group and then looked at the

driving age population within those tracts to try and understand localized disparities. In effect, this process identified several census tracts where the disparity exceeded the localized population by a significant amount. This does not necessarily mean that profiling exists in these areas, since the disparity could be fueled by other factors such as high levels of movement through the area by residents from other areas of the city or because of fairly low stop numbers that could skew the data, but it does serve to identify those sections of the city where the disparities are most apparent.

Four census tracts (3501, 3508, 3510, and 3513) exhibited such disparities with respect to Black drivers and one tract (3511) exhibited the disparity with respect to Hispanic drivers. The disparity with respect to Black drivers in Tracts 3508 and 3513 was significant enough to exceed 10 percentage points when the Black population was taken into consideration. In the case of Tract 3510, the minority driver disparity of 16.8% was the result of both a Black disparity of 12.9% and a Hispanic disparity of 3.9%. Census tract 3523 fell marginally below the 10-percentage point threshold for Hispanic drivers. It should be noted that stop numbers in most of the Waterbury census tracts other than 3501, 3523, and 3504 were generally below 100 stops.

It would be valuable for the Waterbury Police Department to evaluate its activities in these census tracts to see if it can gain a better understanding of what may be influencing the data in these particular areas.

Traffic Stop Outcomes

Waterbury is unique with respect to both the number of traffic stops it makes and the outcomes of its stops, when compared to other large municipalities. The proportion of its traffic stops that result in a misdemeanor summons (29.5%) is by far the largest in the state (Hartford is second highest at 16% and the overall state average is 5.5%). Similarly, its proportion of stops that resulted in Uniform Arrest Reports was the third highest in the state, behind only New London and West Hartford.

While a portion of the Waterbury stops that resulted in the high numbers of misdemeanor charges were apparently misdemeanor violations at the outset based on the data entered in the system, well over half of them began as infraction violations. If officers follow the data entry requirements properly, they should have entered the statutory citations that led to the more severe misdemeanor outcome in a separate field. Unfortunately, this secondary citation data was missing for all of the 513 misdemeanor outcome stops and all but one of the 93 stops that resulted in a UAR. Thus it is not possible to analyze the progression of how these stops moved from infractions to misdemeanors or arrests from the available data. Given the link between Waterbury's apparent uses of its traffic enforcement activity and the higher crime areas of the city, it is important that the police department improve upon this shortcoming by assuring that its officers provide all the necessary data into the system.

Lastly, Waterbury searches 10 times more motor vehicles than the state average. In particular, 29% of the drivers stopped in Waterbury were subjected to a motor vehicle search. Further analysis of the Waterbury search data has revealed that the Waterbury Police Department's strict inventory search policy has a significant effect on its overall search numbers. 73% of all vehicles searched in Waterbury were the results of an inventory search. The other 27% of the vehicle searches were searches as the result of driver consent. After accounting for inventory searches, minority drivers are still searched at more than twice the rate of White drivers, but the rate of contraband found is higher when White drivers are searched. This is an area where the disparity needs to be further explained and evaluated by the police department.

II.B (9): WETHERSFIELD FOLLOW-UP ANALYSIS SUMMARY

The follow-up analysis presented below continued to review traffic stops conducted from October 1, 2013 – September 30, 2014. An additional 12 months of data has been collected and analyzed in Part I of this report. Below is a summary of reported traffic stops for Wethersfield over a two-year period.

	2013-2014 Traffic Stop Records		2014-2015 Traffic Stop Records	
White Non-Hispanic	2,726	49.14%	2,364	52.57%
Black Non-Hispanic	1,030	18.57%	833	18.52%
AsPac Non-Hispanic	73	1.32%	64	1.42%
AI/AN Non-Hispanic	13	0.23%	12	0.27%
Hispanic	1,705	30.74%	1,224	27.22%
Total	5,547		4,497	

Overview of the April 2015 Traffic Stop Analysis

The April 2015 Traffic Stop Analysis report indicated that for the October 1, 2013 – September 30, 2014 study period the Wethersfield Police Department made a total of 5,547 traffic stops. Of these, 50.9% were minority stops, of which 31% were Hispanic drivers and 19% were black drivers. The Wethersfield Police Department was identified using the four descriptive tests. Wethersfield was identified as having exceeded the threshold of 10 percentage points in all four of the descriptive benchmarks used and nine of the 12 possible measures. Although it is understood that certain assumptions have been made in the design of each of the four benchmarks, it is reasonable to believe that departments with consistent data disparities that separate them from the majority of other departments should be subject to further review and analysis with respect to the factors that may be causing these differences.

Descriptive Analysis of the 2013-2014 Traffic Stop Data

The racial and ethnic disparities in the Wethersfield Police Department data were explored through a more detailed look at traffic enforcement during the original study period. Part of this analysis involved mapping all stops, if possible, using the location data provided by the department and any enhancements we were able to make. Unfortunately, the descriptive information on stop locations was only specific to allow accurate mapping of 28% of the traffic stops reported. In most cases, geographical coordinates were not provided to us and traffic stops were manually mapped by using the officer's description of the location of the stop. In 72% of the reported traffic stops, the description was too vague and therefore researchers could not identify the specific geographic coordinates. In some cases, the location description was not even sufficient to identify the road itself. For example, the location description for 229 stops was recorded as "Main Roadway," which appeared to refer to a functional area of a street but not to the street name.

Due to the lack of detailed location information available in Wethersfield, the census tract-based analysis was replaced by a descriptive analysis of highway corridors. The location information typically identified the road where the traffic stop was conducted, but not the specific point on the road. Although analyzing traffic stops by census tract is the preferred method, analyzing traffic stops by corridor proved just as effective an approach because two out of three traffic stops in Wethersfield are made in only two specific highway corridors.

According to the 2010 census, Wethersfield is a town with approximately 21,607 residents over the age of 16. Approximately 12.5% of the driving age population in Wethersfield is identified as a minority. Figure 1.0 outlines the basic demographic information for Wethersfield residents over age 16. A large portion of the minority population in Wethersfield resides within the northernmost section of the town adjacent to the city of Hartford. Within this tract (4923) live 54.4% of all the driving age black residents and 42.3% of all the Hispanic driving age residents of Wethersfield.

Figure 1.0: Wethersfield Population

Race/Ethnicity	16+ Population Total	% Population Total
White Non-Hispanic	18,913	87.5%
Black Non-Hispanic	594	2.8%
AsPac Non-Hispanic	565	2.6%
Hispanic	1,535	7.1%
Other	0	0.0%
Total	21,607	

Five other municipalities share a common border with Wethersfield, including Hartford to its north, East Hartford and Glastonbury to its east, Rocky Hill to its south, and Newington to its west. Glastonbury, Newington, and Rocky Hill are predominantly white demographically with an average driving age white population of 86%, which is consistent with the white driving age population in Wethersfield. However, Hartford borders the northern portion of Wethersfield and has a white driving age population of only 19%. The three Hartford census tracts that directly border Wethersfield range from 48% to 55% Hispanic population and 14% to 17% black population. In addition, East Hartford borders a small portion of the northeast corner of Wethersfield and has a white driving age population of 48%. East Hartford has no direct highway connection to Wethersfield other than I-91 or Route 5/15. Approximately 81% of the drivers stopped in Wethersfield during the study year were not residents of the town.

Interstate 91 runs from north to south along the eastern part of town, Route 15 (Berlin Turnpike) runs from Newington to Hartford in the northwest part of town, and Route 99 (Silas Deane Highway) runs from Rocky Hill to Hartford in the eastern part of town. Wethersfield has three main east-west roads crossing it. Nott Street traverses the northern third of Wethersfield, Wells Road (Route 175) traverses the central section, and Prospect Street (Route 287) traverses the southern third. All three roads intersect with the Silas Deane Highway.

Although we were only able to map 28% of the traffic stops, we were able to identify eight roadways in Wethersfield that account for 84% of the locations of traffic stops. There were more than 50 stops conducted on each of these eight roadways; all other roads in Wethersfield contributed fewer than 50 traffic stops. In particular, the Berlin Turnpike and Silas Deane Highway account for 63% of all traffic enforcement in town. Therefore, this analysis of traffic enforcement in Wethersfield focuses more on these roadways than on census tracts, although some references to the census tract data are included.

Figure 2.1 illustrates the volume of traffic enforcement that occurs on each of the eight identified roads. The Berlin Turnpike accounted for 28% of Wethersfield traffic stops. The Silas Deane Highway (Route 99) accounted for 35% of the traffic stops. Jordan Lane and Wolcott Hill Road produced the next largest group of stops. These stops are also important to the overall analysis because they

occurred almost entirely within the northern tier Census Tract 4923, which is also the tract within Wethersfield with the highest proportion of its black and Hispanic population. Taken together, these four roads accounted for almost 74% of Wethersfield's stops.

The analysis that follows focuses primarily on the Berlin Turnpike and the Silas Deane Highway individually, and the combination of the Berlin Turnpike, and Jordan Lane as part of a northern tier analysis.

Figure 2.1: Traffic Stops by Major Roadways

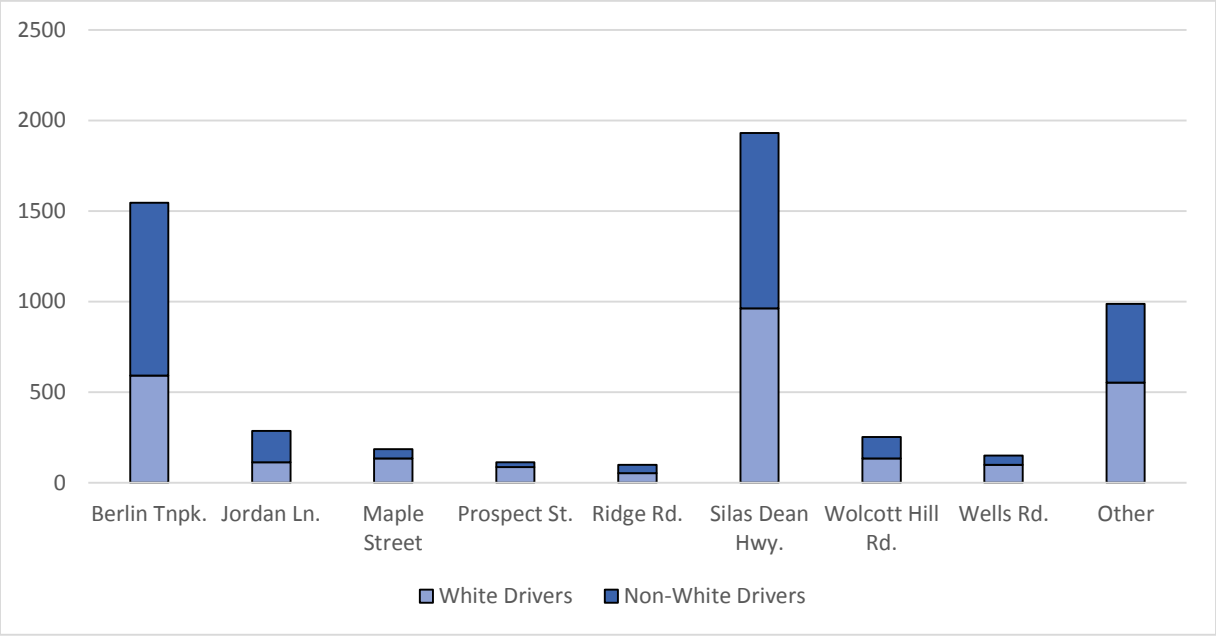
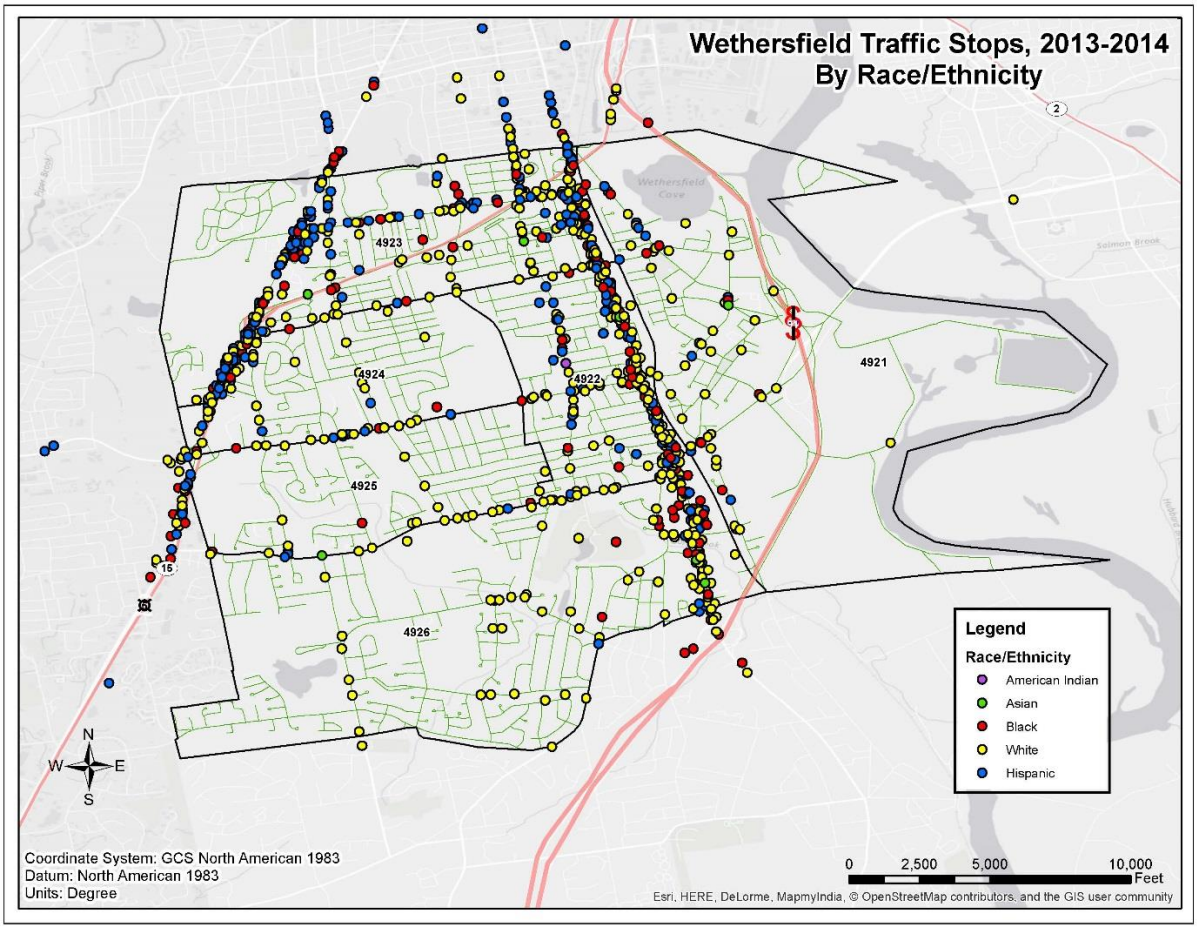


Figure 2.2 is a map of the 28% of traffic stops made in Wethersfield that could be mapped. Although we were unable to map the vast majority of stops, the stops that we could map follow a similar trend to the unmapped stops. It is clear from this image that the majority of traffic enforcement occurs on the Berlin Turnpike and Silas Deane Highway. In addition, a significant number of traffic stops occur in Hartford and in the northern section of Wethersfield near the border of Hartford.

Figure 2.2: Traffic Stop Map



Traffic Stop Breakdown on the Berlin Turnpike

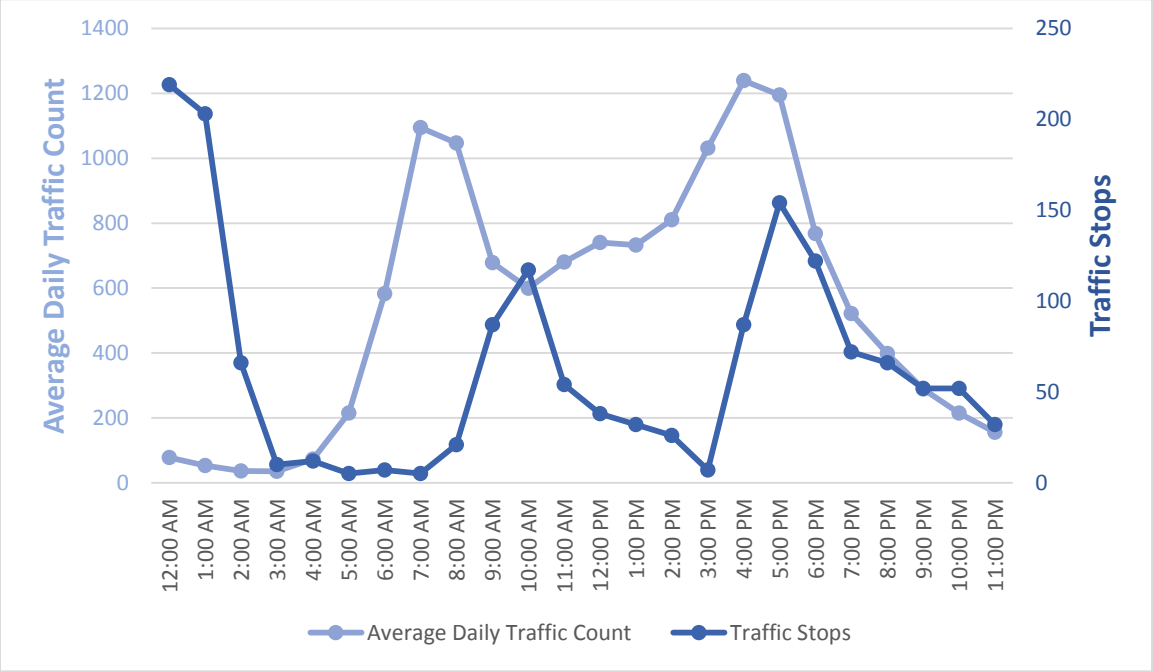
The Berlin Turnpike accounts for 28% of all traffic stops in Wethersfield. The Berlin Turnpike is a four to six lane divided road that carries Route 5 and Route 15 from the Meriden-Berlin border through Newington and Wethersfield. The entire roadway is approximately 11 miles long, with about 1.9 miles running through Wethersfield to the Hartford line. In Wethersfield the turnpike is a divided highway for less than one mile, at which point Route 5 branches off to connect with Interstate 91 and the turnpike continues as a 2 lane local road to the Hartford border (State Road 543), where it turns into Maple Avenue once it crosses the town line. There is a large shopping center, including a Stop and Shop, located just south of the Hartford town line where State Road 543 and Jordan Lane intersect.

The turnpike crosses into Newington at the Wells Road (Route 175) interchange. To help understand traffic flow on the turnpike, the analysis looked at the average daily traffic (ADT) records that are reported by the Connecticut Department of Transportation. The Department of Transportation is responsible for collecting traffic volume information for state and local roads throughout the state. This task is accomplished by placing counting stations at different points along the roadway for a period of time to count the cars that drive through that point. According to the ADT information for the Berlin Turnpike, the majority of traffic flows from the Newington border to the Route 5 connector during the morning commute, and the majority of traffic picks up the turnpike off the Route 5

connector south towards Newington during the evening commute. Traffic flow on the portion of the turnpike in Wethersfield seems to be predominantly driven by employment commute. There is significantly less traffic on the small stretch of the turnpike that is past the Route 5 connector and heads towards the Hartford border. In addition, the vast majority of traffic that enters Wethersfield on the turnpike enters through the Route 5 connector.

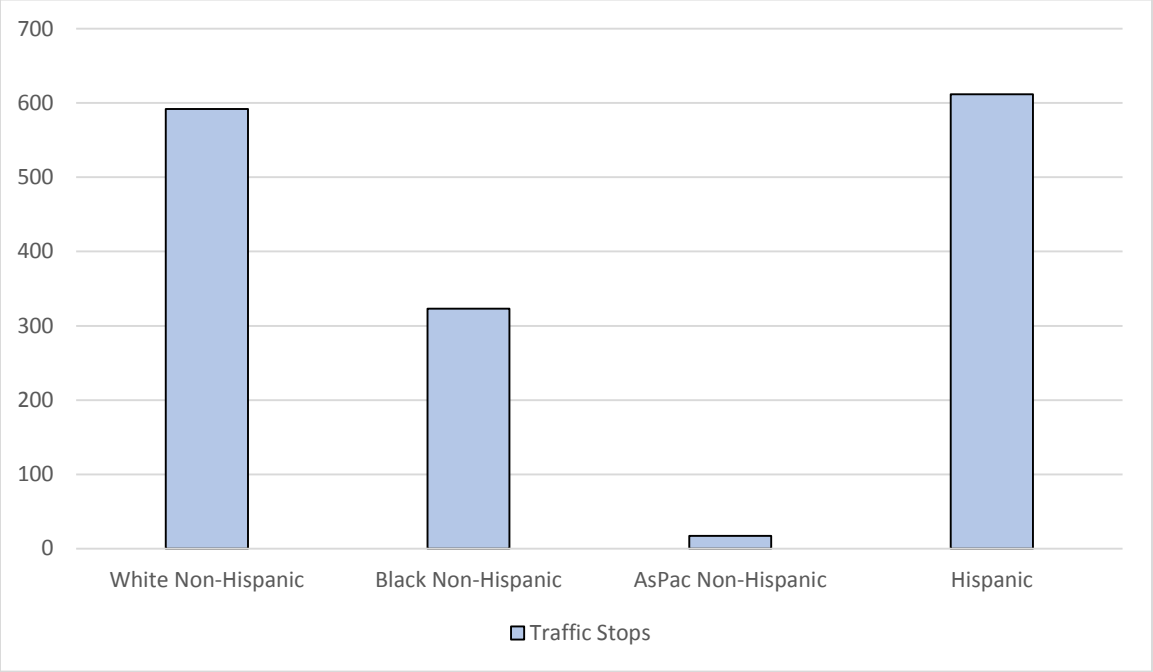
Figure 3.1 is a graph of traffic flow compared to traffic enforcement on the Berlin Turnpike. Traffic flow on the turnpike peaks during morning (6:00am to 9:00am) and evening (3:00pm to 6:00pm) commuting hours. Traffic enforcement peaks were offset somewhat from the commute peaks, with enforcement peaks at 9:00am to 11:00am and 4:00pm to 7:00pm. However, by far the most active enforcement period on the turnpike was from midnight to 2:00am.

Figure 3.1: Berlin Turnpike Traffic Flow Compared to Traffic Enforcement



The overall percentage of traffic stops involving minority drivers on the Berlin Turnpike was 62%. Approximately 40% of drivers stopped were Hispanic and 21% were black. Of the more than 1,500 traffic stops on the turnpike, 89% of the drivers stopped were not residents of Wethersfield. Hispanic drivers were 24% of all Wethersfield residents stopped on the turnpike and 42% of all non-residents. Black drivers were 17% of all Wethersfield residents stopped on the turnpike and just over 21% of all non-residents. Figure 3.2 shows the proportion of traffic stops on the Berlin Turnpike by race and ethnicity.

Figure 3.2: Berlin Turnpike Traffic Stops by Race/Ethnicity



Traffic Stops in the Northern Tier (Census Tract 4923)

The Berlin Turnpike accounted for the bulk of the traffic stops in the northern section of Wethersfield defined by Census Tract 4923, but Jordan Lane also accounted for a significant number of stops (285) within the census tract. Together, the Berlin Turnpike, and Jordan Lane accounted for 33% of all Wethersfield stops. These three roads within tract 4923 accounted for 37%% of all black drivers stopped in Wethersfield and 42.5% of all Hispanic drivers. Stops made on the northern end of the Silas Deane Highway also add to the stop total within this tract. Although two-thirds of the stops on the Silas Deane Highway could not be accurately mapped because of the limited location descriptions, we were able to locate 202 stops within the portion of the Silas Deane Highway that passes through tract 4923. The demographics of these 202 stops were 35% Hispanic, 22% black, and 42% white.

Taken together, more than 36% of all the stops made in Wethersfield were made on these three roads during the study period. The combined demographics of these 2,033 stops was 20.8% black, 39.2% Hispanic, 38.8% white, and 1.2% other races. These disparities were only 2.2 percentage points above the town-wide average for black driver stops but 8.5 percentage points above the town-wide average for Hispanic drivers.

In all, 41% of all black drivers and 46.7% of all Hispanic drivers stopped in Wethersfield were stopped in Census Tract 4923. The high enforcement levels in this section of Wethersfield, that has both the highest concentration of black and Hispanic driving age residents and borders on a section of Hartford with a 55% Hispanic and 17% black population base, appears to have had a considerable impact on both of these driving populations.

Traffic Stop Breakdown on the Silas Deane Highway

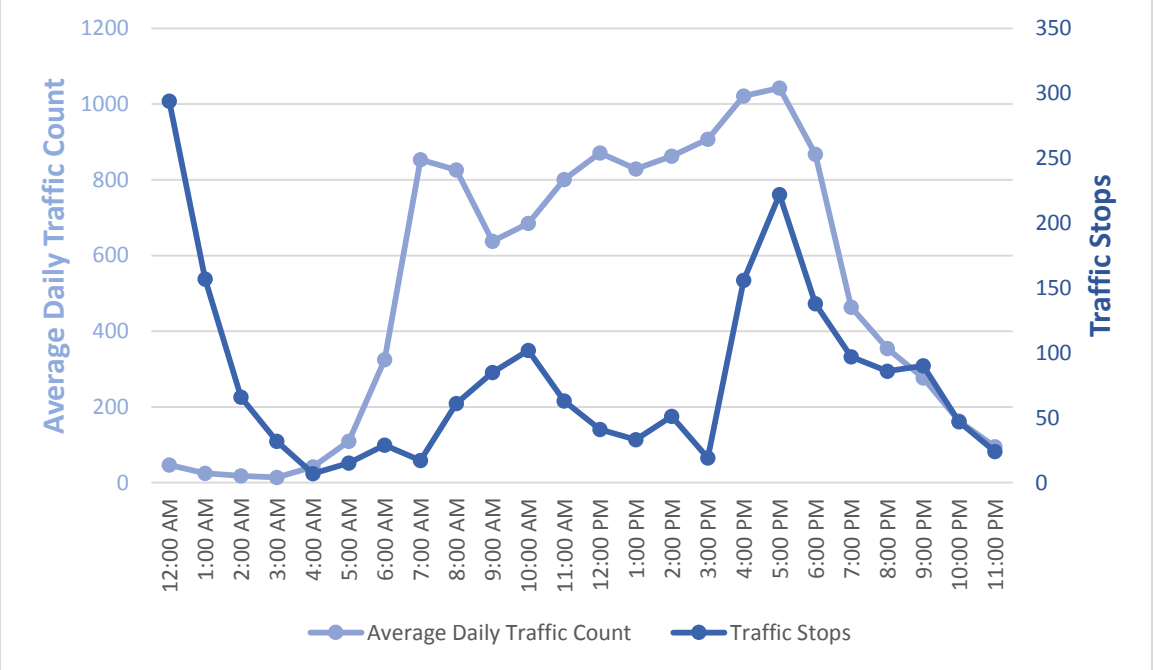
The Silas Deane Highway (Route 99) accounted for 35% of all traffic stops in Wethersfield. The Silas Deane Highway is a four lane road that runs from the Rocky Hill border on the south side of

Wethersfield all the way to the Hartford border on the north. The Silas Deane is about 3.3 miles long and meets the Rocky Hill town line at Exit 24 on I-91. It connects with Route 3 (Maple Street) a little more than two miles from where it begins at Wethersfield Avenue in Hartford.

According to the Department of Transportation's ADT estimates for the Silas Deane Highway, the majority of traffic flows from the Rocky Hill border north towards Hartford during the morning commute, and south from Hartford towards Rocky Hill during the evening commute. Traffic flow on the portion of the Silas Deane Highway in Wethersfield seems to be impacted by employment commute but traffic volume remains high during the afternoon hours, presumably due to shopping and other activity centers along the highway.

Figure 4.1 is a graph of traffic flow compared to traffic enforcement on the Silas Deane Highway. Traffic flow on the highway peaks during morning commuting hours and remains fairly constant through the afternoon, dropping after evening commuting hours. Traffic enforcement peaks are slightly offset from the morning commute peak but track fairly closely to traffic volumes during the afternoon commute peak period. As with the Berlin Turnpike, the largest enforcement spike on the Silas Deane occurs during the late night period from midnight until 1:00am.

Figure 4.1: Silas Deane Highway Traffic Flow Compared to Traffic Enforcement



The overall percentage of traffic stops involving minority drivers on the Silas Deane Highway was 50%. Approximately 27% of drivers stopped were Hispanic and 21% were black. Of the more than 1,900 traffic stops on the Silas Deane, 82% of the drivers stopped were not residents of Wethersfield. Figure 4.2 shows the proportion of traffic stops on the Silas Deane Highway by race and ethnicity.

The lack of enough accurate location data hampers an effective analysis of the Silas Deane Highway stop data more than it does the Berlin Turnpike analysis. Two-thirds of the stops on the highway could not be assigned a specific location. However, we were able to accurately locate 202 stops in Census Tract 4923, which covers the northernmost portion of the corridor; 260 stops in Census Tract 4922, which covers the central portion of the corridor; and 153 stops in Census Tract 4926, which

covers the southernmost portion of the corridor. This sample provides an interesting perspective on the corridor as a whole.

In Census Tract 4923, the stop demographics were 21.8% black drivers, 35.1% Hispanic drivers, and 41.6% white drivers, with the remaining 1.5% drivers of other races. These demographics tracked fairly closely to the overall demographics of the northern tier stop sample, which were 20.2% black, 38.1% Hispanic, and 40.4% white.

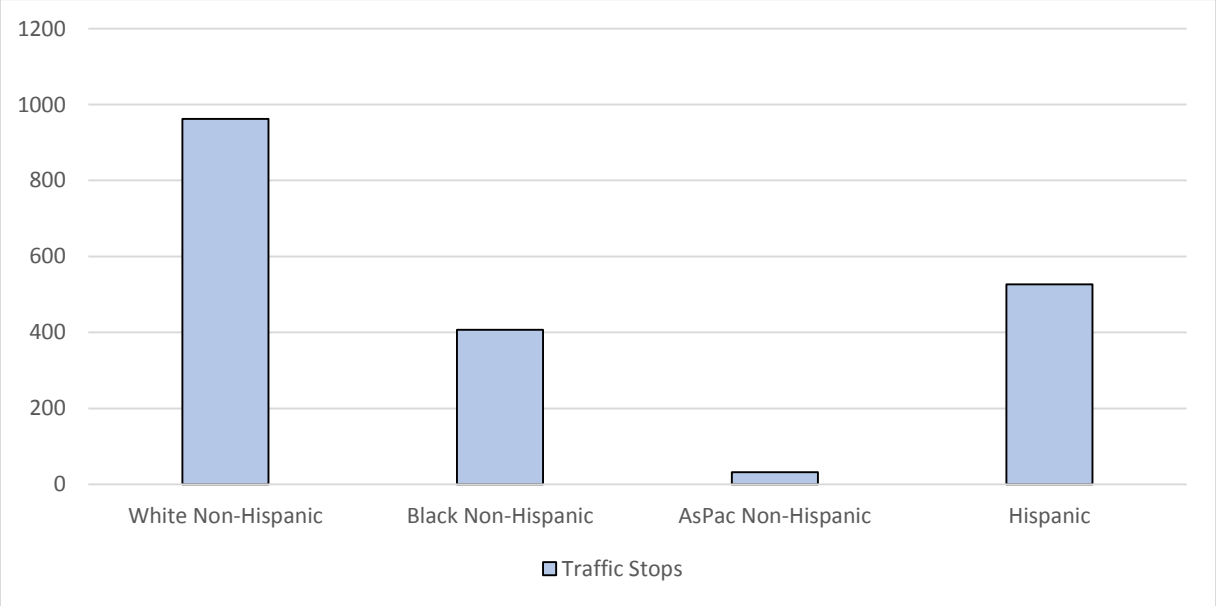
The stop demographics in the central section of the Silas Deane covered by Census Tract 4922 differed somewhat. The 260 stops that we could map in this tract were 15.4% black, 26.5% Hispanic, and 55.4% white. In the southernmost third of the Silas Deane covered by Census Tract 4926, the stop demographics varied again. For the 153 stops that could be accurately located, the demographics were 23.5% black, 18.3% Hispanic, and 54.9% white. The Asian/Pacific Islander component of the stop demographics was just over 2.5% in both census tracts.

These sectional samples provide a profile of the Silas Deane that suggests a decreasing Hispanic driver stop demographic as one moves south on the Silas Deane and black driver stop demographics that are similar on the northern and southern parts of the corridor but dip somewhat in the central section. The white driver demographic is fairly consistent, at about 55% for the two sections south of Census Tract 4923.

When all of the stops that could not be accurately located along the corridor were analyzed, the demographic component for black drivers matched the northern Census Tract 4923 demographic exactly but the Hispanic component of the demographic was closer to the Hispanic demographic in the central section covered by Census Tract 4922. Specifically, the demographics for the unmapped stops were 21.8% black, 27.2% Hispanic, 49.4% white, and less than 2% drivers of other races.

It is difficult to draw firm conclusions from this analysis, but, if the sectional analysis reflects the general distribution of the unmapped stops, it tends to suggest that the unmapped stops were more likely to be occurring in the northern half of the Silas Deane corridor than in the southern half.

Figure 4.2: Silas Deane Highway Traffic Stops by Race/Ethnicity



Traffic Stop Distribution for Wethersfield Officers

Wethersfield's total of 5,547 traffic stops is comparable to other towns of its size. During the study period, traffic stop data was reported for 36 officers. The average number of stops made per officer was 151. Of the 36 officers reporting stops, 11 made fewer than 20 stops, five made between 20 and 50 stops, four made between 50 and 150 stops, nine made between 150 and 300 stops and seven made over 300 stops. The seven most active officers making more than 300 stops each collectively accounted for 48% of Wethersfield stops. While these seven officers clearly had the greatest impact on Wethersfield's total stop numbers, the average number of stops per officer is relatively higher than the averages found in a number of other departments.

Non-Resident Component of Wethersfield Traffic Stops

Wethersfield's traffic stop data tended to reflect to a great degree two basic influences: (1) an extremely low non-white driving age resident population and (2) the relatively large proportion of non-Wethersfield residents who make up the majority of people who were stopped in Wethersfield. Wethersfield's resident driving age population is estimated as 87.5% white, 2.8% black, 2.6% Asian/Pacific Islander, and 7.1% Hispanic. The demographics of the Wethersfield residents who were stopped during the study year showed a disparity for black and Hispanic drivers. The disparity was more significant for non-Wethersfield resident stops. Since 81% of all drivers stopped in Wethersfield were not residents, out-of-town drivers clearly had an impact on the stop data. The demographics of drivers stopped who were not Wethersfield residents were as follows: 42% white, 21% black, 1% Asian/Pacific Islander, 0.2% Indian American, and 35% Hispanic. Approximately 90% of the black and Hispanic drivers stopped were not residents, compared to 70% of white drivers.

The Route 5 and Route 99 corridors appear to have the greatest influence on the non-Wethersfield resident component of the stop demographics, with 89% of the drivers stopped on Route 5 and 82% of the drivers stopped on Route 99 not living in Wethersfield. Jordan Lane has a lesser influence because the number of stops is smaller, but 82% of those drivers were not residents of Wethersfield. Non-resident black and Hispanic drivers were significantly more likely than white non-resident drivers to be stopped on Route 5 and Route 99 than they were in any other place in Wethersfield. These two corridors were responsible for 68% of the non-resident Hispanic drivers stopped in Wethersfield and 72% of the non-resident black drivers stopped, compared to only 60% of the non-resident white drivers stopped.

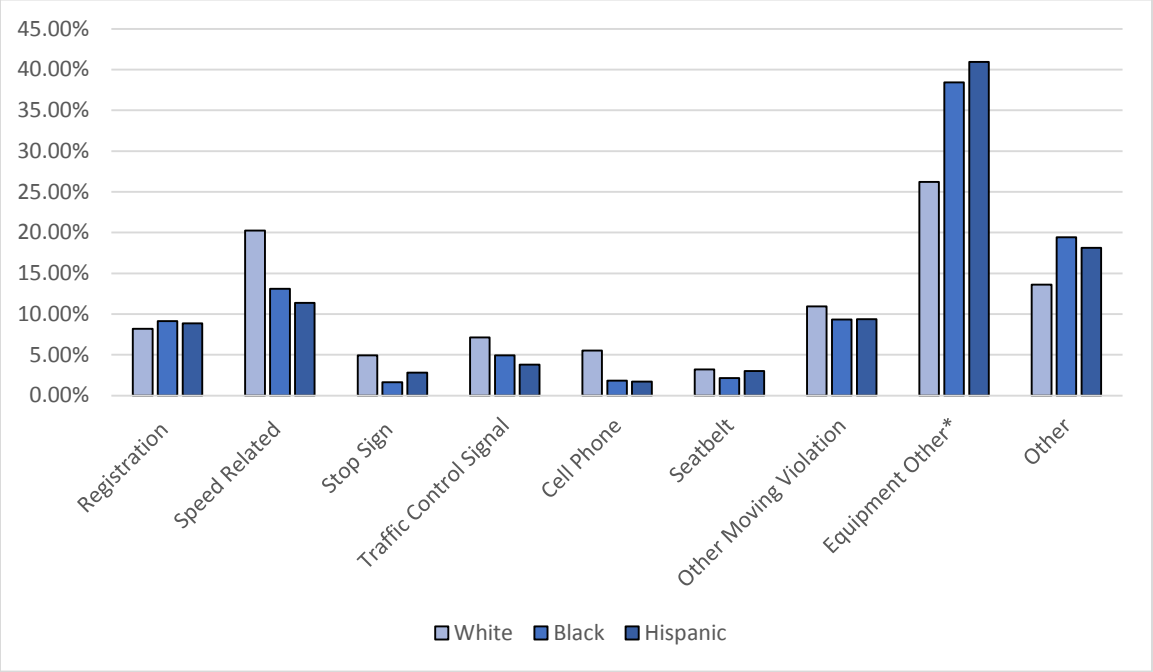
Post-Stop Outcome Review

The reasons police use to stop a motor vehicle can vary significantly from department to department. We reviewed the statutory authority that Wethersfield officers reported as the reason for stopping a motor vehicle. The three most common reasons for stopping a motorist in Wethersfield made up over 45% of the total stops. The three largest stop categories were for speeding violations (16%); defective, improper, or inoperative lighting (15%); and display of plate violations (14%).

White drivers were stopped for hazardous driving-related behaviors, such as speeding, stop sign and traffic signal violations, cell phones, and other moving violations, at a greater rate compared to all their stops then were either black or Hispanic drivers. Black and Hispanic drivers were much more likely than white drivers to have been stopped for violations involving defective, missing, or inoperative lighting; display of license plates; and window tinting as a proportion of their total stops.

Wethersfield reported these types of equipment-related stops more than any other municipal department in the state during the study year, comprising 33% of Wethersfield's stops. Under many circumstances, these enforcement choices tend to afford an officer a higher level of discretion with respect to making the stop than do more hazardous driving-related behaviors. These stops resulted in a verbal warning 82% of the time. This rate was significantly higher than the rate of verbal warnings for all other types of violations in Wethersfield, which was just over 62%. Figure 5.1 illustrates the reason officers used to stop a motor vehicle by race and ethnicity.

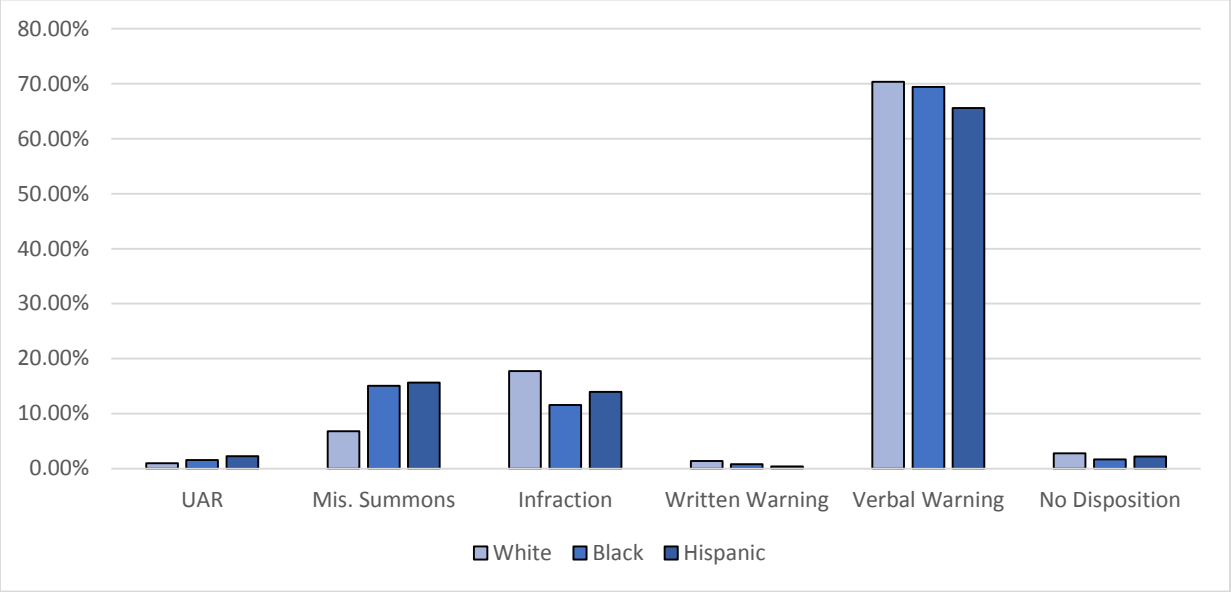
Figure 5.1: Reason for Traffic Stop



*Equipment Other includes violations for defective lights, excessive window tint, or display of plate violations.

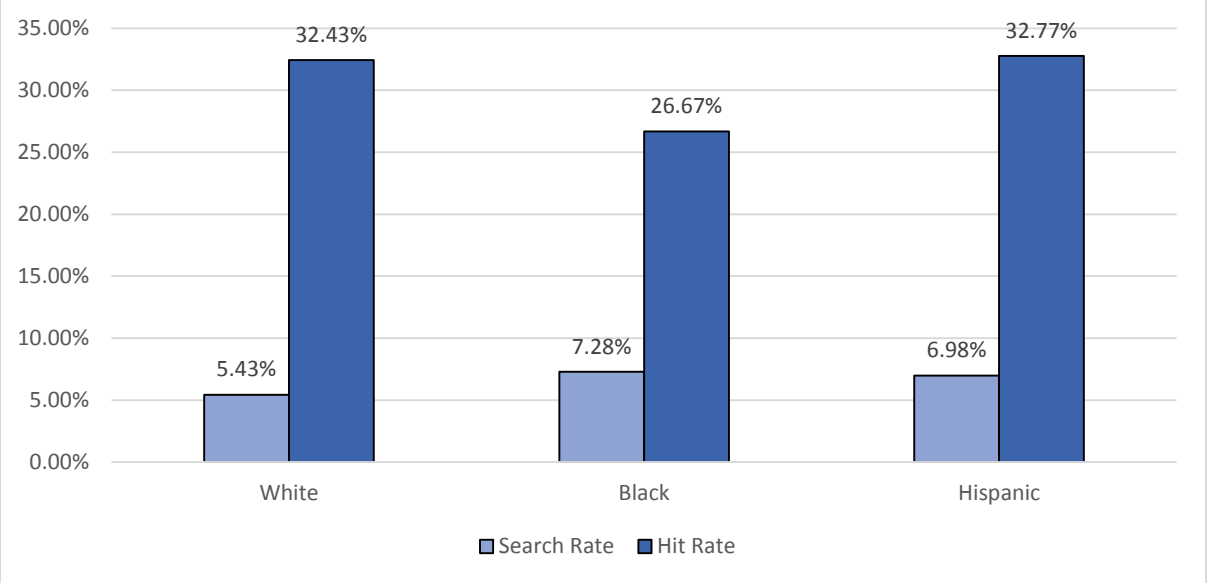
The majority of motor vehicle stops in Wethersfield resulted in the driver receiving a verbal warning (69%). Figure 5.2 shows the outcome of motor vehicle stops by race and ethnicity. Black and Hispanic drivers were more likely to receive a misdemeanor summons as a percentage of their total stops. However, black drivers were slightly less likely to receive an infraction compared to white and Hispanic drivers. Hispanic drivers were slightly less likely to receive a verbal warning than white or black drivers.

Figure 5.2: Outcome of Traffic Stop



Upon reviewing department search information, we found that 6.2% (346) of the drivers stopped in Wethersfield were subjected to a motor vehicle search. The rate of motor vehicle searches was above the state average of 2.9%, and minority drivers were searched at about a 30% higher rate than white drivers. Contraband was found at almost the same rate for white and Hispanic drivers searched but at a lower rate for black drivers searched. Figure 5.3 illustrates the motor vehicle search rate and the rate at which contraband was found.

Figure 5.3: Search and Hit Rate



Additional Contributing Factors

Law enforcement administrators choose to deploy police resources within a community based on a number of different factors. Some of these may include locations where call for service volume,

accident rates, or crime rates are higher. In addition to these factors, police may be more present in areas with higher traffic volume as the result of common factors that draw people into a community such as employment and entertainment. Traffic enforcement is likely to be more prevalent in locations that attract a higher police presence due to some of these factors. In order to provide some context for potential explanations for the deployment of police resources in Wethersfield, we provided some basic information on crime, accidents, and other economic factors that are worth consideration.

According to the Connecticut Economic Resource Center (CERC) town profiles, Wethersfield employs approximately 13,000 people and their major employers include Wethersfield Health Care Center, VNA Healthcare Inc., Connecticut Corrections Department, Connecticut Labor Department, and Cox Communications. The vast majority of commuters traveling into Wethersfield for employment are from Hartford, East Hartford, Newington, Manchester, and New Britain. The overall unemployment rate is 5.7%, which is below the unemployment rate for Hartford County and the state.

In 2014, crime in Wethersfield was reported at a rate of 144.0 per 10,000 residents, compared to the state crime rate of 216.7 per 10,000 residents. According to the 2014 Connecticut Uniform Crime Report[17], there were 399 reported crimes in Wethersfield in 2014. The three most reported crimes were larceny (280), burglary (67), and motor vehicle theft (35).

During our study period, there were approximately 650 motor vehicle accidents on roads patrolled by the Wethersfield Police Department. Accidents were reported on a total of 79 roads. The roadways with the highest number of accidents were the Silas Deane Highway with 152 accidents, Berlin Turnpike with 125 accidents, and Route 175 (Wells Road) with 62 accidents. There were nine roads with 10 or more accidents and those roads accounted for 80% of all the accidents. Figure 6.0 illustrates the time of day when traffic accidents were reported and the number of traffic stops that occurred during that same time period. This may help to better understand how closely traffic enforcement is correlated to traffic accidents in Wethersfield.

[17] The Uniform Crime Report is an index for gauging fluctuations in the overall volume and rate of crime. The crime index includes seven offenses: the violent crimes of murder, rape, robbery, and aggravated assault and the property crimes of burglary, larceny-theft, and motor vehicle theft.

Figure 6.0: Accidents Compared to Traffic Stops by Time of Day

Findings and Recommendations

Wethersfield identified factors that they believe contribute to the disparity identified in the initial analysis. The department stated that they believe their roadways are heavily impacted by residents of Hartford and in particular by minority residents from Hartford's south end. Wethersfield highlighted the impact that retail businesses on the Berlin Turnpike and Silas Deane Highway have on traffic. While the lack of usable location descriptions for the vast majority of Wethersfield's traffic stops hampered our ability to accurately map most of the stops, it was evident from the data that departmental resources were concentrated in certain parts of town, primarily along the Berlin Turnpike, Silas Deane Highway, and in the northern tier of the community defined largely by Census Tract 4923. We did not receive any specific information from Wethersfield regarding crime rates or calls for service that would have permitted an analysis of how closely deployment of resources for traffic enforcement matched these factors, nor would such an effort have proven successful due to the lack of sufficient detail on stop locations. It is extremely important that Wethersfield improve upon the way in which its officers identify stop locations going forward.

Traffic enforcement was concentrated in a relatively limited geographic area along the northern portion of the town near the Hartford border and on Route 99 (Silas Deane Highway). Route 99 had the greatest impact on traffic enforcement in Wethersfield, accounting for 35% of the traffic stops. Route 5 (Berlin Turnpike) has the second greatest impact on traffic enforcement with 28% of traffic stops. Combined, these two roadways account for 63% of all traffic stops and 68% of all minority traffic stops in Wethersfield.

The northern tier of Wethersfield, basically defined within Census Tract 4923 exhibited a very significant law enforcement activity level. When the stops made on the Berlin Turnpike, and Jordan Lane were combined with approximately 200 stops that could be accurately located on the portion of the Silas Deane Highway within the boundaries of Census Tract 4923, the total comprised 36% of

all Wethersfield stops. Just over 20% of these stops involved black drivers, 39% involved Hispanic drivers, and 39% involved white drivers. The rate of Hispanic driver stops in this area was almost nine percentage points higher than the town-wide average for Hispanic stops. Overall, 41% of all black drivers and 47% of all Hispanic drivers stopped in Wethersfield were stopped in this northern enforcement tier.

Wethersfield's traffic stop data tends to reflect to a great degree an extremely low non-white driving age resident population and the relatively large proportion of non-Wethersfield residents who make up the majority of people who were stopped in Wethersfield. Since 81% of all drivers stopped in Wethersfield were non-residents, the overall impact out-of-town drivers had on the stop data is fairly clear. Approximately 90% of black and Hispanic drivers stopped were not residents of Wethersfield, compared to 70% of white drivers.

The non-resident component of the stop demographics appeared to have its greatest impact in the Route 5 and Route 99 corridors, with 89% of the drivers stopped on Route 5 and 82% of the drivers stopped on Route 99 not living in Wethersfield. These two corridors were responsible for 68% of the non-resident Hispanic drivers stopped in Wethersfield and 72% of the non-resident black drivers stopped compared to only 60% of the non-resident white drivers stopped.

Reasons for Stops

Speeding violations were the largest category of stops made in Wethersfield (16%). The next largest category of stops was for defective, improper, or inoperative lighting (15%), followed by stops for display of plate violations (14%). Black and Hispanic drivers were more likely than white non-Hispanic drivers to be stopped for an equipment violation. In contrast, white non-Hispanic drivers were more likely to be stopped for a moving or speeding violation.

Just over 33% of Wethersfield's stops were made for violations involving defective, missing, or inoperative vehicle lighting; improper display of license plates; and window tinting. This was the highest rate for such stops of any municipal police department in the state during the study year. These stops occurred more frequently on the roadways that have direct access to Wethersfield from Hartford (Berlin Turnpike, Jordan Lane, Silas Deane Highway, Hartford Ave., and Folly Brook Blvd.). The frequency and location of these stops on these roadways in the northern area of Wethersfield appears to have had a large impact on the size of the disparity affecting Hispanic drivers in Wethersfield. Hispanic drivers were stopped 41% of the time for equipment-related violations, compared to only 26% of the time for white drivers. This proportion appears to have been due more to the frequency and location of where such stops were made than an inherently higher violation rate by Hispanic drivers. Based on this analysis, we believe that this was an important factor in the Wethersfield disparity involving Hispanic drivers.

Just over 82% of these equipment-related violations resulted in verbal warnings. This was a significantly higher warning rate than for all other types of violations, which was only 62%.

Traffic Stop Outcomes

The proportion of Wethersfield's traffic stops that resulted in a misdemeanor summons (11.1%) exceeds the state average of 5.5%. Black and Hispanic drivers were more than twice as likely as white non-Hispanic drivers to receive a misdemeanor summons as the result of a stop. White non-Hispanic drivers were more likely to receive an infraction ticket. Overall, almost 69% of all drivers stopped received a verbal warning, although as noted above, stops for equipment violations were significantly

more likely to result in verbal warning than any other types of violations. White drivers were slightly more likely than black or Hispanic drivers to receive a verbal warning.

Wethersfield searched the vehicles of 6.2% of drivers it stopped, which is more than twice the state average of 2.9%. Black and Hispanic drivers were searched at about a 30% higher rate than white non-Hispanic drivers. The overall rate of contraband found mirrored the statewide average, with contraband being found 31% of the time. The rate of contraband was almost identical when white and Hispanic drivers were searched (32.4% and 32.7% respectively), compared to black drivers (26.7%). Of the 346 vehicle searches, the majority was the result of seeking and receiving the driver's consent, although contraband was only found 16.3% of the time. The other searches were primarily the result of some other authority (i.e. probable cause, plain view, etc.) and the rate at which contraband was found in these instances exceeded the town and state-wide averages at 49.3%. This data suggests that the police department may want to review its use of consent-based searches and evaluate their overall value to the department.

Since Wethersfield's records management system does not appear to capture latitude and longitude for traffic stops, it is extremely important that the descriptive explanation of the stop locations be as specific as possible. While it understandably may be difficult to adequately capture a street address or cross street in some sections of Wethersfield, it is imperative that Wethersfield take steps to review and improve its ability to capture more precise locations for its traffic stops.

II.C: STATE POLICE ANALYSIS

A series of robustness checks was conducted on the findings for Connecticut's State Police Troops C and H contained in the *2015 Traffic Stop Analysis and Findings*. The goal of this supplementary analysis is to provide additional insight into the possible sources of variation driving the racial and ethnic disparities found at the troop-level using the *Veil of Darkness* (Grogger and Ridgeway 2006). The data used in the robustness checks spans the period from October 1, 2013 to September 30, 2014 and matches that used in the *2015 Traffic Stop Analysis and Findings*. During that time period, officers in Troop C recorded a total of 27,837 and 18,795 stops for Troops C and H respectively.

The *Veil of Darkness* analysis, initially devised by Grogger and Ridgeway (2006), proposes that police officers who are inclined to profile motorists are less able to do so at night due to reduced visibility. With this hypothesis in mind, they propose a test to evaluate racial profiling at the department level. In this test, the sample is restricted to those stops that occurred within the "intertwilight window". The intertwilight window is a period of the day when solar visibility varies throughout the year. Assuming that there is a constant risk-set of drivers on the roadway, regardless of characteristics like day and time, the *Veil of Darkness* should simply reduce to testing for differences in the proportion of minority drivers stopped during the intertwilight window in the presence of daylight compared to the darkness.

Despite the fact that the sample of stops was restricted to a fixed window with continuous solar variation, a constant risk-set of drivers is still a tenuous and problematic assumption. In an effort to account for changes in the underlying risk-set of motorists, Grogger and Ridgeway opt in favor of logistic regression rather than a simple hypothesis test between two proportions. The use of logistic regression has the benefit of allowing for additional statistical controls that ensures a constant risk-set i.e. an apples-to-apples comparison.

The *2015 Traffic Stop Analysis and Findings* also uses a logistic regression approach with several controls to account for systematic differences in the risk-set. The set of statistical controls included in the report were selected through close consideration of what has been used in similar studies.[18] Although additional specifications were tested, the results presented in the report include only controls for time of day, day of week, and state-level traffic volume.[19] The purpose of this brief is to detail the results from specifications that include these additional controls as well as to consider the results obtained from using a more restrictive subsample of data.

The results of this more detailed analysis indicate that the racial and ethnic disparities found in State Police Troops C and H are robust to the inclusion of additional controls. The results persist even after

[18] These studies include Grogger and Ridgeway's original analysis of Oakland (2006); Ridgeway et al. five distinct analyses in Cincinnati (2004-2009); Ritter and Bael in Minneapolis (2009); Worden, McLean, and Wheeler's in Syracuse (2012); Horace and Rohlin in Syracuse (2014).

[19] As will be illustrated in the sections detailing the results for Troops C and H, the inclusion of these additional controls does not have an impact on the overall findings. As a result, these additional specifications were excluded from the original report in an effort to make a parsimonious presentation of the results. This brief also contains additional controls and sample restrictions that were not tested as part of the original analysis. These controls were developed as a result of an ongoing dialogue with State Police.

the sample of stops is restricted by infraction type, enforcement pattern, and driver's residency. Controls for geography and officer heterogeneity were also shown to have little impact on the overall results. Additionally, an extremely restrictive specification that focused on stops having occurred within a month before and after the daylight savings time (DST) adjustment in clock-time showed the same consistent disparity in both troops.

Although the source of the disparity in Troops C and H remains unknown, the findings confirm that it is extremely persistent and unaffected by controls using the 2013-14 data. One avenue of explanation relates to the fact that infractions differ in their level of severity and, as a result, so does the discretion exercised by an officer. Specifically, it is reasonable to assume that severe infractions warrant a less discretionary decision to make a traffic stop than minor violations. If differences in infraction severity vary across racial and ethnic groups, it might be possible that these factors are contributing to the statistical disparity identified in the 2013-14 data.

Detailed infraction data on the citation issued is currently reported in the database for all stops except 14-218 and 14-219. The fine amounts for these violations vary by speed and, as a result, it is impossible to impute a level of infraction severity for these traffic stops (making up more than 80 percent of total stops). Although it is likely that the fine issued for these stops may underrepresent the severity of the citation (i.e. officers being sympathetic to the amount of the citation), obtaining data from the e-citation system would allow the analysis to control for variation in infraction security across racial and ethnic groups. It seems likely that these factors play an extremely important role in the observed troop-level disparities and represent an important element currently missing from the analysis.

II.C (1): DETAILED RESULTS FOR STATE POLICE TROOP C

A subsample of 7,578 of the total 27,837 stops in Troop C occurred during the intertwilight window and did not involve a cellphone or seatbelt infraction. A total of 21.3 percent of those stops were made of motorists who were assumed by the officer to be a member of a racial or ethnic minority. Of those stops made during the intertwilight window, 66.9 percent of these stops occurred during periods of daylight while the remaining stops occurred in darkness. As a graphical illustration of the intuition motivating the *Veil of Darkness*, Figure 1 presents the minority share of total traffic stops in Troop C by time of day. Although this figure does not include controls and should only be viewed as a descriptive statistic, it helps illustrate the findings from more advanced methods that indicate a similar pattern.

Figure 1: State Police Troop C: Minority Stops by Visibility and Time of Day

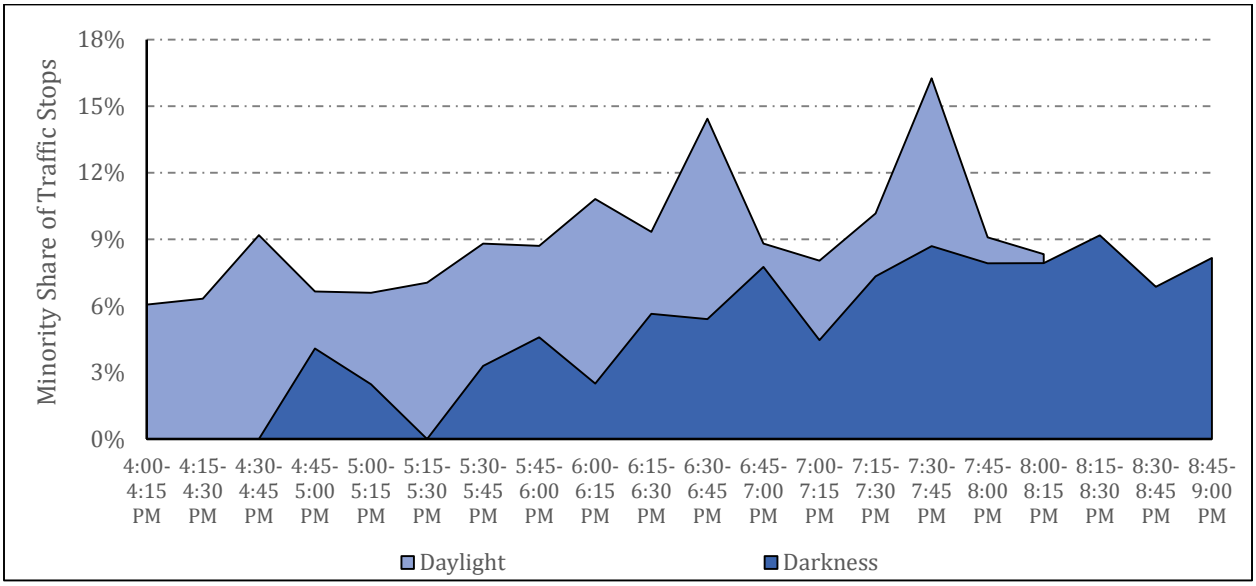


Table 1 includes the results from applying the *Veil of Darkness* framework using a logistic regression with seven distinct sets of controls and sample restrictions. Each of these specifications includes statistical controls for time of day, day of week, and state-level traffic volume. These three controls were included in the econometric model used to estimate results for the *2015 Traffic Stop Analysis and Findings.* In addition to these three controls, each specification in Table 1 excludes all cellphone and seatbelt infractions. The details pertaining to the additional controls and sample restrictions included in each specification are outlined below Table 1. The conclusion from these robustness checks is that there remains a statistically significant disparity in the likelihood that a minority traffic stops occurs during the day as compared to the night indicating the possible presence of racial bias.

Table 1: State Police Troop C: Alternative Specifications and Sample Restrictions

			Non-Caucasian	Non-Caucasian or Hispanic	Black	Hispanic	Black or Hispanic
(1)	Darkness	Coeff.	-0.701***	-0.625***	-0.482***	-0.401**	-0.464***
		SE	(0.123)	(0.101)	(0.138)	(0.158)	(0.108)
(2)		Coeff.	-0.897***	-0.805***	-0.773***	-0.433	-0.678***
		SE	(0.215)	(0.179)	(0.253)	(0.286)	(0.197)
(3)		Coeff.	-0.552***	-0.505***	-0.334*	-0.391**	-0.361***
		SE	(0.155)	(0.126)	(0.171)	(0.193)	(0.133)
(4)		Coeff.	-0.617***	-0.497***	-0.356**	-0.302	-0.319**
		SE	(0.160)	(0.127)	(0.176)	(0.194)	(0.134)
(5)		Coeff.	-0.535***	-0.480***	-0.319**	-0.304*	-0.323***
		SE	(0.130)	(0.107)	(0.146)	(0.166)	(0.114)

(6)		Coeff.	-0.596***	-0.565***	-0.372***	-0.400**	-0.412***
		SE	(0.126)	(0.105)	(0.143)	(0.163)	(0.112)
(7)		Coeff.	-0.540***	-0.504***	-0.335**	-0.339**	-0.354***
		SE	(0.133)	(0.109)	(0.150)	(0.169)	(0.117)

Note: All specifications include time of day, day of week, and a volume component. Some specifications include additional controls that are annotated separately.

The details for each specification in Table 1 are detailed as follows:

- Specification 1: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped.
- Specification 2: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. The sample was further restricted to stops classified as blind enforcement.
- Specification 3: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. The sample was further restricted to stops classified as general and spot-check enforcement.
- Specification 4: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. The sample was further restricted to stops that were made of Connecticut residents.
- Specification 5: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. Additional controls were added in the form of officer fixed-effects.
- Specification 6: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. Additional controls were added in the form of town (stop location) fixed-effects.
- Specification 7: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. Additional controls were added in the form of town (stop location) and officer fixed-effects.

Table 2 provides an attempt at isolating the source of the disparity identified in Table 1 and the original report. This is accomplished by including additional controls for two factors that were identified by the State Police as potentially having an impact on the rate of minority traffic stops in Troop C.[20] The high volume and specialized nature of traffic stops related to specific U.S. Department of Transportation (DOT) enforcement campaigns were identified by State Police as a possible factors driving the disparity in Troop C. Differences in enforcement patterns driven by heterogeneous officers were all suspected as having had an impact on the results. Specifically, the State Police's

[20] This data was not available at the time of the original report but has since been provided by the State Police in an effort to further investigate the troop-level disparities identified in the original analysis.

concern was in regard to municipal constables that are not explicitly under the purview of State Police but are counting as such for reporting purposes. The results from Table 2 indicate that accounting for these factors has a slight impact on the level of statistical significance which is likely only due to a reduced sample size.

Table 2: State Police Troop C: Sources of Variation

			Non-Caucasian	Non-Caucasian or Hispanic	Black	Hispanic	Black or Hispanic
(1)	Darkness	Coeff.	-0.628***	-0.545***	-0.473***	-0.326*	-0.424***
		SE	(0.132)	(0.108)	(0.149)	(0.169)	(0.116)
(2)		Coeff.	-0.632***	-0.548***	-0.478***	-0.321*	-0.425***
		SE	(0.138)	(0.114)	(0.157)	(0.178)	(0.122)
(3)		Coeff.	-0.669***	-0.599***	-0.449***	-0.379**	-0.438***
		SE	(0.123)	(0.101)	(0.138)	(0.158)	(0.108)
(4)		Coeff.	-0.620***	-0.586***	-0.377***	-0.421**	-0.415***
		SE	(0.127)	(0.105)	(0.142)	(0.164)	(0.112)
(5)		Coeff.	-1.306**	-0.562	-1.350**	0.542	-0.463
		SE	(0.565)	(0.405)	(0.637)	(0.616)	(0.429)
(6)		Coeff.	-0.561***	-0.498***	-0.373**	-0.303*	-0.356***
		SE	(0.141)	(0.117)	(0.160)	(0.183)	(0.126)
(6)		Coeff.	-1.307**	-0.840*	-1.489**	-0.0144	-0.828
		SE	(0.631)	(0.489)	(0.734)	(0.800)	(0.530)

Note: All specifications include time of day, day of week, and a volume component. Some specifications include additional controls that are annotated separately.

The details for each specification in Table 2 are detailed as follows:

- Specification 1: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. Additional controls were added in the form of DOT enforcement campaign fixed-effects.
- Specification 2: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. The sample was further restricted by dropping dates when there was a DOT enforcement campaign.
- Specification 3: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. Additional controls were added in the form of constable fixed-effects.

- Specification 4: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. The sample was further restricted by dropping all stops made by constables.
- Specification 5: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. The sample was further restricted by dropping all stops that were not made by constables.
- Specification 6: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. The sample was further restricted by dropping all stops made by constables as well as days with a DOT enforcement campaign.
- Specification 7: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. The sample was further restricted by dropping all stops that were not made by constables as well as days with a DOT enforcement campaign.

Table 3 restricts the analysis sample to stops having occurred within the intertwilight window and having fallen within one or two months of DST. The motivation for this more restrictive test is the idea that the risk-set should be more likely to be constant during this shorter time period. The intuition of this more restrictive test is akin to the original framework except that the variation in visibility is only being driven by an arbitrary shift in clock-time resulting from the DST adjustment. As a result of this further restriction, it should be noted that the size of the analysis sample is significantly reduced. The results from Table 3, however, are robust to this more restrictive test and show the same statistically significant disparity as the original report.

Table 3: State Police Troop C: Daylight Savings Robustness Check

			Non-Caucasian	Non-Caucasian or Hispanic	Black	Hispanic	Black or Hispanic
(1)	Darkness	Coeff.	-1.042***	-0.680***	-0.525	-0.143	-0.346
		SE	(0.336)	(0.256)	(0.369)	(0.363)	(0.266)
(2)		Coeff.	-0.643**	-0.418**	-0.213	-0.0461	-0.142
		SE	(0.260)	(0.203)	(0.289)	(0.303)	(0.215)
(3)		Coeff.	-0.565***	-0.406**	-0.177	-0.119	-0.163
		SE	(0.207)	(0.162)	(0.229)	(0.242)	(0.171)

Note: All specifications include time of day, day of week, and a volume component. Some specifications include additional controls that are annotated separately.

The details for each specification in Table 3 are detailed as follows:

- Specification 1: Logistic regression using the 30 day DST window with seatbelt and cell phones infractions dropped.
- Specification 2: Logistic regression using the 45 day DST window with seatbelt and cell phones infractions dropped.

- Specification 3: Logistic regression using the 60 day DST window with seatbelt and cell phones infractions dropped.

II.C (2): DETAILED RESULTS FOR STATE POLICE TROOP H

A subsample of 3,537 of the total 27,837 stops in Troop H occurred during the intertwilight window and did not involve a cellphone or seatbelt infraction. A total of 40.3 percent of those stops were made of motorists who were assumed by the officer to be a member of a racial or ethnic minority. Of those stops made during the intertwilight window, 70.8 percent of these stops occurred during periods of daylight while the remaining stops occurred in darkness. As a graphical illustration of the intuition motivating the *Veil of Darkness*, Figure 3 presents the minority share of total traffic stops in Troop H by time of day. Although this figure does not include controls and should only be viewed as a descriptive statistic, it helps illustrate the findings from more advanced methods that indicate a similar pattern.

Figure 3: State Police Troop H: Minority Traffic Stops by Visibility and Time of Day

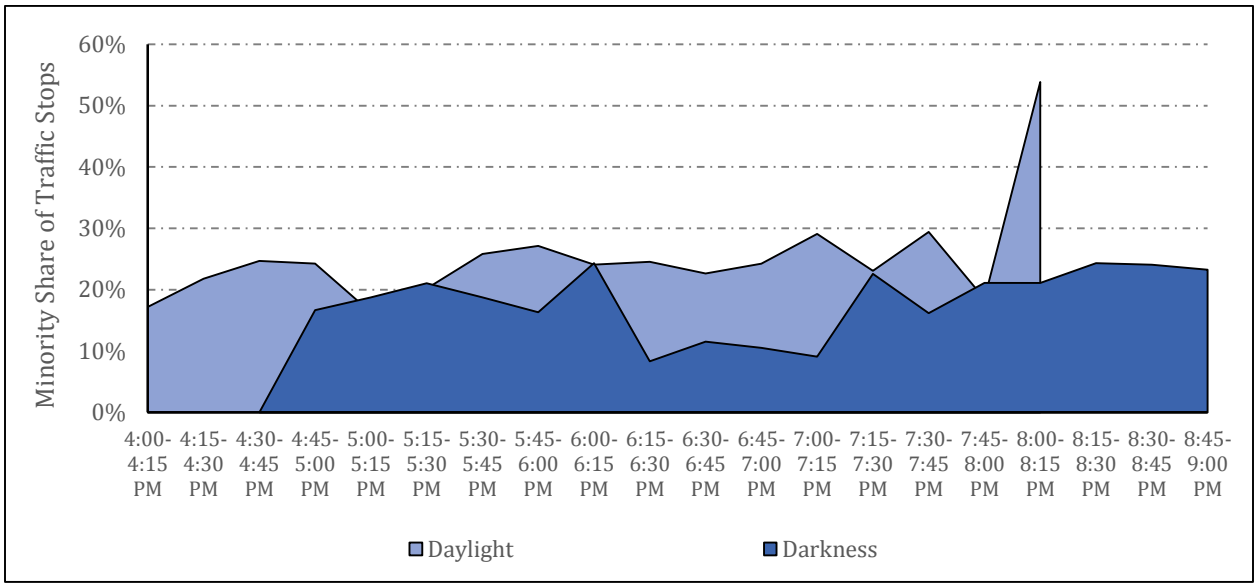


Table 4 includes the results from applying the *Veil of Darkness* framework using a logistic regression with seven distinct sets of controls and sample restrictions. Each of these specifications includes statistical controls for time of day, day of week, and state-level traffic volume. These three controls were included in the econometric model used to estimate results for the *2015 Traffic Stop Analysis and Findings.* In addition to these three controls, each specification in Table 4 excludes all cellphone and seatbelt infractions. The details pertaining to the additional controls and sample restrictions included in each specification are outlined below in Table 4. The conclusion from these robustness checks is that there remains a statistically significant disparity in the likelihood that a minority traffic stop occurs during the day as compared to the night, indicating the possible presence of racial bias.

Table 4: State Police Troop H: Alternative Specifications and Sample Restrictions

			Non-Caucasian	Non-Caucasian or Hispanic	Black	Hispanic	Black or Hispanic
(1)	Darkness	Coeff.	-0.520***	-0.416***	-0.460***	-0.0415	-0.359***
		SE	(0.136)	(0.116)	(0.139)	(0.160)	(0.117)
(2)		Coeff.	-0.768***	-0.429**	-0.673**	0.293	-0.341
		SE	(0.259)	(0.217)	(0.263)	(0.281)	(0.218)
(3)		Coeff.	-0.428***	-0.449***	-0.375**	-0.276	-0.403***
		SE	(0.162)	(0.140)	(0.167)	(0.199)	(0.142)
(4)		Coeff.	-0.454***	-0.363***	-0.434***	0.0143	-0.338***
		SE	(0.148)	(0.129)	(0.150)	(0.179)	(0.130)
(5)		Coeff.	-0.573***	-0.473***	-0.503***	-0.0408	-0.406***
		SE	(0.143)	(0.124)	(0.147)	(0.171)	(0.126)
(6)		Coeff.	-0.443***	-0.293**	-0.360**	0.134	-0.215*
		SE	(0.143)	(0.124)	(0.148)	(0.169)	(0.126)
(7)		Coeff.	-0.502***	-0.376***	-0.401***	0.0623	-0.287**
		SE	(0.150)	(0.131)	(0.155)	(0.179)	(0.133)

Note: All specifications include time of day, day of week, and a volume component. Some specifications include additional controls that are annotated separately.

The details for each specification in Table 1 are detailed as follows:

- Specification 1: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped.
- Specification 2: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. The sample was further restricted to stops classified as blind enforcement.
- Specification 3: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. The sample was further restricted to stops classified as general and spot-check enforcement.
- Specification 4: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. The sample was further restricted to stops that were made of Connecticut residents.
- Specification 5: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. Additional controls were added in the form of officer fixed-effects.

- Specification 6: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. Additional controls were added in the form of town (stop location) fixed-effects.
- Specification 7: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. Additional controls were added in the form of town (stop location) and officer fixed-effects.

Table 5 provides an attempt at isolating the source of the disparity identified in Table 4 and the original report. This is accomplished by including additional controls for a single factor that was identified by the State Police as potentially having an impact on the rate of minority traffic stops in Troop H.[21] The high volume and specialized nature of traffic stops related to specific DOT enforcement campaigns were identified by State Police as a possible factor driving the disparity in Troop H. The results from Table 5 indicate that accounting for these factors has no impact on the level of statistical significance or magnitude of the coefficient.

Table 5: State Police Troop H: Sources of Variation

			Non-Caucasian	Non-Caucasian or Hispanic	Black	Hispanic	Black or Hispanic
(1)	Darkness	Coeff.	-0.466***	-0.407***	-0.407***	-0.104	-0.354***
		SE	(0.144)	(0.124)	(0.148)	(0.173)	(0.126)
(2)		Coeff.	-0.453***	-0.420***	-0.411**	-0.164	-0.380***
		SE	(0.157)	(0.137)	(0.161)	(0.196)	(0.139)

Note: All specifications include time of day, day of week, and a volume component. Some specifications include additional controls that are annotated separately.

The details for each specification in Table 1 are detailed as follows:

- Specification 1: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. Additional controls were added in the form of DOT enforcement campaign fixed-effects.
- Specification 2: Logistic regression using the combined dusk and dawn intertwilight window with seatbelt and cell phones infractions dropped. The sample was further restricted by dropping dates when there was a DOT enforcement campaign.

Table 6 restricts the analysis sample to stops having occurred within the intertwilight window and having fallen within one or two months of DST. The motivation for this more restrictive test is the idea that the risk-set should be more likely to be constant during this shorter time period. The intuition of this more restrictive test is akin to the original framework except that the variation in visibility is only being driven by an arbitrary shift in clock-time resulting from the DST adjustment.

[21] This data was not available at the time of the original report but has since been provided by the State Police in an effort to further investigate the troop-level disparities identified in the original analysis.

As a result of this further restriction, it should be noted that the size of the analysis sample is significantly reduced. The results from Table 6 are robust to this more restrictive test in all specifications beyond a 30-day window. It seems likely that the reduced sample size, not the risk-set itself, drives the result with the 30-day window.

Table 6: State Police Troop H: Daylight Savings Robustness Check

			Non-Caucasian	Non-Caucasian or Hispanic	Black	Hispanic	Black or Hispanic
(1)	Darkness	Coeff.	-0.355	-0.256	-0.254	0.0610	-0.186
		SE	(0.305)	(0.251)	(0.306)	(0.349)	(0.252)
(2)		Coeff.	-0.578**	-0.412**	-0.459*	0.0961	-0.323
		SE	(0.239)	(0.198)	(0.240)	(0.272)	(0.198)
(3)		Coeff.	-0.483**	-0.353**	-0.417**	0.0291	-0.300*
		SE	(0.188)	(0.158)	(0.190)	(0.222)	(0.159)

Note: All specifications include time of day, day of week, and a volume component. Some specifications include additional controls that are annotated separately.

The details for each specification in Table 6 are detailed as follows:

- Specification 1: Logistic regression using the 30 day DST window with seatbelt and cell phones infractions dropped.
- Specification 2: Logistic regression using the 45 day DST window with seatbelt and cell phones infractions dropped.
- Specification 3: Logistic regression using the 60 day DST window with seatbelt and cell phones infractions dropped.

II.D: OFFICER LEVEL ANALYSIS

Racial bias in policing has been brought to the forefront of American consciousness by recent national headlines of disparate treatment across racial and ethnic divides. These news stories have sparked a contentious and impassioned debate about fair and impartial policing. Although unbeknownst to most Americans, there is a longstanding debate among economists and statisticians about this very topic. Researchers in these fields have developed new and increasingly sophisticated analytical techniques for assessing the extent of racial and ethnic disparities in policing data. Much of the initial research in this field focused on assessing racial and ethnic disparities at the department-level.[22] Although important in their own right, analyses that focus on institutional bias are unable to identify disparities at the officer-level. Recent work by Ridgeway et al. (2006; 2007; 2009) utilizes propensity score methods to evaluate officer-level data. These techniques are quite attractive to policymakers as they have the potential to provide the basis for creating accurate early intervention systems.

II.D (1): OVERVIEW OF THE METHODOLOGY

In observational studies, as opposed to randomized control trials, it is difficult to estimate the causal effect of treatment. The difficulty emerges because assignment to treatment occurs on a non-random basis and is often confounded with other variables. Regression analysis can accurately estimate the effect of treatment if all possible factors driving treatment are available to the analyst and the model is specified correctly. In reality, however, there are both observed as well as unobserved variables that confound the effect of treatment. These confounding variables create bias that muddles the true impact of treatment on the outcome variable. As a result, it becomes impossible to disentangle the effect of treatment from compositional differences in the observed and unobserved variables. The problem arises because these variables affect both selection into treatment and outcome.

In the context of this analysis of racial and ethnic disparities, treatment is defined as a traffic stop made by an individual officer from each of nine departments and two state police troops. These policing agencies were selected for inclusion in this analysis based on the findings from the *Connecticut Traffic Stop Data Analysis and Findings, 2013-14*. The outcome variable represents the probability that a motorist is a member of a racial or ethnic minority conditional on his or her being stopped by the treatment officer.[23] In an effort to produce a significantly more robust analysis of racial and ethnic disparities for individual officers, the analysis proceeds with an analytical framework that estimates treatment using inverse propensity score weights. The propensity score, an estimate of the probability of treatment conditional on observed variables, is used as a weight in the construction of the control group for each individual officer. Weighting the observations by the inverse of the propensity score ensures that the distribution of pre-stop observable characteristics for the control group is consistent

[22] Prominent work that focuses on assessment at the department-level includes: Knowles, Persico, and Todd (2001); Antonovics and Knight (2004); Anwar and Fang (2004); Dharmapalam and Ross (2004); Grogger and Ridgeway (2006); and Ritter (2013)

[23] In the proceeding methodological discussion the details of the estimation procedure are presented as if a single treatment effect were estimated using a single outcome variable. However, the estimates were constructed for 923 distinct officers across nine departments and two police troops using three different outcome variables.

with the treatment officer. As long as the observed variables are predictive of unobserved confounders, inverse propensity score weighting will allow for an unbiased estimate of the treatment effect.

Using inverse propensity score weighting, an internal benchmark is created for each individual officer that is composed of other stops from that officer's department that are similar in terms of pre-stop observables. The internal benchmark is used to evaluate whether each individual officer stopped a disproportionate number of minority motorists relative to their individual benchmark. This methodology follows a rich and extensive literature spanning the fields of statistics, economics, and public policy. The application of this methodology to policing data has recently entered the criminal justice literature through notable applications by McCaffrey et al. (2004), Ridgeway (2006) and Ridgeway and MacDonald (2009).

Rosenbaum and Rubin (1983) characterize the propensity score as the probability of assignment to treatment conditional on pretreatment variables. The key insight is that conditional on this scalar function, assignment to treatment will be independent of the outcome variable. Simply put, given some *observed* pretreatment variables, it is possible to identify the conditional probability of treatment. Correctly adjusting for this conditional probability allows for the bias associated with *observed* covariates to be statistically controlled. If these observed covariates are correlated with unobserved variables, these confounding factors will also be controlled for statistically. This methodology allows for a causal interpretation of the difference between outcomes associated with treatment and control.

Hirano and Imbens (2001) note that a useful adjustment is to weight observations according to their propensity scores. This adjustment effectively creates a balanced sample among treatment and control observations. Conveniently, when the estimate of interest is the treatment effect on the treated, only potential control observations need to be weighted. In this context, the weight that balances the sample and removes bias associated with pretreatment confounding factors is exactly the inverse of the propensity score. Ridgeway and MacDonald (2009) apply this technique in the context of policing data by matching the joint distribution of a particular officer's stop features to those by other officers.

Ridgeway and MacDonald (2009) estimate the propensity scores using a boosted logistic regression technique. Boosted regression [see McCaffrey et al. 2004] has two benefits over standard logistic regression when it comes to the computation of propensity scores. The first is that it is not limited to a set parametric or semi-parametric specification of covariates. The method searches over a wide range of interactions and higher-order polynomials. The second benefit, closely related to the first, is that boosted regression incorporates a penalty function on the size of the coefficients. The two characteristics together allow for much greater predictive power through a dynamic functional form, while contemporaneously constraining and removing unimportant coefficients.

Following Ridgeway and McDonald (2009), the propensity score is estimated using a boosted logistic regression such that the log-likelihood function:

$$\ell(\alpha) = \sum_{i=1}^{n} t_i \alpha' h(x_i) - log\left(1 + exp\left(\alpha' h(x_i)\right)\right) - \lambda \sum_{j=1}^{J} \left|\alpha_j\right|$$

The sample of stops for each internal benchmark is restricted to those made by other officers within the same department as the officer of interest. The variable t_i is a dichotomous binary indicator of treatment that, in this case, represents stops made by the officer of interest. The function $h(x)$ is the collection of piecewise constant functions of x_j variables and their two-way interactions. The variables used in the

estimate of the propensity to treat include all pre-stop observable characteristics in the traffic stop data. The of variables x_j includes six categorical variables representing the reason for the stop, four for the season of the year, seven for the day of the week, an indicator of a Connecticut license plate, and an indicator that the stop was made of a local resident. In addition, the controls include a cubic spline estimated at the department level for time of day, latitude, and longitude.[24]

The shrinkage parameter λ reduces the effect of each successive regression tree so that the impact of an incorrectly specified branch is minimized. In estimating the propensity score, the shrinkage parameter is set such that $\lambda = .05$ which is consistent with existing applications. As noted by Friedman (2001), selecting a random sample of the residuals at each iteration of the regression tree is thought to reduce variation in the outcome variable without affecting bias. Following the related literature, a subsample that is composed of 50 percent of the residual is selected at each iteration. Similarly, the size of the training set used in the algorithm is also set at 50 percent.

The propensity score p_i is estimated using the boosted logistic regression outlined in Equation 1. A weighting variable w_i is constructed such that the stops made by the officer of interest are set to unity and those made by all other officers in the department are set to $w_i = p_i/(1 - p_i)$. Applying a propensity score weight to stops made by other officers in the same department creates an internal benchmark with a comparable distribution of pre-stop observable characteristics. The propensity score and resulting weight for those stops with characteristics that are drastically different than stops made by the officer of interest will approach zero. As a result, the internal benchmark will consist of the stops that are similar, in terms of pre-stop observable characteristics, to the stops made by the officer of interest. The construction of an internal benchmark using propensity scores allows the comparison to reflect the average treatment effect on the treated and abstract from potential bias in so far as the observable covariates control for selection into treatment.

Hirano and Imbens (2001) extend the weighting framework to what Robins and Ritov (1997) refer to as doubly robust estimation. That is, including additional covariates to a semi-parametric least-squares regression model to capture a more precise estimate of the treatment effect. It is shown in both of these discussions that such an estimator is consistent if either of the models is specified correctly. Ridgeway and MacDonald (2009) further extend the doubly robust propensity score framework to policing data. Specifically, the authors look at whether the officer of interest deviates from the internal benchmark along the outcome dimension.

Treatment effects are estimated following Ridgeway and McDonald (2009) who structure the doubly robust estimation using a logistic regression approach such that the log-likelihood function:

$$\ell(\beta) = \sum_{i=1}^{n} w_i \left(y_i(\beta_0 + \beta_1 t_i + \gamma' x_i) - log\big(1 + exp(\beta_0 + \beta_1 t_i + \gamma' x_i)\big)\right)$$

If a particular officer is designated as a treatment to a group of stops, it follows that the outcome of interest would be driver race. Simply, does the intervention by a particular officer result in a relatively higher stop rate of minority drivers, controlling for all observable factors? Mixing propensity score weighting with regression analysis allows for a more precise answer to this question. In the circumstance where the benchmark and individual officer do not perfectly match along all dimensions

[24] Latitude and longitude were only included in the estimated propensity score for stops made by state police. A cubic spline of latitude and longitude is included in the doubly-robust estimation for select municipal departments (Hamden, Manchester, Waterbury, Stratford, New Britain, and Groton).

of stop features, there is potential for bias in any comparison, especially if those features by which they differentiate relate to a driver's race. Doubly robust estimation help to remove this potential bias by controlling for these features, resulting in a much more accurate officer effect.

II.D (2): ANALYTICAL RESULTS BY DEPARTMENT

The officer level analysis was conducted using the methodology outlined in the previous section. As mentioned, the propensity score for each stop was generated iteratively for each officer using a boosted logistic regression.[25] The propensity scores were generated using binary indicator variables for cubic spline of clock-time, reason for stop controls, state and town resident controls, day of the week controls, and season controls.[26] The probability of a racial or ethnic minority conditional on their being stopped by the officer of interest (i.e. the treatment effect) was estimated using a doubly-robust logistic regression with inverse propensity score weights having been applied to the control group.

The doubly-robust regression included each of the covariates from the propensity score regression as well as a cubic spline for both latitude and longitude. The results for each department are presented sequentially along with a narrative describing the details of the analysis.[27] It is important to realize that the analysis only identifies officers that stopped more motorists relative to their internal benchmark and not whether officers are engaged in discriminatory policing. If any of the officers identified in this analysis were engaged in a particular activity that was not captured by the data, such as having been tasked with a specialized assignment, it could provide a reasonable explanation for the disparity. It is important that these results be viewed as the starting point of a dialogue and not as conclusive evidence of wrongdoing on the part of the officer. A detailed presentation of each officer's traffic stops and requisite internal benchmark is contained in the supplemental appendix.[28]

A total of 935 unique officer identifiers were listed in the traffic stop database for the 9 municipal departments and two state police troops that were identified in the 2013-14 Traffic Stop Analysis and Findings. After limiting the sample to officers with 50 or more traffic stops, a total of 370 officers were examined. Of the officers examined, 38 were identified as being statistically more likely to stop a minority motorist relative to their benchmark. These officers were then examined using a balancing test that directly compared the distribution of observable traffic stop characteristics with those of each officer's benchmark. The balancing test revealed that only 25 of the 38 identified officers had a benchmark that convincingly captured the distribution of observable traffic stops. The results of the

[25] The code was provided through a user written program: Schonlau, Matthias. (2005). "Boosted Regression (Boosting): An Introductory Tutorial and Stata Plugin". The Stata Journal. Vol 5, No. 3, pp 330-354

[26] The reason for stop controls were aggregated into six distinct categories consisting of "safety" defined as cell phone and seatbelt violations; "equipment" defined as defective lights, display of plate, equipment, or window tint violations; "moving" defined as moving, stop sign, or traffic signal violations; "speeding" defined as speeding violations; "paperwork" defined as suspended license or registration violations; and "other" defined as stops coded as other or without a violation listed.

[27] There are no results presented for Granby because the small number of stops made by the department made it impossible to conduct an analysis using this methodology.

[28] As mentioned, estimation of treatment effects was conducted using doubly-robust logistic regression. The comparison tables contained in the appendix were constructed to conduct a balancing test and are presented only for descriptive purposes.

analysis for each individual department is presented alongside the descriptive statistics for these officers below.

Each department was given the opportunity to provide any information that they believed to be relevant to the outcome of the officer level analysis. In the cases where this information was provided, it has been included in the narratives that follow.

Department: East Hartford

The East Hartford Police Department contained a total of 81 unique officer identifiers in the traffic stop database from October 2013 through September 2014. After limiting the sample to officers with 50 or more traffic stops, a total of 17 officers were examined. Three officers were identified as being statistically more likely to stop a minority motorist relative to their benchmark. These officers were then examined using a balancing test that directly compared the distribution of observable traffic stop characteristics with those of each officer's benchmark. The balancing test revealed that these three officers had benchmarks that convincingly captured the distribution of observable traffic stops.

Department: Granby

The Granby Police Department contained a total of 16 police officers in the traffic stop database from October 2013 through September 2014. After limiting the sample to officers with 50 or more traffic stops, only nine officers were examined. None of these officers were identified as having been statistically more likely to stop a minority motorist than their benchmark.

Department: Groton

The Groton Police Department contained a total of 80 unique officer identifiers in the traffic stop database from October 2013 through September 2014. After limiting the sample to officers with 50 or more traffic stops, a total of 34 officers were examined. Of those officers examined, there was one officer whose distribution of observable traffic stop characteristics was sufficiently unique such that a reasonable benchmark could not be produced. A total of three officers were identified as being statistically more likely to stop a minority motorist relative to their benchmark. The three officers were then examined using a balancing test that directly compared the distribution of observable traffic stop characteristics with those of the benchmark. All of these officers were found to have benchmarks that convincingly captured the distribution of observable traffic stops.

Department: Hamden

The Hamden Police Department had a total of 80 unique officer identifiers in the traffic stop database from October 2013 through September 2014. After limiting the sample to officers with 50 or more traffic stops, a total of 42 officers were examined. A total of eight officers were identified as being statistically more likely to stop a minority motorist relative to their benchmark. These officers were then examined using a balancing test that directly compared the distribution of observable traffic stop characteristics with those of each officer's benchmark. All of the officers were found to have benchmarks that convincingly captured the distribution of observable traffic stops.

Department: Manchester

The Manchester Police Department contained a total of 82 unique officer identifiers in the traffic stop database from October 2013 through September 2014. After limiting the sample to officers with 50 or more traffic stops, a total of 22 officers were examined. There were a total of ten officers where reasonable estimates could not be produced. Only one officer was identified as being statistically more likely to stop a minority motorist relative to their benchmark. This officer was then examined using a balancing test that directly compared the distribution of observable traffic stop characteristics with those of each officer's benchmark. This officer was found to have a benchmark that convincingly captured the distribution of observable traffic stops.

After a review of the officer analysis, the Manchester Police Department believes that extenuating circumstances exist for the officer identified. In particular, the officer is detailed exclusively to the community policing effort in a high minority population area. The officer is part of a two man patrol, but typically only one officer is actively logged into the record management system at a time. During certain times of the year, this officer is a Field Training Officer for new recruits. As a result this officer is often logged into the record management system, but may not be the officer making the stop. Therefore, it is possible that the stops used in this officers analysis included stops conducted by other officers and if this occurred it could have influenced the outcome of the analysis.

Department: New Britain

The New Britain Police Department contained a total of 114 police officers in the traffic stop database from October 2013 through September 2014. After limiting the sample to officers with 50 or more traffic stops, a total of 43 officers were examined. A total of three officers were identified as being statistically more likely to stop a minority motorist relative to their benchmark. These officers were then examined using a balancing test that directly compared the distribution of observable traffic stop characteristics with those of each officer's benchmark. Two of these officers were found to have benchmarks that convincingly captured the distribution of observable traffic stops.

Department: Stratford

The Stratford Police Department contained a total of 77 unique officer identifiers in the traffic stop database from October 2013 through September 2014. After limiting the sample to officers with 50 or more traffic stops, a total of 19 officers were examined. Two officers were identified as being statistically more likely to stop a minority motorist relative to their benchmark. These officers were then examined using a balancing test that directly compared the distribution of observable traffic stop characteristics with those of each officer's benchmark. These officer were found to have benchmarks that convincingly captured the distribution of observable traffic stops.

Department: Waterbury

The Waterbury Police Department contained a total of 153 police officers in the traffic stop database from October 2013 through September 2014. After limiting the sample to officers with 50 or more traffic stops, only six officers were examined. None of these officers were identified as having been statistically more likely to stop a minority motorist than their benchmark.

Department: Wethersfield

The Wethersfield Police Department contained a total of 45 unique officer identifiers in the traffic stop database from October 2013 through September 2014. After limiting the sample to officers with 50 or more traffic stops, a total of 21 officers were examined. A total of four officers were identified as being statistically more likely to stop a minority motorist relative to their benchmark. These officers were then examined using a balancing test that directly compared the distribution of observable traffic stop characteristics with those of each officer's benchmark. All of these officers were found to have benchmarks that convincingly captured the distribution of observable traffic stops.

Department: State Police Troop C

State Police Troop C contained a total of 102 unique officer identifiers in the traffic stop database from October 2013 through September 2014. After limiting the sample to officers with 50 or more traffic stops, a total of 84 officers were examined. A total of six officers were identified as being statistically more likely to stop a minority motorist relative to their benchmark. These officers were then examined using a balancing test that directly compared the distribution of observable traffic stop characteristics with those of each officer's benchmark. Only one officer was found to have a benchmark that convincingly captured the distribution of observable traffic stops.

Department: State Police Troop H

State Police Troop H contained a total of 106 unique officer identifiers in the traffic stop database from October 2013 through September 2014. After limiting the sample to officers with 50 or more traffic stops, a total of 73 officers were examined. A total of eight officers were identified as being statistically more likely to stop a minority motorist relative to their benchmark. These officers were then examined using a balancing test that directly compared the distribution of observable traffic stop characteristics with those of each officer's benchmark. Only one of the officers were found to have a benchmark that convincingly captured the distribution of observable traffic stops.

In response to the analysis of state police Troop C and Troop H, the department conducted a review and provided the following statement:

> The Connecticut Racial Profiling Report produced by the Institute for Municipal and Regional Policy at Central Connecticut State University identified two Troopers whose stop activities appeared divergent from that of comparable Troopers. In response, the Connecticut State Police conducted a review of their stop activity, work histories and other work product in an effort to identify the presence of any racial discrimination or bias. This review confirmed that the two Troopers are atypical with respect to the volume and focus of their proactive enforcement activity leading to the interdiction of illegal drugs and weapons, and that these factors may have influenced their statistics. Neither Trooper has ever been subject to any discipline or the subject of any complaints of discrimination, and collectively they have received several commendations from the CSP, other law enforcement agencies, and members of the public. The review indicated that both Troopers are performing their duties with distinction, and did not identify any evidence that the noted statistical disparities were the result of racial discrimination or bias.

REFERENCES AND WORKS CITED

Anbarci, Nejat and Jungmin Lee. "Detecting Racial Bias in Speed Discounting: Evidence from Speeding Tickets in Boston". International Review of Law and Economics. February, 2014.

Anwar, Shamena and Hanming Fang. "An Alternative Test for Racial Bias in Law Enforcement: Vehicle Searches: Theory and Evidence". American Economic Review. March, 2006.

Antonovics, K. L. and Brian G. Knight. "New Look at Racial Profiling: Evidence from the Boston Police Department". NBER Working Paper No. w10634. 2004.

Bhattacharya, Debopam. "Evaluating Treatment Protocols using Data Combination". Journal of Econometrics. December, 2012.

Brock, William A. and Jane Cooley and Steven N. Durlauf and Salvador Navarro. "On the Observational Implications of Taste-based Discrimination in Racial Profiling". Journal of Econometrics. June, 2011.

Close, Billy R. and Patrick L. Mason. "Searching for Efficient Enforcement: Officer Characteristics and Racially Biased Policing". Review of Law and Economics. 2007.

Dharmapala, Dhammika and Stephen L. Ross. "Racial Bias in Motor Vehicle Searches: Additional Theory and Evidence". The B.E. Journal of Economic Analysis and Policy. September, 2003.

Fridell, Lorie A. "By the Numbers: A Guide to Analyzing Race Data from Vehicle Stops". U.S. Department of Justice Office of Community Oriented Policing Services Report. 2004.

Friedman, J. "Greedy Function Approximation: A Gradient Boosting Machine". The Annals of Statistics, Vol. 29(5), 1189–1232. 2001

Grogger, Jeffrey and Greg Ridgeway. "Testing for Racial Profiling in Traffic Stops from Behind a *Veil of Darkness*". Journal of American Statistical Association. September, 2006.

Hirano, K., and Imbens, G."Estimation of Causal Effects Using Propensity Score Weighting: An Application to Data on Right Heart Catheterization". Health Services and Outcomes Research Methodology, Vol. 2, 259–278. 2001.

Knowles, John and Nicola Persico and Petra Todd. "Racial Bias in Motor Vehicle Searches: Theory and Evidence". Journal of Political Economy. 2001.

Ilic, Dragan. "Marginally Discriminated: The Role of Outcome Tests in European Jurisdiction". European Journal of Law Economics. September, 2010.

Leamer, Edward E. *Specification Searches: Ad Hoc Inference with Nonexperimental Data*. New York: John Wiley & Sons. April, 1978.

Lundman, Richard J. "Are Police-reported Driving while African American Data a Valid Indicator of the Race and Ethnicity of the Traffic Law Violators Police Stop? A Negative Answer with minor Qualifications." Journal of Criminal Justice. 2010.

McCaffrey, Daniel F. and Greg Ridgeway and Andrew R. Morral. 2004. Propensity Score Estimation with Boosted Regression for Evaluating Casual Effects in Observational Studies. *Psychological Methods.* American Psychological Association, Vol. 9 (4): 403-425

Miller, Kirk. “Race, Driving, and Police Organization: Modeling Moving and Nonmoving Traffic Stops with Citizen Self-reports of Driving Practices”. Journal of Criminal justice. 2009.

Mosher, Clayton and J. Mitchell Pickerill. “Methodological Issues in Biased Policing Research with Applications to the Washington State Patrol”. Seattle University law Review. 2012.

Persico, Nicola and Petra E. Todd. “Generalizing the Hit Rates Test for Racial Bias in Law Enforcement, With an Application to Vehicle Searches in Wichita”. University of Pennsylvania: Penn Institute for Economic Research Working Paper Archive 05-004. June, 2006.

Quintanar, Sarah Marx. “Man vs. Machine: An Investigation of Speeding Ticket Disparities Based on Gender and Race”. Louisiana State University: Department of Economics Working Paper 2009-16. 2009.

Rice, Stephen K. and Michael D. White. “Race, Ethnicity, and Policing: New and Essential Readings”. New York University Press. 2010.

Ridgeway, Greg. 2006. Assessing the Effect of Race Bias in Post-Traffic Stop Outcomes using Propensity Scores. *Journal of Quantitative Criminology,* Vol. 22 (1): 1-29

Ridgeway, Greg and Terry Schell and K. Jack Riley and Susan Turner and Travis L. Dixon. “Police-community Relations in Cincinnati: Year Two Evaluation Report”. Rand Corporation: Safety and Justice Program. 2006.

Ridgeway, Greg. “Cincinnati Police Department Traffic Stops: Applying RAND’s framework to Analyze Racial Disparities”. Rand Corporation: Safety and Justice Program. 2009a.

Ridgeway, Greg and John M. MacDonald. “Doubly Robust Internal Benchmarking and False Discovery Rates for Detecting Racial Bias in police Stops”. Journal of American Statistical Association. June, 2009b.

Ridgeway, Greg and John M. MacDonald. A Method for Internal Benchmarking of Criminal Justice System Performance. *Crime & Delinquency*, Vol. 60 (1): 145-162. 2014

Ritter, Joseph A. “Racial Bias in Traffic Stops: Tests of a Unified Model of Stops and Searches”. University of Minnesota: Minnesota Population Center Working Paper 2013-05. June, 2013.

Robins, J. and Y. Ritov. “Towards a curse of dimensionality appropriate (CODA) asymptotic theory for semiparametric models”. Statistics in Medicine, 16, pp. 285–319. 1997.

Rosenbaum, P., and Rubin, D. “The Central Role of the Propensity Score in Observational Studies for Causal Effects” Biometrika, Vol. 70, 41–55. 1983.

Schell, Terry and Greg Ridgeway and Travis L. Dixon and Susan Turner and K. Jack Riley. “Police-community Relations in Cincinnati: Year Three Evaluation Report”. Rand Corporation: Safety and Justice Program. 2007.

Schonlau, Matthias. Boosted Regression (Boosting): An Introductory Tutorial and a State Plugin. *The Stata Journal*, Vol. 5 (3): 330-354. 2005.

Tyler, Tom R. “Why People Obey the Law”. Yale University Press. 1990

Tyler, Tom R. and Jeffrey Fagan. “Legitimacy and Cooperation: Why Do People Help the Police Fight Crime in Their Communities?” Ohio State Journal of Criminal Law. 2008.

Walker, Samuel. “Searching for the Denominator: Problems with Police Traffic Stop Data and an Early Warning System Solution”. Justice Research and Policy. Spring, 2001.

Worden, Robert E. and Sarah J. McLean and Andrew P. Wheeler. “Testing for Racial Profiling with the Veil-of-Darkness Method”. Police Quarterly. January, 2012.

Worden, Robert E. and Sarah J. McLean and Andrew P. Wheeler. “Stops by Syracuse Police, 2006-2009”. The John F. Finn Institute for Public Safety, Inc. Report. June, 2010.

TECHNICAL APPENDIX

All tables in the technical appendix are identified by the section and table number where they can be found in the report. A complete listing is provided below.

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Appendix A

Table 1: Rate of Traffic Stops per 1,000 Residents (Sorted Alphabetically)

Town Name	2010 16 and Over Census Pop.	2014-2015 Traffic Stops	Stops per Resident	Stops per 1,000 Residents
State of CT	2,825,946	586,849	0.21	208
Ansonia	14,979	4,574	0.31	305
Avon	13,855	1,458	0.11	105
Berlin	16,083	5,783	0.36	360
Bethel	14,675	3,239	0.22	221
Bloomfield	16,982	5,241	0.31	309
Branford	23,532	5,025	0.21	214
Bridgeport	109,401	5,603	0.05	51
Bristol	48,439	6,244	0.13	129
Brookfield	12,847	2,026	0.16	158
Canton	7,992	1,518	0.19	190
Cheshire	21,049	5,697	0.27	271
Clinton	10,540	2,913	0.28	276
Coventry	9,779	1,669	0.17	171
Cromwell	11,357	1,960	0.17	173
Danbury	64,361	5,312	0.08	83
Darien	14,004	2,568	0.18	183
Derby	10,391	2,799	0.27	269
East Hampton	10,255	457	0.04	45
East Hartford	40,229	8,490	0.21	211
East Haven	24,114	3,194	0.13	132
East Windsor	9,164	1,057	0.12	115
Easton	5,553	581	0.10	105
Enfield	33,218	5,827	0.18	175
Fairfield	45,567	7,847	0.17	172
Farmington	20,318	4,910	0.24	242
Glastonbury	26,217	4,390	0.17	167
Granby	8,716	1,033	0.12	119
Greenwich	46,370	7,165	0.15	155
Groton*	31,520	8,098	0.26	257
Guilford	17,672	2,954	0.17	167
Hamden	50,012	4,852	0.10	97
Hartford	93,669	5,887	0.06	63
Madison	14,073	3,708	0.26	263
Manchester	46,667	5,291	0.11	113
Meriden	47,445	2,700	0.06	57
Middlebury	5,843	177	0.03	30
Middletown	38,747	3,260	0.08	84
Milford	43,135	3,177	0.07	74
Monroe	14,918	5,800	0.39	389
Naugatuck	25,099	5,038	0.20	201
New Britain	57,164	8,328	0.15	146
New Canaan	14,138	5,355	0.38	379
New Haven	100,702	12,818	0.13	127
New London	21,835	1,499	0.07	69
New Milford	21,891	3,895	0.18	178
Newington	24,978	5,483	0.22	220

Table 1: Rate of Traffic Stops per 1,000 Residents (Sorted Alphabetically)

Town Name	2010 16 and Over Census Pop.	2014-2015 Traffic Stops	Stops per Resident	Stops per 1,000 Residents
Newtown	20,171	9,956	0.49	494
North Branford	11,549	1,002	0.09	87
North Haven	19,608	1,752	0.09	89
Norwalk	68,034	5,322	0.08	78
Norwich	31,638	5,959	0.19	188
Old Saybrook	8,330	3,402	0.41	408
Orange	11,017	4,601	0.42	418
Plainfield	11,918	1,694	0.14	142
Plainville	14,605	3,273	0.22	224
Plymouth	9,660	2,065	0.21	214
Portland	7,480	178	0.02	24
Putnam	7,507	1,049	0.14	140
Redding	6,955	1,942	0.28	279
Ridgefield	18,111	7,713	0.43	426
Rocky Hill	16,224	3,929	0.24	242
Seymour	13,260	3,439	0.26	259
Shelton	32,010	579	0.02	18
Simsbury	17,773	3,301	0.19	186
South Windsor	20,162	4,195	0.21	208
Southington	34,301	4,136	0.12	121
Stamford	98,070	6,232	0.06	64
Stonington	15,078	2,799	0.19	186
Stratford	40,980	3,144	0.08	77
Suffield	10,782	1,272	0.12	118
Thomaston	6,224	706	0.11	113
Torrington	29,251	5,394	0.18	184
Trumbull	27,678	2,876	0.10	104
Vernon	23,800	3,637	0.15	153
Wallingford	36,530	10,044	0.27	275
Waterbury	83,964	2,408	0.03	29
Waterford	15,760	4,616	0.29	293
Watertown	18,154	1,274	0.07	70
West Hartford	49,650	8,639	0.17	174
West Haven	44,518	5,854	0.13	131
Weston	7,255	361	0.05	50
Westport	19,410	5,369	0.28	277
Wethersfield	21,607	4,490	0.21	208
Wilton	12,973	4,773	0.37	368
Winchester	9,133	555	0.06	61
Windham	20,176	3,244	0.16	161
Windsor	23,222	5,716	0.25	246
Windsor Locks	10,117	2,282	0.23	226
Wolcott	13,175	371	0.03	28
Woodbridge	7,119	1,602	0.23	225

Table 4: Basis for Stop (Sorted by % Speeding)

Department Name	Total	Speed Related	Cell Phone	Defective Lights	Display of Plates	Equipment Violation	Moving Violation	Other	Registration	Seatbelt	Stop Sign	Suspended License	Traffic Control Signal	Window Tint
Portland	178	69.10%	5.62%	1.12%	0.56%	0.00%	2.25%	6.74%	1.69%	5.62%	0.56%	0.00%	6.74%	0.00%
Suffield	1,272	61.79%	3.93%	9.20%	0.24%	0.00%	12.19%	2.36%	1.10%	0.16%	4.32%	0.00%	4.72%	0.00%
Newtown	9,956	53.77%	7.97%	10.77%	2.39%	0.10%	4.31%	3.90%	3.80%	1.34%	7.35%	0.71%	3.59%	0.02%
New Milford	3,895	53.56%	17.15%	6.39%	0.72%	0.59%	4.26%	4.49%	3.16%	0.33%	3.11%	0.33%	5.85%	0.05%
Ridgefield	7,713	52.59%	15.74%	7.25%	0.08%	0.00%	2.27%	5.25%	6.63%	1.61%	3.81%	0.19%	3.90%	0.69%
Weston	361	49.03%	10.25%	3.88%	0.00%	0.00%	4.71%	5.54%	6.65%	0.00%	11.63%	1.94%	6.09%	0.28%
Simsbury	3,301	48.65%	8.54%	8.66%	2.73%	0.15%	6.85%	5.24%	2.73%	0.79%	7.09%	0.30%	8.00%	0.27%
Redding	1,942	48.20%	4.22%	9.37%	0.51%	0.00%	3.40%	7.78%	13.23%	3.30%	8.96%	0.62%	0.41%	0.00%
Easton	581	47.16%	6.37%	3.44%	0.17%	0.00%	6.02%	12.22%	5.68%	1.55%	16.87%	0.17%	0.34%	0.00%
CSP Headquarters	15,296	46.27%	6.96%	1.31%	1.20%	0.09%	7.30%	15.59%	4.35%	14.16%	0.42%	0.61%	0.85%	0.90%
Seymour	3,439	45.36%	2.27%	11.31%	1.31%	0.15%	3.55%	4.71%	5.87%	3.14%	15.91%	1.42%	4.97%	0.03%
Guilford	2,954	42.21%	14.59%	13.00%	0.58%	0.03%	4.47%	2.84%	1.73%	1.29%	7.04%	0.41%	11.81%	0.00%
Enfield	5,827	41.26%	3.69%	16.34%	2.04%	0.50%	5.32%	7.10%	3.48%	6.42%	4.08%	0.88%	8.07%	0.82%
Old Saybrook	3,402	41.09%	10.67%	14.37%	0.50%	0.18%	5.03%	4.94%	9.73%	0.91%	6.61%	2.12%	3.35%	0.50%
Southington	4,136	40.64%	12.72%	9.62%	0.99%	0.27%	3.75%	3.41%	6.12%	8.53%	4.88%	1.06%	7.18%	0.82%
Wolcott	371	40.16%	23.72%	9.97%	1.35%	0.27%	7.55%	3.50%	1.08%	0.27%	5.12%	0.27%	3.23%	3.50%
Granby	1,033	40.08%	9.78%	10.36%	3.39%	0.29%	12.20%	5.52%	3.87%	4.84%	3.19%	0.48%	5.61%	0.39%
Windsor Locks	2,282	39.70%	8.28%	12.09%	1.18%	0.88%	3.81%	8.72%	3.02%	6.84%	6.53%	0.74%	7.80%	0.39%
Groton City	2,125	39.34%	3.67%	20.00%	0.33%	0.14%	3.72%	8.99%	2.64%	3.53%	10.64%	2.02%	4.94%	0.05%
Plainfield	1,694	38.72%	2.36%	12.81%	1.95%	0.53%	19.42%	7.26%	0.77%	1.12%	11.51%	0.53%	2.95%	0.06%
Canton	1,518	37.75%	11.53%	7.77%	0.26%	0.33%	11.07%	10.74%	1.98%	1.91%	6.79%	0.53%	9.03%	0.33%
Troop E	21,700	35.71%	3.59%	2.93%	0.94%	0.14%	9.26%	31.13%	10.47%	1.42%	1.48%	0.91%	1.67%	0.33%
Norwich	5,959	35.17%	10.10%	15.09%	2.13%	0.17%	7.30%	8.41%	1.66%	2.47%	4.93%	0.84%	11.41%	0.32%
Watertown	1,274	35.09%	8.16%	6.12%	4.63%	0.16%	4.08%	4.79%	13.50%	7.06%	8.16%	1.02%	6.99%	0.24%
Troop G	25,473	34.26%	8.85%	2.01%	1.03%	0.09%	13.50%	18.82%	14.89%	3.39%	0.29%	0.86%	1.62%	0.40%
Central CT State Unviversity	3,029	32.62%	11.39%	14.92%	8.42%	0.00%	4.13%	8.98%	4.85%	1.91%	3.07%	1.22%	8.12%	0.36%
Bethel	3,239	32.60%	17.38%	4.26%	1.79%	0.15%	2.90%	5.96%	3.33%	8.09%	12.66%	0.34%	9.60%	0.93%
Troop H	19,540	32.34%	7.06%	1.77%	1.16%	0.07%	13.16%	30.52%	6.42%	3.31%	0.57%	0.76%	1.63%	1.23%
Stonington	2,799	32.01%	8.43%	8.57%	1.00%	0.07%	9.25%	21.04%	5.29%	1.11%	4.04%	0.64%	8.54%	0.00%
Madison	3,708	31.82%	7.23%	8.09%	1.51%	0.35%	8.01%	17.93%	13.92%	1.02%	6.72%	0.46%	2.37%	0.57%
Avon	1,458	31.14%	2.13%	17.28%	0.89%	0.14%	7.06%	17.76%	8.50%	0.27%	8.02%	0.07%	6.65%	0.07%
Troop I	13,390	31.11%	4.68%	2.67%	0.71%	0.04%	10.25%	32.14%	7.86%	5.29%	2.79%	0.73%	1.50%	0.23%
Groton Town	5,899	30.95%	8.07%	10.75%	1.24%	0.20%	11.65%	4.02%	12.48%	5.68%	4.29%	2.31%	7.14%	1.24%
Monroe	5,800	30.84%	16.97%	12.45%	2.41%	0.21%	9.38%	3.57%	7.72%	3.10%	9.43%	0.74%	2.52%	0.66%
Woodbridge	1,602	30.46%	14.42%	6.74%	6.80%	0.81%	2.56%	11.61%	17.67%	0.94%	2.12%	0.56%	5.31%	0.00%
Waterford	4,616	30.39%	7.34%	17.59%	5.13%	0.78%	10.79%	8.25%	2.84%	0.87%	0.95%	1.69%	12.18%	1.19%
Coventry	1,669	30.26%	11.74%	10.31%	1.20%	1.62%	10.25%	15.82%	4.13%	8.75%	2.10%	1.68%	1.92%	0.24%
Troop B	8,212	29.65%	2.86%	7.81%	2.55%	0.29%	5.86%	26.62%	12.79%	3.30%	3.74%	1.39%	2.52%	0.63%
Troop K	18,810	29.62%	7.88%	2.83%	2.67%	0.13%	6.16%	32.86%	6.49%	3.15%	5.07%	0.93%	1.52%	0.69%
Thomaston	706	29.60%	1.42%	25.64%	3.68%	0.85%	10.76%	10.20%	0.99%	0.42%	8.36%	0.57%	7.37%	0.14%
Putnam	1,049	29.46%	9.44%	25.83%	2.86%	0.38%	7.63%	4.86%	0.48%	8.67%	2.67%	0.19%	7.53%	0.00%
Greenwich	7,165	29.39%	10.58%	6.92%	2.53%	0.21%	6.25%	9.95%	17.28%	1.45%	6.56%	1.24%	6.52%	1.12%
Troop C	26,860	29.25%	5.10%	4.49%	1.82%	0.18%	4.48%	37.73%	8.41%	3.76%	2.61%	0.72%	1.06%	0.38%
Danbury	5,312	28.43%	29.89%	4.18%	0.94%	0.26%	3.92%	6.98%	13.22%	0.41%	2.37%	1.02%	7.38%	1.00%
Wilton	4,773	27.99%	9.01%	14.52%	2.22%	0.27%	9.87%	4.23%	11.88%	0.44%	7.40%	0.80%	9.18%	2.20%
Cheshire	5,697	27.79%	22.71%	8.92%	4.25%	0.23%	7.42%	2.98%	8.53%	3.28%	6.65%	1.44%	4.51%	1.28%
New Canaan	5,355	27.71%	15.41%	14.32%	3.68%	0.09%	4.39%	5.83%	9.17%	2.61%	5.30%	0.35%	9.90%	1.23%
Groton Long Point	74	27.03%	24.32%	1.35%	0.00%	1.35%	2.70%	14.86%	0.00%	2.70%	25.68%	0.00%	0.00%	0.00%
Troop L	11,441	26.76%	3.76%	6.77%	3.09%	0.70%	6.63%	21.36%	20.21%	2.60%	3.32%	2.85%	0.67%	1.28%
Troop F	24,896	26.16%	5.21%	2.24%	0.48%	0.14%	6.82%	42.04%	10.76%	2.82%	1.39%	0.38%	1.12%	0.45%
Derby	2,799	25.83%	14.79%	4.18%	1.61%	0.07%	5.22%	10.18%	12.18%	0.36%	8.65%	5.97%	10.22%	0.75%
Troop A	19,544	25.76%	6.90%	3.22%	2.08%	0.12%	10.78%	24.26%	18.12%	4.06%	0.96%	1.46%	1.49%	0.79%

Table 4: Basis for Stop (Sorted by % Speeding)

Department Name	Total	Speed Related	Cell Phone	Defective Lights	Display of Plates	Equipment Violation	Moving Violation	Other	Registration	Seatbelt	Stop Sign	Suspended License	Traffic Control Signal	Window Tint
Darien	2,568	25.62%	10.09%	9.97%	7.32%	0.00%	5.41%	11.80%	6.04%	7.94%	5.61%	0.70%	8.10%	1.40%
East Windsor	1,057	25.54%	10.97%	9.08%	3.22%	0.00%	9.46%	8.14%	6.53%	6.15%	9.18%	3.88%	7.76%	0.09%
Windsor	5,716	25.44%	5.83%	27.31%	2.33%	0.23%	4.65%	3.10%	2.97%	6.74%	7.16%	0.80%	12.39%	1.07%
Ansonia	4,574	25.30%	15.15%	12.13%	2.65%	0.42%	4.24%	6.60%	3.04%	2.01%	18.74%	0.83%	8.66%	0.24%
Bloomfield	5,241	24.16%	8.11%	14.12%	6.07%	0.19%	6.11%	5.86%	0.86%	2.04%	12.14%	0.46%	19.12%	0.78%
Bristol	6,244	23.88%	13.81%	9.18%	2.21%	0.24%	5.06%	5.78%	11.72%	6.69%	9.83%	1.71%	9.63%	0.26%
Brookfield	2,026	23.74%	27.99%	13.43%	0.99%	0.15%	8.54%	3.16%	3.41%	2.17%	7.16%	0.64%	8.59%	0.05%
University of Connecticut	2,488	23.07%	4.86%	26.41%	2.53%	0.40%	11.13%	9.16%	4.34%	1.61%	11.94%	0.04%	3.54%	0.96%
Southern CT State University	1,044	22.99%	8.81%	11.21%	0.29%	0.00%	3.83%	7.47%	2.01%	3.07%	0.19%	0.57%	39.56%	0.00%
Glastonbury	4,390	22.05%	14.44%	14.94%	1.41%	0.27%	8.34%	5.97%	12.48%	1.89%	7.33%	4.87%	5.47%	0.52%
Naugatuck	5,038	21.79%	10.00%	11.81%	4.19%	0.48%	9.47%	11.73%	3.73%	4.03%	14.57%	0.18%	7.56%	0.46%
Clinton	2,913	21.56%	6.97%	18.37%	3.60%	0.41%	10.99%	7.07%	3.40%	13.49%	7.00%	0.62%	6.01%	0.51%
Troop D	17,124	21.39%	3.85%	3.74%	2.18%	0.39%	5.46%	38.95%	14.52%	3.15%	2.22%	2.72%	1.25%	0.20%
Westport	5,369	21.16%	22.93%	9.44%	4.00%	0.30%	7.69%	8.18%	4.84%	1.27%	10.54%	0.58%	7.39%	1.68%
East Hampton	457	20.79%	9.85%	10.28%	2.84%	1.53%	14.22%	10.94%	12.69%	1.09%	6.56%	1.31%	7.88%	0.00%
Rocky Hill	3,929	20.74%	16.06%	13.64%	3.11%	0.23%	6.90%	6.80%	8.27%	1.63%	11.43%	1.71%	9.24%	0.25%
Department of Motor Vehicle	2,368	20.61%	15.92%	1.39%	0.84%	0.89%	15.03%	23.65%	10.01%	2.45%	1.52%	0.42%	5.24%	2.03%
Middlebury	177	19.77%	37.85%	0.56%	1.69%	1.13%	6.78%	18.08%	1.13%	1.69%	5.65%	0.00%	4.52%	1.13%
Manchester	5,291	18.82%	7.13%	14.93%	3.10%	0.40%	6.75%	5.07%	9.45%	3.99%	8.79%	2.61%	16.54%	2.44%
North Haven	1,752	18.66%	17.87%	7.82%	1.77%	0.23%	4.85%	13.93%	9.13%	7.53%	4.22%	1.26%	12.33%	0.40%
Torrington	5,394	17.70%	5.34%	30.16%	4.26%	0.95%	3.45%	6.53%	1.84%	0.67%	14.59%	0.57%	13.89%	0.06%
Winsted	555	17.66%	2.70%	12.61%	5.41%	0.36%	8.65%	15.68%	5.77%	1.44%	6.49%	3.06%	20.18%	0.00%
East Hartford	8,490	17.15%	17.26%	2.92%	2.69%	0.14%	2.65%	10.32%	14.49%	12.60%	7.18%	3.79%	5.92%	2.89%
Orange	4,601	17.00%	22.19%	15.02%	5.91%	0.22%	3.09%	6.48%	6.46%	1.22%	2.83%	1.83%	16.56%	1.22%
Berlin	5,783	16.79%	22.17%	7.12%	2.28%	0.10%	7.47%	8.66%	8.47%	7.23%	4.15%	1.09%	14.39%	0.07%
North Branford	1,002	16.77%	5.89%	5.89%	2.30%	0.30%	13.17%	10.18%	31.44%	1.70%	4.29%	3.59%	4.39%	0.10%
Shelton	579	16.75%	10.71%	9.84%	8.64%	0.35%	12.78%	16.06%	6.22%	4.49%	3.80%	0.69%	8.98%	0.69%
Plymouth	2,065	16.61%	18.16%	15.79%	9.78%	0.34%	6.97%	8.81%	3.44%	1.21%	8.96%	0.34%	5.76%	3.83%
Stamford	6,232	16.54%	15.47%	9.63%	3.64%	0.16%	5.47%	8.91%	0.87%	2.09%	11.42%	0.08%	20.97%	4.75%
Cromwell	1,960	16.43%	16.73%	19.13%	1.07%	0.10%	6.33%	2.96%	14.49%	0.66%	5.56%	2.24%	14.29%	0.00%
Fairfield	7,847	16.24%	13.98%	8.41%	2.66%	0.36%	7.11%	12.20%	11.93%	8.02%	4.98%	2.79%	10.72%	0.61%
Plainville	3,273	15.83%	3.73%	20.44%	6.87%	0.15%	8.10%	10.82%	10.85%	0.15%	10.24%	1.68%	8.71%	2.44%
Wethersfield	4,490	15.66%	6.73%	14.99%	14.14%	0.22%	7.97%	12.45%	10.40%	0.69%	2.54%	5.43%	5.50%	3.27%
Vernon	3,637	15.29%	7.15%	17.90%	2.53%	0.27%	17.57%	9.21%	5.69%	0.66%	8.77%	1.51%	12.92%	0.52%
South Windsor	4,195	15.11%	7.01%	19.38%	13.40%	0.45%	4.60%	2.60%	10.49%	8.99%	8.65%	1.31%	7.53%	0.48%
Hartford	5,887	13.84%	34.26%	1.51%	3.06%	0.37%	5.16%	7.93%	4.55%	4.50%	8.58%	4.25%	9.34%	2.63%
New Haven	12,818	13.32%	6.09%	7.53%	4.20%	0.13%	2.87%	21.49%	5.11%	2.25%	7.85%	2.18%	24.96%	2.04%
Meriden	2,700	13.28%	15.47%	6.47%	1.82%	0.45%	5.02%	16.77%	5.65%	3.79%	16.03%	2.57%	11.79%	0.89%
West Haven	5,854	13.26%	5.01%	18.47%	5.83%	1.37%	5.02%	10.74%	12.97%	1.32%	14.02%	0.26%	10.04%	1.71%
Willimantic	3,244	13.16%	12.02%	21.67%	1.57%	0.46%	7.24%	14.52%	8.79%	3.73%	6.20%	1.66%	8.57%	0.40%
Western CT State University	79	12.66%	15.19%	1.27%	0.00%	0.00%	7.59%	36.71%	0.00%	6.33%	5.06%	2.53%	12.66%	0.00%
Farmington	4,910	12.34%	19.76%	11.89%	1.26%	0.35%	12.69%	4.22%	18.72%	1.91%	5.78%	1.77%	9.16%	0.14%
Wallingford	10,044	12.00%	14.77%	13.43%	5.30%	1.02%	6.83%	6.86%	11.09%	6.69%	9.94%	2.23%	9.10%	0.75%
Newington	5,483	10.89%	3.68%	29.33%	3.28%	1.37%	9.43%	7.42%	9.98%	1.44%	8.21%	2.12%	9.43%	3.43%
Bridgeport	5,603	10.62%	26.02%	3.53%	2.57%	0.48%	5.43%	8.64%	2.02%	11.96%	14.17%	1.11%	12.31%	1.14%
Middletown	3,260	10.34%	4.79%	21.04%	8.65%	0.92%	7.06%	9.75%	9.75%	2.79%	13.31%	2.06%	9.17%	0.37%
Norwalk	5,322	8.85%	23.79%	6.01%	1.65%	0.32%	5.37%	18.23%	17.16%	2.65%	4.45%	1.32%	9.23%	0.98%
Branford	5,025	8.74%	17.65%	3.72%	0.78%	0.06%	5.81%	10.15%	24.40%	0.92%	3.90%	2.17%	21.37%	0.34%
Stratford	3,144	8.33%	9.99%	10.59%	4.74%	0.25%	8.33%	14.06%	17.18%	2.51%	8.49%	4.33%	9.41%	1.78%
Milford	3,177	8.25%	17.15%	9.03%	6.89%	0.31%	7.30%	18.76%	7.65%	3.15%	6.86%	2.17%	12.31%	0.16%
New London	1,499	7.61%	8.61%	10.81%	1.47%	0.80%	7.14%	16.34%	2.74%	7.47%	13.68%	0.93%	21.95%	0.47%
East Haven	3,194	7.33%	14.78%	14.09%	4.01%	0.47%	4.92%	12.27%	12.27%	1.50%	18.57%	1.94%	5.92%	1.94%

Table 4: Basis for Stop (Sorted by % Speeding)

Department Name	Total	Speed Related	Cell Phone	Defective Lights	Display of Plates	Equipment Violation	Moving Violation	Other	Registration	Seatbelt	Stop Sign	Suspended License	Traffic Control Signal	Window Tint
West Hartford	8,639	7.01%	24.19%	6.05%	3.40%	0.51%	14.56%	8.68%	16.21%	2.38%	3.07%	1.85%	10.36%	1.71%
Trumbull	2,876	6.92%	18.05%	8.24%	5.39%	0.28%	2.64%	8.69%	28.03%	1.81%	7.55%	2.57%	9.35%	0.49%
Hamden	4,852	6.72%	23.19%	8.59%	1.13%	0.16%	4.88%	17.77%	13.50%	0.82%	8.08%	0.93%	14.12%	0.10%
Eastern CT State University	198	6.57%	3.03%	12.12%	0.51%	0.00%	3.03%	10.10%	0.51%	4.04%	58.08%	0.00%	0.51%	1.52%
New Britain	8,328	6.06%	12.32%	9.34%	4.27%	0.37%	4.27%	12.12%	7.05%	2.92%	26.57%	2.93%	9.04%	2.73%
Waterbury	2,408	5.81%	24.50%	3.45%	2.49%	0.37%	7.02%	12.87%	9.09%	5.19%	5.77%	5.98%	15.78%	1.66%
Yale University	1,081	0.56%	4.07%	6.66%	2.22%	0.46%	6.29%	26.27%	3.70%	1.11%	2.41%	1.39%	44.22%	0.65%
State Capitol Police	231	0.43%	0.43%	22.94%	1.30%	0.00%	25.11%	6.49%	0.43%	0.00%	1.30%	0.00%	41.13%	0.43%

Table 5: Basis for Stop (Sorted by % Registration Violation)

Department Name	Total	Registration	Speed Related	Cell Phone	Defective Lights	Display of Plates	Equipment Violation	Moving Violation	Other	Seatbelt	Stop Sign	Suspended License	Traffic Control Signal	Window Tint
North Branford	1,002	31.44%	16.77%	5.89%	5.89%	2.30%	0.30%	13.17%	10.18%	1.70%	4.29%	3.59%	4.39%	0.10%
Trumbull	2,876	28.03%	6.92%	18.05%	8.24%	5.39%	0.28%	2.64%	8.69%	1.81%	7.55%	2.57%	9.35%	0.49%
Branford	5,025	24.40%	8.74%	17.65%	3.72%	0.78%	0.06%	5.81%	10.15%	0.92%	3.90%	2.17%	21.37%	0.34%
Troop L	11,441	20.21%	26.76%	3.76%	6.77%	3.09%	0.70%	6.63%	21.36%	2.60%	3.32%	2.85%	0.67%	1.28%
Farmington	4,910	18.72%	12.34%	19.76%	11.89%	1.26%	0.35%	12.69%	4.22%	1.91%	5.78%	1.77%	9.16%	0.14%
Troop A	19,544	18.12%	25.76%	6.90%	3.22%	2.08%	0.12%	10.78%	24.26%	4.06%	0.96%	1.46%	1.49%	0.79%
Woodbridge	1,602	17.67%	30.46%	14.42%	6.74%	6.80%	0.81%	2.56%	11.61%	0.94%	2.12%	0.56%	5.31%	0.00%
Greenwich	7,165	17.28%	29.39%	10.58%	6.92%	2.53%	0.21%	6.25%	9.95%	1.45%	6.56%	1.24%	6.52%	1.12%
Stratford	3,144	17.18%	8.33%	9.99%	10.59%	4.74%	0.25%	8.33%	14.06%	2.51%	8.49%	4.33%	9.41%	1.78%
Norwalk	5,322	17.16%	8.85%	23.79%	6.01%	1.65%	0.32%	5.37%	18.23%	2.65%	4.45%	1.32%	9.23%	0.98%
West Hartford	8,639	16.21%	7.01%	24.19%	6.05%	3.40%	0.51%	14.56%	8.68%	2.38%	3.07%	1.85%	10.36%	1.71%
Troop G	25,473	14.89%	34.26%	8.85%	2.01%	1.03%	0.09%	13.50%	18.82%	3.39%	0.29%	0.86%	1.62%	0.40%
Troop D	17,124	14.52%	21.39%	3.85%	3.74%	2.18%	0.39%	5.46%	38.95%	3.15%	2.22%	2.72%	1.25%	0.20%
Cromwell	1,960	14.49%	16.43%	16.73%	19.13%	1.07%	0.10%	6.33%	2.96%	0.66%	5.56%	2.24%	14.29%	0.00%
East Hartford	8,490	14.49%	17.15%	17.26%	2.92%	2.69%	0.14%	2.65%	10.32%	12.60%	7.18%	3.79%	5.92%	2.89%
Madison	3,708	13.92%	31.82%	7.23%	8.09%	1.51%	0.35%	8.01%	17.93%	1.02%	6.72%	0.46%	2.37%	0.57%
Watertown	1,274	13.50%	35.09%	8.16%	6.12%	4.63%	0.16%	4.08%	4.79%	7.06%	8.16%	1.02%	6.99%	0.24%
Hamden	4,852	13.50%	6.72%	23.19%	8.59%	1.13%	0.16%	4.88%	17.77%	0.82%	8.08%	0.93%	14.12%	0.10%
Redding	1,942	13.23%	48.20%	4.22%	9.37%	0.51%	0.00%	3.40%	7.78%	3.30%	8.96%	0.62%	0.41%	0.00%
Danbury	5,312	13.22%	28.43%	29.89%	4.18%	0.94%	0.26%	3.92%	6.98%	0.41%	2.37%	1.02%	7.38%	1.00%
West Haven	5,854	12.97%	13.26%	5.01%	18.47%	5.83%	1.37%	5.02%	10.74%	1.32%	14.02%	0.26%	10.04%	1.71%
Troop B	8,212	12.79%	29.65%	2.86%	7.81%	2.55%	0.29%	5.86%	26.62%	3.30%	3.74%	1.39%	2.52%	0.63%
East Hampton	457	12.69%	20.79%	9.85%	10.28%	2.84%	1.53%	14.22%	10.94%	1.09%	6.56%	1.31%	7.88%	0.00%
Glastonbury	4,390	12.48%	22.05%	14.44%	14.94%	1.41%	0.27%	8.34%	5.97%	1.89%	7.33%	4.87%	5.47%	0.52%
Groton Town	5,899	12.48%	30.95%	8.07%	10.75%	1.24%	0.20%	11.65%	4.02%	5.68%	4.29%	2.31%	7.14%	1.24%
East Haven	3,194	12.27%	7.33%	14.78%	14.09%	4.01%	0.47%	4.92%	12.27%	1.50%	18.57%	1.94%	5.92%	1.94%
Derby	2,799	12.18%	25.83%	14.79%	4.18%	1.61%	0.07%	5.22%	10.18%	0.36%	8.65%	5.97%	10.22%	0.75%
Fairfield	7,847	11.93%	16.24%	13.98%	8.41%	2.66%	0.36%	7.11%	12.20%	8.02%	4.98%	2.79%	10.72%	0.61%
Wilton	4,773	11.88%	27.99%	9.01%	14.52%	2.22%	0.27%	9.87%	4.23%	0.44%	7.40%	0.80%	9.18%	2.20%
Bristol	6,244	11.72%	23.88%	13.81%	9.18%	2.21%	0.24%	5.06%	5.78%	6.69%	9.83%	1.71%	9.63%	0.26%
Wallingford	10,044	11.09%	12.00%	14.77%	13.43%	5.30%	1.02%	6.83%	6.86%	6.69%	9.94%	2.23%	9.10%	0.75%
Plainville	3,273	10.85%	15.83%	3.73%	20.44%	6.87%	0.15%	8.10%	10.82%	0.15%	10.24%	1.68%	8.71%	2.44%
Troop F	24,896	10.76%	26.16%	5.21%	2.24%	0.48%	0.14%	6.82%	42.04%	2.82%	1.39%	0.38%	1.12%	0.45%
South Windsor	4,195	10.49%	15.11%	7.01%	19.38%	13.40%	0.45%	4.60%	2.60%	8.99%	8.65%	1.31%	7.53%	0.48%
Troop E	21,700	10.47%	35.71%	3.59%	2.93%	0.94%	0.14%	9.26%	31.13%	1.42%	1.48%	0.91%	1.67%	0.33%
Wethersfield	4,490	10.40%	15.66%	6.73%	14.99%	14.14%	0.22%	7.97%	12.45%	0.69%	2.54%	5.43%	5.50%	3.27%
Department of Motor Vehicle	2,368	10.01%	20.61%	15.92%	1.39%	0.84%	0.89%	15.03%	23.65%	2.45%	1.52%	0.42%	5.24%	2.03%
Newington	5,483	9.98%	10.89%	3.68%	29.33%	3.28%	1.37%	9.43%	7.42%	1.44%	8.21%	2.12%	9.43%	3.43%
Middletown	3,260	9.75%	10.34%	4.79%	21.04%	8.65%	0.92%	7.06%	9.75%	2.79%	13.31%	2.06%	9.17%	0.37%
Old Saybrook	3,402	9.73%	41.09%	10.67%	14.37%	0.50%	0.18%	5.03%	4.94%	0.91%	6.61%	2.12%	3.35%	0.50%
Manchester	5,291	9.45%	18.82%	7.13%	14.93%	3.10%	0.40%	6.75%	5.07%	3.99%	8.79%	2.61%	16.54%	2.44%
New Canaan	5,355	9.17%	27.71%	15.41%	14.32%	3.68%	0.09%	4.39%	5.83%	2.61%	5.30%	0.35%	9.90%	1.23%
North Haven	1,752	9.13%	18.66%	17.87%	7.82%	1.77%	0.23%	4.85%	13.93%	7.53%	4.22%	1.26%	12.33%	0.40%
Waterbury	2,408	9.09%	5.81%	24.50%	3.45%	2.49%	0.37%	7.02%	12.87%	5.19%	5.77%	5.98%	15.78%	1.66%
Willimantic	3,244	8.79%	13.16%	12.02%	21.67%	1.57%	0.46%	7.24%	14.52%	3.73%	6.20%	1.66%	8.57%	0.40%
Cheshire	5,697	8.53%	27.79%	22.71%	8.92%	4.25%	0.23%	7.42%	2.98%	3.28%	6.65%	1.44%	4.51%	1.28%
Avon	1,458	8.50%	31.14%	2.13%	17.28%	0.89%	0.14%	7.06%	17.76%	0.27%	8.02%	0.07%	6.65%	0.07%
Berlin	5,783	8.47%	16.79%	22.17%	7.12%	2.28%	0.10%	7.47%	8.66%	7.23%	4.15%	1.09%	14.39%	0.07%
Troop C	26,860	8.41%	29.25%	5.10%	4.49%	1.82%	0.18%	4.48%	37.73%	3.76%	2.61%	0.72%	1.06%	0.38%
Rocky Hill	3,929	8.27%	20.74%	16.06%	13.64%	3.11%	0.23%	6.90%	6.80%	1.63%	11.43%	1.71%	9.24%	0.25%
Troop I	13,390	7.86%	31.11%	4.68%	2.67%	0.71%	0.04%	10.25%	32.14%	5.29%	2.79%	0.73%	1.50%	0.23%
Monroe	5,800	7.72%	30.84%	16.97%	12.45%	2.41%	0.21%	9.38%	3.57%	3.10%	9.43%	0.74%	2.52%	0.66%

Table 5: Basis for Stop (Sorted by % Registration Violation)

Department Name	Total	Registration	Speed Related	Cell Phone	Defective Lights	Display of Plates	Equipment Violation	Moving Violation	Other	Seatbelt	Stop Sign	Suspended License	Traffic Control Signal	Window Tint
Milford	3,177	7.65%	8.25%	17.15%	9.03%	6.89%	0.31%	7.30%	18.76%	3.15%	6.86%	2.17%	12.31%	0.16%
New Britain	8,328	7.05%	6.06%	12.32%	9.34%	4.27%	0.37%	4.27%	12.12%	2.92%	26.57%	2.93%	9.04%	2.73%
Weston	361	6.65%	49.03%	10.25%	3.88%	0.00%	0.00%	4.71%	5.54%	0.00%	11.63%	1.94%	6.09%	0.28%
Ridgefield	7,713	6.63%	52.59%	15.74%	7.25%	0.08%	0.00%	2.27%	5.25%	1.61%	3.81%	0.19%	3.90%	0.69%
East Windsor	1,057	6.53%	25.54%	10.97%	9.08%	3.22%	0.00%	9.46%	8.14%	6.15%	9.18%	3.88%	7.76%	0.09%
Troop K	18,810	6.49%	29.62%	7.88%	2.83%	2.67%	0.13%	6.16%	32.86%	3.15%	5.07%	0.93%	1.52%	0.69%
Orange	4,601	6.46%	17.00%	22.19%	15.02%	5.91%	0.22%	3.09%	6.48%	1.22%	2.83%	1.83%	16.56%	1.22%
Troop H	19,540	6.42%	32.34%	7.06%	1.77%	1.16%	0.07%	13.16%	30.52%	3.31%	0.57%	0.76%	1.63%	1.23%
Shelton	579	6.22%	16.75%	10.71%	9.84%	8.64%	0.35%	12.78%	16.06%	4.49%	3.80%	0.69%	8.98%	0.69%
Southington	4,136	6.12%	40.64%	12.72%	9.62%	0.99%	0.27%	3.75%	3.41%	8.53%	4.88%	1.06%	7.18%	0.82%
Darien	2,568	6.04%	25.62%	10.09%	9.97%	7.32%	0.00%	5.41%	11.80%	7.94%	5.61%	0.70%	8.10%	1.40%
Seymour	3,439	5.87%	45.36%	2.27%	11.31%	1.31%	0.15%	3.55%	4.71%	3.14%	15.91%	1.42%	4.97%	0.03%
Winsted	555	5.77%	17.66%	2.70%	12.61%	5.41%	0.36%	8.65%	15.68%	1.44%	6.49%	3.06%	20.18%	0.00%
Vernon	3,637	5.69%	15.29%	7.15%	17.90%	2.53%	0.27%	17.57%	9.21%	0.66%	8.77%	1.51%	12.92%	0.52%
Easton	581	5.68%	47.16%	6.37%	3.44%	0.17%	0.00%	6.02%	12.22%	1.55%	16.87%	0.17%	0.34%	0.00%
Meriden	2,700	5.65%	13.28%	15.47%	6.47%	1.82%	0.45%	5.02%	16.77%	3.79%	16.03%	2.57%	11.79%	0.89%
Stonington	2,799	5.29%	32.01%	8.43%	8.57%	1.00%	0.07%	9.25%	21.04%	1.11%	4.04%	0.64%	8.54%	0.00%
New Haven	12,818	5.11%	13.32%	6.09%	7.53%	4.20%	0.13%	2.87%	21.49%	2.25%	7.85%	2.18%	24.96%	2.04%
Central CT State University	3,029	4.85%	32.62%	11.39%	14.92%	8.42%	0.00%	4.13%	8.98%	1.91%	3.07%	1.22%	8.12%	0.36%
Westport	5,369	4.84%	21.16%	22.93%	9.44%	4.00%	0.30%	7.69%	8.18%	1.27%	10.54%	0.58%	7.39%	1.68%
Hartford	5,887	4.55%	13.84%	34.26%	1.51%	3.06%	0.37%	5.16%	7.93%	4.50%	8.58%	4.25%	9.34%	2.63%
CSP Headquarters	15,296	4.35%	46.27%	6.96%	1.31%	1.20%	0.09%	7.30%	15.59%	14.16%	0.42%	0.61%	0.85%	0.90%
University of Connecticut	2,488	4.34%	23.07%	4.86%	26.41%	2.53%	0.40%	11.13%	9.16%	1.61%	11.94%	0.04%	3.54%	0.96%
Coventry	1,669	4.13%	30.26%	11.74%	10.31%	1.20%	1.62%	10.25%	15.82%	8.75%	2.10%	1.68%	1.92%	0.24%
Granby	1,033	3.87%	40.08%	9.78%	10.36%	3.39%	0.29%	12.20%	5.52%	4.84%	3.19%	0.48%	5.61%	0.39%
Newtown	9,956	3.80%	53.77%	7.97%	10.77%	2.39%	0.10%	4.31%	3.90%	1.34%	7.35%	0.71%	3.59%	0.02%
Naugatuck	5,038	3.73%	21.79%	10.00%	11.81%	4.19%	0.48%	9.47%	11.73%	4.03%	14.57%	0.18%	7.56%	0.46%
Yale University	1,081	3.70%	0.56%	4.07%	6.66%	2.22%	0.46%	6.29%	26.27%	1.11%	2.41%	1.39%	44.22%	0.65%
Enfield	5,827	3.48%	41.26%	3.69%	16.34%	2.04%	0.50%	5.32%	7.10%	6.42%	4.08%	0.88%	8.07%	0.82%
Plymouth	2,065	3.44%	16.61%	18.16%	15.79%	9.78%	0.34%	6.97%	8.81%	1.21%	8.96%	0.34%	5.76%	3.83%
Brookfield	2,026	3.41%	23.74%	27.99%	13.43%	0.99%	0.15%	8.54%	3.16%	2.17%	7.16%	0.64%	8.59%	0.05%
Clinton	2,913	3.40%	21.56%	6.97%	18.37%	3.60%	0.41%	10.99%	7.07%	13.49%	7.00%	0.62%	6.01%	0.51%
Bethel	3,239	3.33%	32.60%	17.38%	4.26%	1.79%	0.15%	2.90%	5.96%	8.09%	12.66%	0.34%	9.60%	0.93%
New Milford	3,895	3.16%	53.56%	17.15%	6.39%	0.72%	0.59%	4.26%	4.49%	0.33%	3.11%	0.33%	5.85%	0.05%
Ansonia	4,574	3.04%	25.30%	15.15%	12.13%	2.65%	0.42%	4.24%	6.60%	2.01%	18.74%	0.83%	8.66%	0.24%
Windsor Locks	2,282	3.02%	39.70%	8.28%	12.09%	1.18%	0.88%	3.81%	8.72%	6.84%	6.53%	0.74%	7.80%	0.39%
Windsor	5,716	2.97%	25.44%	5.83%	27.31%	2.33%	0.23%	4.65%	3.10%	6.74%	7.16%	0.80%	12.39%	1.07%
Waterford	4,616	2.84%	30.39%	7.34%	17.59%	5.13%	0.78%	10.79%	8.25%	0.87%	0.95%	1.69%	12.18%	1.19%
New London	1,499	2.74%	7.61%	8.61%	10.81%	1.47%	0.80%	7.14%	16.34%	7.47%	13.68%	0.93%	21.95%	0.47%
Simsbury	3,301	2.73%	48.65%	8.54%	8.66%	2.73%	0.15%	6.85%	5.24%	0.79%	7.09%	0.30%	8.00%	0.27%
Groton City	2,125	2.64%	39.34%	3.67%	20.00%	0.33%	0.14%	3.72%	8.99%	3.53%	10.64%	2.02%	4.94%	0.05%
Bridgeport	5,603	2.02%	10.62%	26.02%	3.53%	2.57%	0.48%	5.43%	8.64%	11.96%	14.17%	1.11%	12.31%	1.14%
Southern CT State University	1,044	2.01%	22.99%	8.81%	11.21%	0.29%	0.00%	3.83%	7.47%	3.07%	0.19%	0.57%	39.56%	0.00%
Canton	1,518	1.98%	37.75%	11.53%	7.77%	0.26%	0.33%	11.07%	10.74%	1.91%	6.79%	0.53%	9.03%	0.33%
Torrington	5,394	1.84%	17.70%	5.34%	30.16%	4.26%	0.95%	3.45%	6.53%	0.67%	14.59%	0.57%	13.89%	0.06%
Guilford	2,954	1.73%	42.21%	14.59%	13.00%	0.58%	0.03%	4.47%	2.84%	1.29%	7.04%	0.41%	11.81%	0.00%
Portland	178	1.69%	69.10%	5.62%	1.12%	0.56%	0.00%	2.25%	6.74%	5.62%	0.56%	0.00%	6.74%	0.00%
Norwich	5,959	1.66%	35.17%	10.10%	15.09%	2.13%	0.17%	7.30%	8.41%	2.47%	4.93%	0.84%	11.41%	0.32%
Middlebury	177	1.13%	19.77%	37.85%	0.56%	1.69%	1.13%	6.78%	18.08%	1.69%	5.65%	0.00%	4.52%	1.13%
Suffield	1,272	1.10%	61.79%	3.93%	9.20%	0.24%	0.00%	12.19%	2.36%	0.16%	4.32%	0.00%	4.72%	0.00%
Wolcott	371	1.08%	40.16%	23.72%	9.97%	1.35%	0.27%	7.55%	3.50%	0.27%	5.12%	0.27%	3.23%	3.50%
Thomaston	706	0.99%	29.60%	1.42%	25.64%	3.68%	0.85%	10.76%	10.20%	0.42%	8.36%	0.57%	7.37%	0.14%

Table 5: Basis for Stop (Sorted by % Registration Violation)

Department Name	Total	Registration	Speed Related	Cell Phone	Defective Lights	Display of Plates	Equipment Violation	Moving Violation	Other	Seatbelt	Stop Sign	Suspended License	Traffic Control Signal	Window Tint
Stamford	6,232	0.87%	16.54%	15.47%	9.63%	3.64%	0.16%	5.47%	8.91%	2.09%	11.42%	0.08%	20.97%	4.75%
Bloomfield	5,241	0.86%	24.16%	8.11%	14.12%	6.07%	0.19%	6.11%	5.86%	2.04%	12.14%	0.46%	19.12%	0.78%
Plainfield	1,694	0.77%	38.72%	2.36%	12.81%	1.95%	0.53%	19.42%	7.26%	1.12%	11.51%	0.53%	2.95%	0.06%
Eastern CT State University	198	0.51%	6.57%	3.03%	12.12%	0.51%	0.00%	3.03%	10.10%	4.04%	58.08%	0.00%	0.51%	1.52%
Putnam	1,049	0.48%	29.46%	9.44%	25.83%	2.86%	0.38%	7.63%	4.86%	8.67%	2.67%	0.19%	7.53%	0.00%
State Capitol Police	231	0.43%	0.43%	0.43%	22.94%	1.30%	0.00%	25.11%	6.49%	0.00%	1.30%	0.00%	41.13%	0.43%
Groton Long Point	74	0.00%	27.03%	24.32%	1.35%	0.00%	1.35%	2.70%	14.86%	2.70%	25.68%	0.00%	0.00%	0.00%
Western CT State University	79	0.00%	12.66%	15.19%	1.27%	0.00%	0.00%	7.59%	36.71%	6.33%	5.06%	2.53%	12.66%	0.00%

Table 6: Basis for Stop (Sorted by % Cell Phone Violation)

Department Name	Total	Cell Phone	Registration	Speed Related	Defective Lights	Display of Plates	Equipment Violation	Moving Violation	Other	Seatbelt	Stop Sign	Suspended License	Traffic Control Signal	Window Tint
Middlebury	177	37.85%	1.13%	19.77%	0.56%	1.69%	1.13%	6.78%	18.08%	1.69%	5.65%	0.00%	4.52%	1.13%
Hartford	5,887	34.26%	4.55%	13.84%	1.51%	3.06%	0.37%	5.16%	7.93%	4.50%	8.58%	4.25%	9.34%	2.63%
Danbury	5,312	29.89%	13.22%	28.43%	4.18%	0.94%	0.26%	3.92%	6.98%	0.41%	2.37%	1.02%	7.38%	1.00%
Brookfield	2,026	27.99%	3.41%	23.74%	13.43%	0.99%	0.15%	8.54%	3.16%	2.17%	7.16%	0.64%	8.59%	0.05%
Bridgeport	5,603	26.02%	2.02%	10.62%	3.53%	2.57%	0.48%	5.43%	8.64%	11.96%	14.17%	1.11%	12.31%	1.14%
Waterbury	2,408	24.50%	9.09%	5.81%	3.45%	2.49%	0.37%	7.02%	12.87%	5.19%	5.77%	5.98%	15.78%	1.66%
Groton Long Point	74	24.32%	0.00%	27.03%	1.35%	0.00%	1.35%	2.70%	14.86%	2.70%	25.68%	0.00%	0.00%	0.00%
West Hartford	8,639	24.19%	16.21%	7.01%	6.05%	3.40%	0.51%	14.56%	8.68%	2.38%	3.07%	1.85%	10.36%	1.71%
Norwalk	5,322	23.79%	17.16%	8.85%	6.01%	1.65%	0.32%	5.37%	18.23%	2.65%	4.45%	1.32%	9.23%	0.98%
Wolcott	371	23.72%	1.08%	40.16%	9.97%	1.35%	0.27%	7.55%	3.50%	0.27%	5.12%	0.27%	3.23%	3.50%
Hamden	4,852	23.19%	13.50%	6.72%	8.59%	1.13%	0.16%	4.88%	17.77%	0.82%	8.08%	0.93%	14.12%	0.10%
Westport	5,369	22.93%	4.84%	21.16%	9.44%	4.00%	0.30%	7.69%	8.18%	1.27%	10.54%	0.58%	7.39%	1.68%
Cheshire	5,697	22.71%	8.53%	27.79%	8.92%	4.25%	0.23%	7.42%	2.98%	3.28%	6.65%	1.44%	4.51%	1.28%
Orange	4,601	22.19%	6.46%	17.00%	15.02%	5.91%	0.22%	3.09%	6.48%	1.22%	2.83%	1.83%	16.56%	1.22%
Berlin	5,783	22.17%	8.47%	16.79%	7.12%	2.28%	0.10%	7.47%	8.66%	7.23%	4.15%	1.09%	14.39%	0.07%
Farmington	4,910	19.76%	18.72%	12.34%	11.89%	1.26%	0.35%	12.69%	4.22%	1.91%	5.78%	1.77%	9.16%	0.14%
Plymouth	2,065	18.16%	3.44%	16.61%	15.79%	9.78%	0.34%	6.97%	8.81%	1.21%	8.96%	0.34%	5.76%	3.83%
Trumbull	2,876	18.05%	28.03%	6.92%	8.24%	5.39%	0.28%	2.64%	8.69%	1.81%	7.55%	2.57%	9.35%	0.49%
North Haven	1,752	17.87%	9.13%	18.66%	7.82%	1.77%	0.23%	4.85%	13.93%	7.53%	4.22%	1.26%	12.33%	0.40%
Branford	5,025	17.65%	24.40%	8.74%	3.72%	0.78%	0.06%	5.81%	10.15%	0.92%	3.90%	2.17%	21.37%	0.34%
Bethel	3,239	17.38%	3.33%	32.60%	4.26%	1.79%	0.15%	2.90%	5.96%	8.09%	12.66%	0.34%	9.60%	0.93%
East Hartford	8,490	17.26%	14.49%	17.15%	2.92%	2.69%	0.14%	2.65%	10.32%	12.60%	7.18%	3.79%	5.92%	2.89%
Milford	3,177	17.15%	7.65%	8.25%	9.03%	6.89%	0.31%	7.30%	18.76%	3.15%	6.86%	2.17%	12.31%	0.16%
New Milford	3,895	17.15%	3.16%	53.56%	6.39%	0.72%	0.59%	4.26%	4.49%	0.33%	3.11%	0.33%	5.85%	0.05%
Monroe	5,800	16.97%	7.72%	30.84%	12.45%	2.41%	0.21%	9.38%	3.57%	3.10%	9.43%	0.74%	2.52%	0.66%
Cromwell	1,960	16.73%	14.49%	16.43%	19.13%	1.07%	0.10%	6.33%	2.96%	0.66%	5.56%	2.24%	14.29%	0.00%
Rocky Hill	3,929	16.06%	8.27%	20.74%	13.64%	3.11%	0.23%	6.90%	6.80%	1.63%	11.43%	1.71%	9.24%	0.25%
Department of Motor Vehicle	2,368	15.92%	10.01%	20.61%	1.39%	0.84%	0.89%	15.03%	23.65%	2.45%	1.52%	0.42%	5.24%	2.03%
Ridgefield	7,713	15.74%	6.63%	52.59%	7.25%	0.08%	0.00%	2.27%	5.25%	1.61%	3.81%	0.19%	3.90%	0.69%
Meriden	2,700	15.47%	5.65%	13.28%	6.47%	1.82%	0.45%	5.02%	16.77%	3.79%	16.03%	2.57%	11.79%	0.89%
Stamford	6,232	15.47%	0.87%	16.54%	9.63%	3.64%	0.16%	5.47%	8.91%	2.09%	11.42%	0.08%	20.97%	4.75%
New Canaan	5,355	15.41%	9.17%	27.71%	14.32%	3.68%	0.09%	4.39%	5.83%	2.61%	5.30%	0.35%	9.90%	1.23%
Western CT State University	79	15.19%	0.00%	12.66%	1.27%	0.00%	0.00%	7.59%	36.71%	6.33%	5.06%	2.53%	12.66%	0.00%
Ansonia	4,574	15.15%	3.04%	25.30%	12.13%	2.65%	0.42%	4.24%	6.60%	2.01%	18.74%	0.83%	8.66%	0.24%
Derby	2,799	14.79%	12.18%	25.83%	4.18%	1.61%	0.07%	5.22%	10.18%	0.36%	8.65%	5.97%	10.22%	0.75%
East Haven	3,194	14.78%	12.27%	7.33%	14.09%	4.01%	0.47%	4.92%	12.27%	1.50%	18.57%	1.94%	5.92%	1.94%
Wallingford	10,044	14.77%	11.09%	12.00%	13.43%	5.30%	1.02%	6.83%	6.86%	6.69%	9.94%	2.23%	9.10%	0.75%
Guilford	2,954	14.59%	1.73%	42.21%	13.00%	0.58%	0.03%	4.47%	2.84%	1.29%	7.04%	0.41%	11.81%	0.00%
Glastonbury	4,390	14.44%	12.48%	22.05%	14.94%	1.41%	0.27%	8.34%	5.97%	1.89%	7.33%	4.87%	5.47%	0.52%
Woodbridge	1,602	14.42%	17.67%	30.46%	6.74%	6.80%	0.81%	2.56%	11.61%	0.94%	2.12%	0.56%	5.31%	0.00%
Fairfield	7,847	13.98%	11.93%	16.24%	8.41%	2.66%	0.36%	7.11%	12.20%	8.02%	4.98%	2.79%	10.72%	0.61%
Bristol	6,244	13.81%	11.72%	23.88%	9.18%	2.21%	0.24%	5.06%	5.78%	6.69%	9.83%	1.71%	9.63%	0.26%
Southington	4,136	12.72%	6.12%	40.64%	9.62%	0.99%	0.27%	3.75%	3.41%	8.53%	4.88%	1.06%	7.18%	0.82%
New Britain	8,328	12.32%	7.05%	6.06%	9.34%	4.27%	0.37%	4.27%	12.12%	2.92%	26.57%	2.93%	9.04%	2.73%
Willimantic	3,244	12.02%	8.79%	13.16%	21.67%	1.57%	0.46%	7.24%	14.52%	3.73%	6.20%	1.66%	8.57%	0.40%
Coventry	1,669	11.74%	4.13%	30.26%	10.31%	1.20%	1.62%	10.25%	15.82%	8.75%	2.10%	1.68%	1.92%	0.24%
Canton	1,518	11.53%	1.98%	37.75%	7.77%	0.26%	0.33%	11.07%	10.74%	1.91%	6.79%	0.53%	9.03%	0.33%
Central CT State University	3,029	11.39%	4.85%	32.62%	14.92%	8.42%	0.00%	4.13%	8.98%	1.91%	3.07%	1.22%	8.12%	0.36%
East Windsor	1,057	10.97%	6.53%	25.54%	9.08%	3.22%	0.00%	9.46%	8.14%	6.15%	9.18%	3.88%	7.76%	0.09%
Shelton	579	10.71%	6.22%	16.75%	9.84%	8.64%	0.35%	12.78%	16.06%	4.49%	3.80%	0.69%	8.98%	0.69%
Old Saybrook	3,402	10.67%	9.73%	41.09%	14.37%	0.50%	0.18%	5.03%	4.94%	0.91%	6.61%	2.12%	3.35%	0.50%
Greenwich	7,165	10.58%	17.28%	29.39%	6.92%	2.53%	0.21%	6.25%	9.95%	1.45%	6.56%	1.24%	6.52%	1.12%

Table 6: Basis for Stop (Sorted by % Cell Phone Violation)

Department Name	Total	Cell Phone	Registration	Speed Related	Defective Lights	Display of Plates	Equipment Violation	Moving Violation	Other	Seatbelt	Stop Sign	Suspended License	Traffic Control Signal	Window Tint
Weston	361	10.25%	6.65%	49.03%	3.88%	0.00%	0.00%	4.71%	5.54%	0.00%	11.63%	1.94%	6.09%	0.28%
Norwich	5,959	10.10%	1.66%	35.17%	15.09%	2.13%	0.17%	7.30%	8.41%	2.47%	4.93%	0.84%	11.41%	0.32%
Darien	2,568	10.09%	6.04%	25.62%	9.97%	7.32%	0.00%	5.41%	11.80%	7.94%	5.61%	0.70%	8.10%	1.40%
Naugatuck	5,038	10.00%	3.73%	21.79%	11.81%	4.19%	0.48%	9.47%	11.73%	4.03%	14.57%	0.18%	7.56%	0.46%
Stratford	3,144	9.99%	17.18%	8.33%	10.59%	4.74%	0.25%	8.33%	14.06%	2.51%	8.49%	4.33%	9.41%	1.78%
East Hampton	457	9.85%	12.69%	20.79%	10.28%	2.84%	1.53%	14.22%	10.94%	1.09%	6.56%	1.31%	7.88%	0.00%
Granby	1,033	9.78%	3.87%	40.08%	10.36%	3.39%	0.29%	12.20%	5.52%	4.84%	3.19%	0.48%	5.61%	0.39%
Putnam	1,049	9.44%	0.48%	29.46%	25.83%	2.86%	0.38%	7.63%	4.86%	8.67%	2.67%	0.19%	7.53%	0.00%
Wilton	4,773	9.01%	11.88%	27.99%	14.52%	2.22%	0.27%	9.87%	4.23%	0.44%	7.40%	0.80%	9.18%	2.20%
Troop G	25,473	8.85%	14.89%	34.26%	2.01%	1.03%	0.09%	13.50%	18.82%	3.39%	0.29%	0.86%	1.62%	0.40%
Southern CT State University	1,044	8.81%	2.01%	22.99%	11.21%	0.29%	0.00%	3.83%	7.47%	3.07%	0.19%	0.57%	39.56%	0.00%
New London	1,499	8.61%	2.74%	7.61%	10.81%	1.47%	0.80%	7.14%	16.34%	7.47%	13.68%	0.93%	21.95%	0.47%
Simsbury	3,301	8.54%	2.73%	48.65%	8.66%	2.73%	0.15%	6.85%	5.24%	0.79%	7.09%	0.30%	8.00%	0.27%
Stonington	2,799	8.43%	5.29%	32.01%	8.57%	1.00%	0.07%	9.25%	21.04%	1.11%	4.04%	0.64%	8.54%	0.00%
Windsor Locks	2,282	8.28%	3.02%	39.70%	12.09%	1.18%	0.88%	3.81%	8.72%	6.84%	6.53%	0.74%	7.80%	0.39%
Watertown	1,274	8.16%	13.50%	35.09%	6.12%	4.63%	0.16%	4.08%	4.79%	7.06%	8.16%	1.02%	6.99%	0.24%
Bloomfield	5,241	8.11%	0.86%	24.16%	14.12%	6.07%	0.19%	6.11%	5.86%	2.04%	12.14%	0.46%	19.12%	0.78%
Groton Town	5,899	8.07%	12.48%	30.95%	10.75%	1.24%	0.20%	11.65%	4.02%	5.68%	4.29%	2.31%	7.14%	1.24%
Newtown	9,956	7.97%	3.80%	53.77%	10.77%	2.39%	0.10%	4.31%	3.90%	1.34%	7.35%	0.71%	3.59%	0.02%
Troop K	18,810	7.88%	6.49%	29.62%	2.83%	2.67%	0.13%	6.16%	32.86%	3.15%	5.07%	0.93%	1.52%	0.69%
Waterford	4,616	7.34%	2.84%	30.39%	17.59%	5.13%	0.78%	10.79%	8.25%	0.87%	0.95%	1.69%	12.18%	1.19%
Madison	3,708	7.23%	13.92%	31.82%	8.09%	1.51%	0.35%	8.01%	17.93%	1.02%	6.72%	0.46%	2.37%	0.57%
Vernon	3,637	7.15%	5.69%	15.29%	17.90%	2.53%	0.27%	17.57%	9.21%	0.66%	8.77%	1.51%	12.92%	0.52%
Manchester	5,291	7.13%	9.45%	18.82%	14.93%	3.10%	0.40%	6.75%	5.07%	3.99%	8.79%	2.61%	16.54%	2.44%
Troop H	19,540	7.06%	6.42%	32.34%	1.77%	1.16%	0.07%	13.16%	30.52%	3.31%	0.57%	0.76%	1.63%	1.23%
South Windsor	4,195	7.01%	10.49%	15.11%	19.38%	13.40%	0.45%	4.60%	2.60%	8.99%	8.65%	1.31%	7.53%	0.48%
Clinton	2,913	6.97%	3.40%	21.56%	18.37%	3.60%	0.41%	10.99%	7.07%	13.49%	7.00%	0.62%	6.01%	0.51%
CSP Headquarters	15,296	6.96%	4.35%	46.27%	1.31%	1.20%	0.09%	7.30%	15.59%	14.16%	0.42%	0.61%	0.85%	0.90%
Troop A	19,544	6.90%	18.12%	25.76%	3.22%	2.08%	0.12%	10.78%	24.26%	4.06%	0.96%	1.46%	1.49%	0.79%
Wethersfield	4,490	6.73%	10.40%	15.66%	14.99%	14.14%	0.22%	7.97%	12.45%	0.69%	2.54%	5.43%	5.50%	3.27%
Easton	581	6.37%	5.68%	47.16%	3.44%	0.17%	0.00%	6.02%	12.22%	1.55%	16.87%	0.17%	0.34%	0.00%
New Haven	12,818	6.09%	5.11%	13.32%	7.53%	4.20%	0.13%	2.87%	21.49%	2.25%	7.85%	2.18%	24.96%	2.04%
North Branford	1,002	5.89%	31.44%	16.77%	5.89%	2.30%	0.30%	13.17%	10.18%	1.70%	4.29%	3.59%	4.39%	0.10%
Windsor	5,716	5.83%	2.97%	25.44%	27.31%	2.33%	0.23%	4.65%	3.10%	6.74%	7.16%	0.80%	12.39%	1.07%
Portland	178	5.62%	1.69%	69.10%	1.12%	0.56%	0.00%	2.25%	6.74%	5.62%	0.56%	0.00%	6.74%	0.00%
Torrington	5,394	5.34%	1.84%	17.70%	30.16%	4.26%	0.95%	3.45%	6.53%	0.67%	14.59%	0.57%	13.89%	0.06%
Troop F	24,896	5.21%	10.76%	26.16%	2.24%	0.48%	0.14%	6.82%	42.04%	2.82%	1.39%	0.38%	1.12%	0.45%
Troop C	26,860	5.10%	8.41%	29.25%	4.49%	1.82%	0.18%	4.48%	37.73%	3.76%	2.61%	0.72%	1.06%	0.38%
West Haven	5,854	5.01%	12.97%	13.26%	18.47%	5.83%	1.37%	5.02%	10.74%	1.32%	14.02%	0.26%	10.04%	1.71%
University of Connecticut	2,488	4.86%	4.34%	23.07%	26.41%	2.53%	0.40%	11.13%	9.16%	1.61%	11.94%	0.04%	3.54%	0.96%
Middletown	3,260	4.79%	9.75%	10.34%	21.04%	8.65%	0.92%	7.06%	9.75%	2.79%	13.31%	2.06%	9.17%	0.37%
Troop I	13,390	4.68%	7.86%	31.11%	2.67%	0.71%	0.04%	10.25%	32.14%	5.29%	2.79%	0.73%	1.50%	0.23%
Redding	1,942	4.22%	13.23%	48.20%	9.37%	0.51%	0.00%	3.40%	7.78%	3.30%	8.96%	0.62%	0.41%	0.00%
Yale University	1,081	4.07%	3.70%	0.56%	6.66%	2.22%	0.46%	6.29%	26.27%	1.11%	2.41%	1.39%	44.22%	0.65%
Suffield	1,272	3.93%	1.10%	61.79%	9.20%	0.24%	0.00%	12.19%	2.36%	0.16%	4.32%	0.00%	4.72%	0.00%
Troop D	17,124	3.85%	14.52%	21.39%	3.74%	2.18%	0.39%	5.46%	38.95%	3.15%	2.22%	2.72%	1.25%	0.20%
Troop L	11,441	3.76%	20.21%	26.76%	6.77%	3.09%	0.70%	6.63%	21.36%	2.60%	3.32%	2.85%	0.67%	1.28%
Plainville	3,273	3.73%	10.85%	15.83%	20.44%	6.87%	0.15%	8.10%	10.82%	0.15%	10.24%	1.68%	8.71%	2.44%
Enfield	5,827	3.69%	3.48%	41.26%	16.34%	2.04%	0.50%	5.32%	7.10%	6.42%	4.08%	0.88%	8.07%	0.82%
Newington	5,483	3.68%	9.98%	10.89%	29.33%	3.28%	1.37%	9.43%	7.42%	1.44%	8.21%	2.12%	9.43%	3.43%
Groton City	2,125	3.67%	2.64%	39.34%	20.00%	0.33%	0.14%	3.72%	8.99%	3.53%	10.64%	2.02%	4.94%	0.05%
Troop E	21,700	3.59%	10.47%	35.71%	2.93%	0.94%	0.14%	9.26%	31.13%	1.42%	1.48%	0.91%	1.67%	0.33%

Table 6: Basis for Stop (Sorted by % Cell Phone Violation)

Department Name	Total	Cell Phone	Registration	Speed Related	Defective Lights	Display of Plates	Equipment Violation	Moving Violation	Other	Seatbelt	Stop Sign	Suspended License	Traffic Control Signal	Window Tint
Eastern CT State University	198	3.03%	0.51%	6.57%	12.12%	0.51%	0.00%	3.03%	10.10%	4.04%	58.08%	0.00%	0.51%	1.52%
Troop B	8,212	2.86%	12.79%	29.65%	7.81%	2.55%	0.29%	5.86%	26.62%	3.30%	3.74%	1.39%	2.52%	0.63%
Winsted	555	2.70%	5.77%	17.66%	12.61%	5.41%	0.36%	8.65%	15.68%	1.44%	6.49%	3.06%	20.18%	0.00%
Plainfield	1,694	2.36%	0.77%	38.72%	12.81%	1.95%	0.53%	19.42%	7.26%	1.12%	11.51%	0.53%	2.95%	0.06%
Seymour	3,439	2.27%	5.87%	45.36%	11.31%	1.31%	0.15%	3.55%	4.71%	3.14%	15.91%	1.42%	4.97%	0.03%
Avon	1,458	2.13%	8.50%	31.14%	17.28%	0.89%	0.14%	7.06%	17.76%	0.27%	8.02%	0.07%	6.65%	0.07%
Thomaston	706	1.42%	0.99%	29.60%	25.64%	3.68%	0.85%	10.76%	10.20%	0.42%	8.36%	0.57%	7.37%	0.14%
State Capitol Police	231	0.43%	0.43%	0.43%	22.94%	1.30%	0.00%	25.11%	6.49%	0.00%	1.30%	0.00%	41.13%	0.43%

Table 7: Outcome of Stop (Sorted by % Infraction Ticket)

Department Name	N	Infraction	UAR	Mis. Sum.	Written Warning	Verbal Warning	No Disposition
CSP Headquarters	15,296	84.96%	1.01%	3.20%	2.99%	6.82%	1.01%
Troop F	24,896	78.23%	0.31%	2.80%	6.05%	11.30%	1.31%
Danbury	5,312	76.13%	1.26%	3.28%	0.26%	17.34%	1.73%
Troop G	25,473	75.97%	0.79%	6.26%	1.88%	13.63%	1.47%
Hartford	5,887	73.33%	2.55%	11.77%	3.48%	8.34%	0.53%
Troop H	19,540	73.12%	1.11%	5.53%	5.44%	12.17%	2.64%
Troop C	26,860	72.73%	0.34%	3.06%	9.34%	13.23%	1.30%
Troop I	13,390	70.37%	0.64%	5.11%	5.77%	16.36%	1.76%
Troop E	21,700	68.14%	0.58%	5.33%	5.46%	18.67%	1.82%
Derby	2,799	66.10%	0.57%	12.86%	0.11%	19.79%	0.57%
Department of Motor Vehicle	2,368	65.63%	0.08%	4.56%	6.42%	20.44%	2.87%
Troop K	18,810	65.27%	0.52%	4.61%	9.89%	18.50%	1.21%
Bridgeport	5,603	64.98%	1.20%	6.03%	4.25%	22.97%	0.57%
Troop A	19,544	63.42%	0.90%	6.12%	6.74%	21.08%	1.75%
Norwalk	5,322	61.74%	0.86%	6.41%	0.71%	28.62%	1.65%
Branford	5,025	61.33%	0.30%	7.00%	0.06%	27.08%	4.22%
Meriden	2,700	61.19%	1.70%	11.63%	4.52%	20.00%	0.96%
Trumbull	2,876	60.15%	0.42%	9.25%	5.84%	21.77%	2.57%
Western CT State University	79	59.49%	1.27%	2.53%	15.19%	20.25%	1.27%
Troop D	17,124	58.87%	0.61%	10.54%	9.25%	19.73%	1.00%
Greenwich	7,165	54.15%	0.39%	3.68%	15.42%	23.66%	2.69%
New Haven	12,818	52.20%	1.32%	6.80%	13.34%	25.23%	1.11%
East Hartford	8,490	50.90%	1.07%	11.40%	11.45%	22.31%	2.87%
Troop B	8,212	49.83%	0.88%	5.63%	33.01%	8.55%	2.11%
Southern CT State University	1,044	47.51%	1.34%	6.90%	35.63%	8.24%	0.38%
Berlin	5,783	46.07%	0.36%	4.74%	31.23%	15.67%	1.94%
Darien	2,568	45.17%	0.78%	3.97%	12.46%	36.76%	0.86%
Troop L	11,441	44.87%	0.94%	7.49%	8.19%	35.25%	3.26%
Woodbridge	1,602	43.01%	0.12%	9.36%	12.23%	33.52%	1.75%
New Milford	3,895	42.70%	0.51%	4.42%	30.83%	18.66%	2.88%
Manchester	5,291	42.24%	0.47%	7.79%	8.96%	38.93%	1.61%
Farmington	4,910	41.30%	1.98%	5.68%	3.08%	45.05%	2.91%
Waterbury	2,408	40.61%	4.86%	16.24%	5.07%	31.85%	1.37%
Ridgefield	7,713	40.06%	0.14%	2.42%	41.81%	14.43%	1.13%
North Haven	1,752	39.78%	1.14%	7.31%	3.48%	45.83%	2.45%
Groton City	2,125	39.34%	1.04%	6.82%	12.24%	38.21%	2.35%
West Hartford	8,639	39.00%	4.54%	4.79%	5.56%	44.75%	1.37%
New Britain	8,328	38.12%	1.54%	8.69%	0.64%	49.59%	1.42%
Hamden	4,852	37.65%	0.10%	4.37%	3.17%	53.65%	1.05%
Groton Long Point	74	36.49%	0.00%	1.35%	48.65%	10.81%	2.70%
Coventry	1,669	35.77%	0.24%	9.17%	21.81%	30.32%	2.70%
North Branford	1,002	35.73%	0.40%	9.08%	22.65%	25.25%	6.89%
Orange	4,601	35.64%	0.39%	7.11%	2.35%	53.75%	0.76%
Stamford	6,232	35.11%	0.29%	3.19%	0.47%	60.77%	0.18%
Ansonia	4,574	34.37%	0.92%	3.72%	0.33%	59.38%	1.29%
East Windsor	1,057	34.34%	1.51%	7.28%	12.49%	42.57%	1.80%
Bristol	6,244	33.57%	1.52%	6.23%	43.37%	9.29%	6.02%
Watertown	1,274	33.28%	0.55%	4.87%	47.25%	13.81%	0.24%
Fairfield	7,847	32.62%	0.65%	6.93%	1.53%	55.12%	3.15%
Wallingford	10,044	32.56%	4.33%	6.30%	3.44%	51.55%	1.81%
Groton Town	5,899	32.19%	2.29%	5.59%	28.33%	31.26%	0.34%
Granby	1,033	32.04%	0.58%	7.65%	31.85%	27.49%	0.39%
New London	1,499	31.75%	4.20%	5.87%	3.27%	52.03%	2.87%
Westport	5,369	30.83%	0.91%	3.65%	33.00%	30.01%	1.60%
Cromwell	1,960	30.61%	0.36%	6.48%	17.19%	41.38%	3.98%
Bethel	3,239	30.19%	0.46%	1.82%	54.71%	12.57%	0.25%
Brookfield	2,026	29.76%	0.54%	3.01%	32.77%	32.38%	1.53%

Table 7: Outcome of Stop (Sorted by % Infraction Ticket)

Department Name	N	Infraction	UAR	Mis. Sum.	Written Warning	Verbal Warning	No Disposition
Norwich	5,959	29.60%	0.81%	4.87%	58.80%	5.81%	0.12%
Shelton	579	29.36%	0.69%	9.84%	4.15%	55.27%	0.69%
Glastonbury	4,390	29.34%	0.84%	8.79%	34.40%	24.97%	1.66%
Southington	4,136	28.53%	0.10%	3.80%	61.03%	6.26%	0.29%
East Haven	3,194	28.27%	1.41%	8.05%	1.22%	58.30%	2.76%
Rocky Hill	3,929	28.07%	0.64%	3.89%	10.00%	56.63%	0.76%
Monroe	5,800	27.72%	0.34%	3.21%	47.43%	19.88%	1.41%
Madison	3,708	27.21%	1.00%	2.40%	31.58%	36.68%	1.13%
Canton	1,518	27.01%	1.25%	3.56%	8.70%	56.06%	3.43%
Newington	5,483	26.88%	0.35%	5.27%	63.89%	3.05%	0.57%
Naugatuck	5,038	26.80%	0.38%	1.31%	25.45%	45.49%	0.58%
Cheshire	5,697	26.68%	0.68%	4.56%	60.35%	7.11%	0.61%
South Windsor	4,195	26.34%	0.19%	3.79%	1.81%	66.63%	1.24%
Windsor Locks	2,282	25.81%	1.27%	4.47%	37.29%	30.67%	0.48%
Newtown	9,956	24.88%	0.12%	2.56%	44.09%	28.03%	0.31%
Wolcott	371	24.26%	0.81%	5.12%	48.79%	19.41%	1.62%
Yale University	1,081	24.14%	2.68%	8.33%	42.92%	21.55%	0.37%
New Canaan	5,355	24.13%	0.07%	2.35%	1.29%	71.30%	0.86%
Stratford	3,144	23.41%	1.72%	10.27%	0.70%	61.35%	2.54%
East Hampton	457	23.19%	0.66%	12.91%	61.27%	1.97%	0.00%
Stonington	2,799	22.90%	1.54%	1.68%	1.29%	69.56%	3.04%
Weston	361	21.05%	0.28%	4.43%	31.02%	41.55%	1.66%
Bloomfield	5,241	20.68%	1.28%	4.67%	56.63%	14.88%	1.85%
Middletown	3,260	20.67%	1.38%	9.72%	17.12%	47.94%	3.16%
Old Saybrook	3,402	20.40%	0.56%	7.11%	56.20%	14.52%	1.21%
Enfield	5,827	20.35%	0.29%	2.83%	72.87%	3.35%	0.31%
Easton	581	18.76%	0.17%	5.16%	68.16%	5.85%	1.89%
Plymouth	2,065	18.55%	1.40%	1.16%	4.26%	69.88%	4.75%
Milford	3,177	17.91%	1.92%	6.45%	16.37%	54.11%	3.24%
Seymour	3,439	17.88%	0.76%	3.78%	6.11%	71.21%	0.26%
Willimantic	3,244	17.82%	0.89%	7.77%	6.84%	64.61%	2.07%
Vernon	3,637	17.71%	1.43%	6.60%	38.55%	34.26%	1.46%
Wilton	4,773	17.41%	0.15%	4.86%	31.26%	44.58%	1.74%
State Capitol Police	231	17.32%	0.00%	2.60%	3.90%	75.32%	0.87%
University of Connecticut	2,488	17.12%	0.44%	2.77%	20.54%	58.52%	0.60%
Winsted	555	17.12%	0.72%	7.93%	33.51%	37.66%	3.06%
Simsbury	3,301	16.87%	0.21%	2.67%	28.72%	50.86%	0.67%
Windsor	5,716	16.59%	0.17%	3.18%	5.48%	73.95%	0.63%
Avon	1,458	15.98%	0.89%	1.37%	25.93%	46.23%	9.60%
Portland	178	15.73%	0.00%	4.49%	47.75%	32.02%	0.00%
Guilford	2,954	15.57%	0.17%	2.34%	77.32%	4.06%	0.54%
Waterford	4,616	15.32%	1.47%	4.09%	33.82%	43.85%	1.45%
Plainville	3,273	14.30%	0.82%	3.67%	2.75%	76.90%	1.56%
Redding	1,942	14.26%	0.15%	1.70%	55.25%	25.28%	3.35%
Clinton	2,913	14.18%	0.76%	6.76%	67.52%	10.06%	0.72%
Wethersfield	4,490	13.30%	1.51%	9.73%	0.82%	72.49%	2.14%
West Haven	5,854	12.91%	0.75%	2.39%	2.58%	80.03%	1.33%
Central CT State University	3,029	10.80%	0.10%	3.37%	9.11%	75.77%	0.86%
Suffield	1,272	10.14%	0.08%	6.84%	61.40%	21.31%	0.24%
Thomaston	706	9.77%	0.85%	2.83%	9.92%	75.07%	1.56%
Torrington	5,394	8.99%	0.44%	2.95%	22.60%	62.63%	2.39%
Plainfield	1,694	7.91%	1.59%	3.07%	5.02%	81.64%	0.77%
Middlebury	177	6.78%	0.56%	2.82%	27.12%	58.76%	3.95%
Eastern CT State University	198	6.06%	0.00%	1.52%	21.21%	70.20%	1.01%
Putnam	1,049	2.67%	2.38%	2.10%	27.74%	64.73%	0.38%

Table 8: Outcome of Stop (Sorted by % Warning)

Department Name	N	Warning	Infraction	UAR	Mis. Sum.	No Disposition
Putnam	1,049	92.47%	2.67%	2.38%	2.10%	0.38%
Eastern CT State University	198	91.41%	6.06%	0.00%	1.52%	1.01%
Plainfield	1,694	86.66%	7.91%	1.59%	3.07%	0.77%
Middlebury	177	85.88%	6.78%	0.56%	2.82%	3.95%
Torrington	5,394	85.22%	8.99%	0.44%	2.95%	2.39%
Thomaston	706	84.99%	9.77%	0.85%	2.83%	1.56%
Central CT State University	3,029	84.88%	10.80%	0.10%	3.37%	0.86%
Suffield	1,272	82.70%	10.14%	0.08%	6.84%	0.24%
West Haven	5,854	82.61%	12.91%	0.75%	2.39%	1.33%
Guilford	2,954	81.38%	15.57%	0.17%	2.34%	0.54%
Redding	1,942	80.54%	14.26%	0.15%	1.70%	3.35%
Portland	178	79.78%	15.73%	0.00%	4.49%	0.00%
Plainville	3,273	79.65%	14.30%	0.82%	3.67%	1.56%
Simsbury	3,301	79.58%	16.87%	0.21%	2.67%	0.67%
Windsor	5,716	79.43%	16.59%	0.17%	3.18%	0.63%
State Capitol Police	231	79.22%	17.32%	0.00%	2.60%	0.87%
University of Connecticut	2,488	79.06%	17.12%	0.44%	2.77%	0.60%
Waterford	4,616	77.66%	15.32%	1.47%	4.09%	1.45%
Clinton	2,913	77.58%	14.18%	0.76%	6.76%	0.72%
Seymour	3,439	77.32%	17.88%	0.76%	3.78%	0.26%
Enfield	5,827	76.21%	20.35%	0.29%	2.83%	0.31%
Wilton	4,773	75.84%	17.41%	0.15%	4.86%	1.74%
Plymouth	2,065	74.14%	18.55%	1.40%	1.16%	4.75%
Easton	581	74.01%	18.76%	0.17%	5.16%	1.89%
Wethersfield	4,490	73.32%	13.30%	1.51%	9.73%	2.14%
Vernon	3,637	72.81%	17.71%	1.43%	6.60%	1.46%
New Canaan	5,355	72.59%	24.13%	0.07%	2.35%	0.86%
Weston	361	72.58%	21.05%	0.28%	4.43%	1.66%
Avon	1,458	72.15%	15.98%	0.89%	1.37%	9.60%
Newtown	9,956	72.13%	24.88%	0.12%	2.56%	0.31%
Bloomfield	5,241	71.51%	20.68%	1.28%	4.67%	1.85%
Willimantic	3,244	71.45%	17.82%	0.89%	7.77%	2.07%
Winsted	555	71.17%	17.12%	0.72%	7.93%	3.06%
Naugatuck	5,038	70.94%	26.80%	0.38%	1.31%	0.58%
Stonington	2,799	70.85%	22.90%	1.54%	1.68%	3.04%
Old Saybrook	3,402	70.72%	20.40%	0.56%	7.11%	1.21%
Milford	3,177	70.48%	17.91%	1.92%	6.45%	3.24%
South Windsor	4,195	68.44%	26.34%	0.19%	3.79%	1.24%
Madison	3,708	68.26%	27.21%	1.00%	2.40%	1.13%
Wolcott	371	68.19%	24.26%	0.81%	5.12%	1.62%
Windsor Locks	2,282	67.97%	25.81%	1.27%	4.47%	0.48%
Cheshire	5,697	67.46%	26.68%	0.68%	4.56%	0.61%
Monroe	5,800	67.31%	27.72%	0.34%	3.21%	1.41%
Southington	4,136	67.29%	28.53%	0.10%	3.80%	0.29%
Bethel	3,239	67.27%	30.19%	0.46%	1.82%	0.25%
Newington	5,483	66.93%	26.88%	0.35%	5.27%	0.57%
Rocky Hill	3,929	66.63%	28.07%	0.64%	3.89%	0.76%
Brookfield	2,026	65.15%	29.76%	0.54%	3.01%	1.53%
Middletown	3,260	65.06%	20.67%	1.38%	9.72%	3.16%
Canton	1,518	64.76%	27.01%	1.25%	3.56%	3.43%
Norwich	5,959	64.61%	29.60%	0.81%	4.87%	0.12%
Yale University	1,081	64.48%	24.14%	2.68%	8.33%	0.37%
East Hampton	457	63.24%	23.19%	0.66%	12.91%	0.00%
Westport	5,369	63.01%	30.83%	0.91%	3.65%	1.60%
Stratford	3,144	62.05%	23.41%	1.72%	10.27%	2.54%
Stamford	6,232	61.23%	35.11%	0.29%	3.19%	0.18%
Watertown	1,274	61.07%	33.28%	0.55%	4.87%	0.24%

Table 8: Outcome of Stop (Sorted by % Warning)

Department Name	N	Warning	Infraction	UAR	Mis. Sum.	No Disposition
Ansonia	4,574	59.71%	34.37%	0.92%	3.72%	1.29%
Groton Town	5,899	59.59%	32.19%	2.29%	5.59%	0.34%
East Haven	3,194	59.52%	28.27%	1.41%	8.05%	2.76%
Groton Long Point	74	59.46%	36.49%	0.00%	1.35%	2.70%
Shelton	579	59.41%	29.36%	0.69%	9.84%	0.69%
Glastonbury	4,390	59.36%	29.34%	0.84%	8.79%	1.66%
Granby	1,033	59.34%	32.04%	0.58%	7.65%	0.39%
Cromwell	1,960	58.57%	30.61%	0.36%	6.48%	3.98%
Hamden	4,852	56.82%	37.65%	0.10%	4.37%	1.05%
Fairfield	7,847	56.65%	32.62%	0.65%	6.93%	3.15%
Ridgefield	7,713	56.24%	40.06%	0.14%	2.42%	1.13%
Orange	4,601	56.10%	35.64%	0.39%	7.11%	0.76%
New London	1,499	55.30%	31.75%	4.20%	5.87%	2.87%
East Windsor	1,057	55.06%	34.34%	1.51%	7.28%	1.80%
Wallingford	10,044	55.00%	32.56%	4.33%	6.30%	1.81%
Bristol	6,244	52.66%	33.57%	1.52%	6.23%	6.02%
Coventry	1,669	52.13%	35.77%	0.24%	9.17%	2.70%
Groton City	2,125	50.45%	39.34%	1.04%	6.82%	2.35%
West Hartford	8,639	50.31%	39.00%	4.54%	4.79%	1.37%
New Britain	8,328	50.23%	38.12%	1.54%	8.69%	1.42%
New Milford	3,895	49.50%	42.70%	0.51%	4.42%	2.88%
North Haven	1,752	49.32%	39.78%	1.14%	7.31%	2.45%
Darien	2,568	49.22%	45.17%	0.78%	3.97%	0.86%
Farmington	4,910	48.13%	41.30%	1.98%	5.68%	2.91%
North Branford	1,002	47.90%	35.73%	0.40%	9.08%	6.89%
Manchester	5,291	47.89%	42.24%	0.47%	7.79%	1.61%
Berlin	5,783	46.90%	46.07%	0.36%	4.74%	1.94%
Woodbridge	1,602	45.76%	43.01%	0.12%	9.36%	1.75%
Southern CT State University	1,044	43.87%	47.51%	1.34%	6.90%	0.38%
Troop L	11,441	43.44%	44.87%	0.94%	7.49%	3.26%
Troop B	8,212	41.56%	49.83%	0.88%	5.63%	2.11%
Greenwich	7,165	39.08%	54.15%	0.39%	3.68%	2.69%
New Haven	12,818	38.57%	52.20%	1.32%	6.80%	1.11%
Waterbury	2,408	36.92%	40.61%	4.86%	16.24%	1.37%
Western CT State University	79	35.44%	59.49%	1.27%	2.53%	1.27%
East Hartford	8,490	33.76%	50.90%	1.07%	11.40%	2.87%
Norwalk	5,322	29.33%	61.74%	0.86%	6.41%	1.65%
Troop D	17,124	28.98%	58.87%	0.61%	10.54%	1.00%
Troop K	18,810	28.38%	65.27%	0.52%	4.61%	1.21%
Troop A	19,544	27.82%	63.42%	0.90%	6.12%	1.75%
Trumbull	2,876	27.61%	60.15%	0.42%	9.25%	2.57%
Bridgeport	5,603	27.22%	64.98%	1.20%	6.03%	0.57%
Branford	5,025	27.14%	61.33%	0.30%	7.00%	4.22%
Department of Motor Vehicle	2,368	26.86%	65.63%	0.08%	4.56%	2.87%
Meriden	2,700	24.52%	61.19%	1.70%	11.63%	0.96%
Troop E	21,700	24.13%	68.14%	0.58%	5.33%	1.82%
Troop C	26,860	22.57%	72.73%	0.34%	3.06%	1.30%
Troop I	13,390	22.13%	70.37%	0.64%	5.11%	1.76%
Derby	2,799	19.90%	66.10%	0.57%	12.86%	0.57%
Troop H	19,540	17.61%	73.12%	1.11%	5.53%	2.64%
Danbury	5,312	17.60%	76.13%	1.26%	3.28%	1.73%
Troop F	24,896	17.35%	78.23%	0.31%	2.80%	1.31%
Troop G	25,473	15.51%	75.97%	0.79%	6.26%	1.47%
Hartford	5,887	11.82%	73.33%	2.55%	11.77%	0.53%
CSP Headquarters	15,296	9.81%	84.96%	1.01%	3.20%	1.01%

Table 9: Outcome of Stop (Sorted by % Arrest)

Department Name	N	UAR	Mis. Sum.	Infraction	Written Warning	Verbal Warning	No Disposition
Waterbury	2,408	4.86%	16.24%	40.61%	5.07%	31.85%	1.37%
West Hartford	8,639	4.54%	4.79%	39.00%	5.56%	44.75%	1.37%
Wallingford	10,044	4.33%	6.30%	32.56%	3.44%	51.55%	1.81%
New London	1,499	4.20%	5.87%	31.75%	3.27%	52.03%	2.87%
Yale University	1,081	2.68%	8.33%	24.14%	42.92%	21.55%	0.37%
Hartford	5,887	2.55%	11.77%	73.33%	3.48%	8.34%	0.53%
Putnam	1,049	2.38%	2.10%	2.67%	27.74%	64.73%	0.38%
Groton Town	5,899	2.29%	5.59%	32.19%	28.33%	31.26%	0.34%
Farmington	4,910	1.98%	5.68%	41.30%	3.08%	45.05%	2.91%
Milford	3,177	1.92%	6.45%	17.91%	16.37%	54.11%	3.24%
Stratford	3,144	1.72%	10.27%	23.41%	0.70%	61.35%	2.54%
Meriden	2,700	1.70%	11.63%	61.19%	4.52%	20.00%	0.96%
Plainfield	1,694	1.59%	3.07%	7.91%	5.02%	81.64%	0.77%
New Britain	8,328	1.54%	8.69%	38.12%	0.64%	49.59%	1.42%
Stonington	2,799	1.54%	1.68%	22.90%	1.29%	69.56%	3.04%
Bristol	6,244	1.52%	6.23%	33.57%	43.37%	9.29%	6.02%
Wethersfield	4,490	1.51%	9.73%	13.30%	0.82%	72.49%	2.14%
East Windsor	1,057	1.51%	7.28%	34.34%	12.49%	42.57%	1.80%
Waterford	4,616	1.47%	4.09%	15.32%	33.82%	43.85%	1.45%
Vernon	3,637	1.43%	6.60%	17.71%	38.55%	34.26%	1.46%
East Haven	3,194	1.41%	8.05%	28.27%	1.22%	58.30%	2.76%
Plymouth	2,065	1.40%	1.16%	18.55%	4.26%	69.88%	4.75%
Middletown	3,260	1.38%	9.72%	20.67%	17.12%	47.94%	3.16%
Southern CT State University	1,044	1.34%	6.90%	47.51%	35.63%	8.24%	0.38%
New Haven	12,818	1.32%	6.80%	52.20%	13.34%	25.23%	1.11%
Bloomfield	5,241	1.28%	4.67%	20.68%	56.63%	14.88%	1.85%
Windsor Locks	2,282	1.27%	4.47%	25.81%	37.29%	30.67%	0.48%
Western CT State University	79	1.27%	2.53%	59.49%	15.19%	20.25%	1.27%
Danbury	5,312	1.26%	3.28%	76.13%	0.26%	17.34%	1.73%
Canton	1,518	1.25%	3.56%	27.01%	8.70%	56.06%	3.43%
Bridgeport	5,603	1.20%	6.03%	64.98%	4.25%	22.97%	0.57%
North Haven	1,752	1.14%	7.31%	39.78%	3.48%	45.83%	2.45%
Troop H	19,540	1.11%	5.53%	73.12%	5.44%	12.17%	2.64%
East Hartford	8,490	1.07%	11.40%	50.90%	11.45%	22.31%	2.87%
Groton City	2,125	1.04%	6.82%	39.34%	12.24%	38.21%	2.35%
CSP Headquarters	15,296	1.01%	3.20%	84.96%	2.99%	6.82%	1.01%
Madison	3,708	1.00%	2.40%	27.21%	31.58%	36.68%	1.13%
Troop L	11,441	0.94%	7.49%	44.87%	8.19%	35.25%	3.26%
Ansonia	4,574	0.92%	3.72%	34.37%	0.33%	59.38%	1.29%
Westport	5,369	0.91%	3.65%	30.83%	33.00%	30.01%	1.60%
Troop A	19,544	0.90%	6.12%	63.42%	6.74%	21.08%	1.75%
Willimantic	3,244	0.89%	7.77%	17.82%	6.84%	64.61%	2.07%
Avon	1,458	0.89%	1.37%	15.98%	25.93%	46.23%	9.60%
Troop B	8,212	0.88%	5.63%	49.83%	33.01%	8.55%	2.11%
Norwalk	5,322	0.86%	6.41%	61.74%	0.71%	28.62%	1.65%
Thomaston	706	0.85%	2.83%	9.77%	9.92%	75.07%	1.56%
Glastonbury	4,390	0.84%	8.79%	29.34%	34.40%	24.97%	1.66%
Plainville	3,273	0.82%	3.67%	14.30%	2.75%	76.90%	1.56%
Wolcott	371	0.81%	5.12%	24.26%	48.79%	19.41%	1.62%
Norwich	5,959	0.81%	4.87%	29.60%	58.80%	5.81%	0.12%
Troop G	25,473	0.79%	6.26%	75.97%	1.88%	13.63%	1.47%
Darien	2,568	0.78%	3.97%	45.17%	12.46%	36.76%	0.86%
Seymour	3,439	0.76%	3.78%	17.88%	6.11%	71.21%	0.26%
Clinton	2,913	0.76%	6.76%	14.18%	67.52%	10.06%	0.72%
West Haven	5,854	0.75%	2.39%	12.91%	2.58%	80.03%	1.33%
Winsted	555	0.72%	7.93%	17.12%	33.51%	37.66%	3.06%
Shelton	579	0.69%	9.84%	29.36%	4.15%	55.27%	0.69%

Table 9: Outcome of Stop (Sorted by % Arrest)

Department Name	N	UAR	Mis. Sum.	Infraction	Written Warning	Verbal Warning	No Disposition
Cheshire	5,697	0.68%	4.56%	26.68%	60.35%	7.11%	0.61%
East Hampton	457	0.66%	12.91%	23.19%	61.27%	1.97%	0.00%
Fairfield	7,847	0.65%	6.93%	32.62%	1.53%	55.12%	3.15%
Troop I	13,390	0.64%	5.11%	70.37%	5.77%	16.36%	1.76%
Rocky Hill	3,929	0.64%	3.89%	28.07%	10.00%	56.63%	0.76%
Troop D	17,124	0.61%	10.54%	58.87%	9.25%	19.73%	1.00%
Granby	1,033	0.58%	7.65%	32.04%	31.85%	27.49%	0.39%
Troop E	21,700	0.58%	5.33%	68.14%	5.46%	18.67%	1.82%
Derby	2,799	0.57%	12.86%	66.10%	0.11%	19.79%	0.57%
Middlebury	177	0.56%	2.82%	6.78%	27.12%	58.76%	3.95%
Old Saybrook	3,402	0.56%	7.11%	20.40%	56.20%	14.52%	1.21%
Watertown	1,274	0.55%	4.87%	33.28%	47.25%	13.81%	0.24%
Brookfield	2,026	0.54%	3.01%	29.76%	32.77%	32.38%	1.53%
Troop K	18,810	0.52%	4.61%	65.27%	9.89%	18.50%	1.21%
New Milford	3,895	0.51%	4.42%	42.70%	30.83%	18.66%	2.88%
Manchester	5,291	0.47%	7.79%	42.24%	8.96%	38.93%	1.61%
Bethel	3,239	0.46%	1.82%	30.19%	54.71%	12.57%	0.25%
Torrington	5,394	0.44%	2.95%	8.99%	22.60%	62.63%	2.39%
University of Connecticut	2,488	0.44%	2.77%	17.12%	20.54%	58.52%	0.60%
Trumbull	2,876	0.42%	9.25%	60.15%	5.84%	21.77%	2.57%
North Branford	1,002	0.40%	9.08%	35.73%	22.65%	25.25%	6.89%
Orange	4,601	0.39%	7.11%	35.64%	2.35%	53.75%	0.76%
Greenwich	7,165	0.39%	3.68%	54.15%	15.42%	23.66%	2.69%
Naugatuck	5,038	0.38%	1.31%	26.80%	25.45%	45.49%	0.58%
Berlin	5,783	0.36%	4.74%	46.07%	31.23%	15.67%	1.94%
Cromwell	1,960	0.36%	6.48%	30.61%	17.19%	41.38%	3.98%
Newington	5,483	0.35%	5.27%	26.88%	63.89%	3.05%	0.57%
Monroe	5,800	0.34%	3.21%	27.72%	47.43%	19.88%	1.41%
Troop C	26,860	0.34%	3.06%	72.73%	9.34%	13.23%	1.30%
Troop F	24,896	0.31%	2.80%	78.23%	6.05%	11.30%	1.31%
Branford	5,025	0.30%	7.00%	61.33%	0.06%	27.08%	4.22%
Enfield	5,827	0.29%	2.83%	20.35%	72.87%	3.35%	0.31%
Stamford	6,232	0.29%	3.19%	35.11%	0.47%	60.77%	0.18%
Weston	361	0.28%	4.43%	21.05%	31.02%	41.55%	1.66%
Coventry	1,669	0.24%	9.17%	35.77%	21.81%	30.32%	2.70%
Simsbury	3,301	0.21%	2.67%	16.87%	28.72%	50.86%	0.67%
South Windsor	4,195	0.19%	3.79%	26.34%	1.81%	66.63%	1.24%
Windsor	5,716	0.17%	3.18%	16.59%	5.48%	73.95%	0.63%
Easton	581	0.17%	5.16%	18.76%	68.16%	5.85%	1.89%
Guilford	2,954	0.17%	2.34%	15.57%	77.32%	4.06%	0.54%
Redding	1,942	0.15%	1.70%	14.26%	55.25%	25.28%	3.35%
Wilton	4,773	0.15%	4.86%	17.41%	31.26%	44.58%	1.74%
Ridgefield	7,713	0.14%	2.42%	40.06%	41.81%	14.43%	1.13%
Woodbridge	1,602	0.12%	9.36%	43.01%	12.23%	33.52%	1.75%
Newtown	9,956	0.12%	2.56%	24.88%	44.09%	28.03%	0.31%
Hamden	4,852	0.10%	4.37%	37.65%	3.17%	53.65%	1.05%
Central CT State University	3,029	0.10%	3.37%	10.80%	9.11%	75.77%	0.86%
Southington	4,136	0.10%	3.80%	28.53%	61.03%	6.26%	0.29%
Department of Motor Vehicle	2,368	0.08%	4.56%	65.63%	6.42%	20.44%	2.87%
Suffield	1,272	0.08%	6.84%	10.14%	61.40%	21.31%	0.24%
New Canaan	5,355	0.07%	2.35%	24.13%	1.29%	71.30%	0.86%
Groton Long Point	74	0.00%	1.35%	36.49%	48.65%	10.81%	2.70%
State Capitol Police	231	0.00%	2.60%	17.32%	3.90%	75.32%	0.87%
Portland	178	0.00%	4.49%	15.73%	47.75%	32.02%	0.00%
Eastern CT State University	198	0.00%	1.52%	6.06%	21.21%	70.20%	1.01%

TABLE 10: Number of Searches(Sorted by % Search)

Department Name	N	Searches	
		N	%
Waterbury	2,408	436	18.11%
Stratford	3,144	297	9.45%
Derby	2,799	261	9.32%
Yale University	1,081	97	8.97%
Wilton	4,773	413	8.65%
Bridgeport	5,603	476	8.50%
Milford	3,177	267	8.40%
Vernon	3,637	293	8.06%
West Hartford	8,639	676	7.82%
New London	1,499	116	7.74%
Glastonbury	4,390	331	7.54%
Danbury	5,312	390	7.34%
Middletown	3,260	234	7.18%
Wallingford	10,044	705	7.02%
Plainville	3,273	227	6.94%
Meriden	2,689	174	6.47%
Wolcott	371	24	6.47%
East Hampton	457	29	6.35%
New Haven	12,818	794	6.19%
Norwich	5,959	361	6.06%
Wethersfield	4,490	253	5.63%
North Haven	1,752	96	5.48%
Naugatuck	5,038	238	4.72%
Clinton	2,913	134	4.60%
Norwalk	5,322	243	4.57%
East Hartford	8,490	379	4.46%
Newington	5,483	225	4.10%
Windsor Locks	2,282	92	4.03%
Waterford	4,616	185	4.01%
Westport	5,369	212	3.95%
New Britain	8,328	320	3.84%
Willimantic	3,244	124	3.82%
West Haven	5,854	216	3.69%
South Windsor	4,195	151	3.60%
Old Saybrook	3,402	119	3.50%
Thomaston	706	24	3.40%
Ansonia	4,574	151	3.30%
University of Connecticut	2,488	80	3.22%
Stamford	6,232	194	3.11%
Winsted	555	17	3.06%
East Haven	3,194	97	3.04%
Farmington	4,910	143	2.91%
Bloomfield	5,241	150	2.86%
Seymour	3,439	98	2.85%
Plymouth	2,065	57	2.76%
Enfield	5,827	160	2.75%
Troop A	19,544	520	2.66%
Fairfield	7,847	205	2.61%
Berlin	5,783	145	2.51%
Trumbull	2,876	72	2.50%
Troop L	11,441	283	2.47%
Manchester	5,291	129	2.44%
Shelton	579	14	2.42%
Darien	2,568	62	2.41%
Troop C	26,860	638	2.38%
Troop H	19,540	461	2.36%
Portland	178	4	2.25%

TABLE 10: Number of Searches(Sorted by % Search)

Department Name	N	Searches	
		N	%
Suffield	1,272	28	2.20%
Rocky Hill	3,929	83	2.11%
Branford	5,025	97	1.93%
Troop D	17,124	327	1.91%
North Branford	1,002	19	1.90%
Watertown	1,274	24	1.88%
Bristol	6,244	117	1.87%
Troop E	21,700	404	1.86%
Plainfield	1,694	30	1.77%
Troop K	18,810	319	1.70%
East Windsor	1,057	17	1.61%
Canton	1,518	24	1.58%
Orange	4,601	72	1.56%
Coventry	1,669	26	1.56%
Groton City	2,125	33	1.55%
Brookfield	2,026	31	1.53%
Troop G	25,473	386	1.52%
Windsor	5,716	85	1.49%
Troop B	8,212	119	1.45%
Torrington	5,394	78	1.45%
Woodbridge	1,602	23	1.44%
Putnam	1,049	15	1.43%
Groton Town	5,899	83	1.41%
Cheshire	5,697	78	1.37%
State Capitol Police	231	3	1.30%
Greenwich	7,165	92	1.28%
New Milford	3,895	50	1.28%
Southern CT State University	1,044	13	1.25%
Hamden	4,852	60	1.24%
Troop I	13,390	152	1.14%
Middlebury	177	2	1.13%
Cromwell	1,960	21	1.07%
Monroe	5,800	62	1.07%
CSP Headquarters	15,296	162	1.06%
Hartford	5,887	61	1.04%
Granby	1,033	10	0.97%
Newtown	9,956	96	0.96%
Madison	3,708	35	0.94%
New Canaan	5,355	50	0.93%
Redding	1,942	18	0.93%
Simsbury	3,301	28	0.85%
Troop F	24,896	209	0.84%
Weston	361	3	0.83%
Guilford	2,954	24	0.81%
Easton	581	4	0.69%
Avon	1,458	10	0.69%
Bethel	3,239	22	0.68%
Stonington	2,799	19	0.68%
Ridgefield	7,713	40	0.52%
Central CT State University	3,029	8	0.26%
Department of Motor Vehicle	2,368	6	0.25%
Southington	4,136	9	0.22%
Eastern CT State University	198	0	0.00%
Groton Long Point	74	0	0.00%
Western CT State University	79	0	0.00%

Appendix B

Table 11: Statewide Average Comparisons for Black Drivers (Sorted Alphabetically)

Department Name	Black Stops	Difference Between Town and State Average	Black Residents Age 16+	Difference Between Town and State Average	Difference Between Net Differences	Non-Resident Black Stops
Ansonia	16.66%	2.60%	9.74%	0.62%	1.98%	56.69%
Avon	7.89%	-6.17%	1.41%	-7.71%	1.53%	87.83%
Berlin	10.01%	-4.05%	0.65%	-8.47%	4.42%	94.65%
Bethel	5.90%	-8.16%	1.74%	-7.38%	-0.78%	85.86%
Bloomfield	52.20%	38.14%	54.76%	45.64%	-7.50%	53.07%
Branford	5.11%	-8.95%	1.76%	-7.36%	-1.59%	78.60%
Bridgeport	35.61%	21.55%	31.82%	22.70%	-1.15%	17.59%
Bristol	8.70%	-5.36%	3.24%	-5.88%	0.52%	54.51%
Brookfield	4.64%	-9.42%	1.05%	-8.07%	-1.35%	81.91%
Canton	3.36%	-10.70%	0.00%	-9.12%	-1.58%	96.08%
State Capitol Police*	25.54%	11.48%	35.80%	26.68%	-15.19%	59.32%
Central CT State University*	16.54%	2.48%	10.67%	1.55%	0.93%	72.06%
Cheshire	9.48%	-4.58%	1.27%	-7.85%	3.27%	91.67%
Clinton	3.19%	-10.87%	0.00%	-9.12%	-1.75%	91.40%
Coventry	3.48%	-10.58%	0.79%	-8.33%	-2.25%	82.76%
Cromwell	13.47%	-0.59%	3.69%	-5.43%	4.84%	79.17%
Danbury	8.04%	-6.02%	6.42%	-2.70%	-3.32%	75.88%
Darien	11.49%	-2.57%	0.00%	-9.12%	6.55%	96.61%
Derby	15.36%	1.30%	6.03%	-3.09%	4.39%	81.86%
Department of Motor Vehicle*	17.40%	3.34%	N/A	N/A	N/A	85.19%
East Hampton	4.81%	-9.25%	1.10%	-8.02%	-1.23%	59.09%
East Hartford	37.35%	23.29%	22.52%	13.40%	9.89%	46.07%
East Haven	7.20%	-6.86%	2.47%	-6.65%	-0.21%	78.26%
East Windsor	14.19%	0.13%	5.96%	-3.16%	3.29%	81.33%
Easton	3.96%	-10.10%	0.00%	-9.12%	-0.98%	100.00%
Eastern CT State University*	8.59%	-5.47%	4.08%	-5.04%	-0.44%	88.24%
Enfield	9.28%	-4.78%	2.63%	-6.49%	1.71%	49.91%
Fairfield	15.08%	1.02%	1.73%	-7.39%	8.40%	93.07%
Farmington	8.43%	-5.63%	2.20%	-6.92%	1.29%	89.61%
Glastonbury	8.36%	-5.70%	1.80%	-7.32%	1.62%	85.29%
Granby	3.78%	-10.28%	0.92%	-8.20%	-2.08%	84.62%
Greenwich	7.58%	-6.48%	2.03%	-7.09%	0.61%	84.35%
Groton City**	14.78%	0.72%	7.70%	-1.42%	2.14%	57.64%
Groton Long Point**	4.05%	-10.01%	0.00%	-9.12%	-0.89%	100.00%
Groton Town	11.88%	-2.18%	6.07%	-3.05%	0.87%	70.33%
Guilford	2.37%	-11.69%	0.70%	-8.42%	-3.27%	74.29%
Hamden	31.84%	17.78%	18.28%	9.16%	8.62%	53.59%
Hartford	38.19%	24.13%	35.80%	26.68%	-2.55%	48.71%
Madison	2.48%	-11.58%	0.49%	-8.63%	-2.95%	81.52%
Manchester	22.76%	8.70%	10.15%	1.03%	7.66%	52.82%
Meriden	14.99%	0.93%	7.80%	-1.32%	2.25%	35.31%
Middlebury	3.39%	-10.67%	0.00%	-9.12%	-1.55%	100.00%
Middletown	19.75%	5.69%	11.68%	2.56%	3.14%	39.29%
Milford	12.65%	-1.41%	2.23%	-6.89%	5.48%	84.83%
Monroe	5.21%	-8.85%	1.32%	-7.80%	-1.05%	85.43%
Naugatuck	9.39%	-4.67%	4.11%	-5.01%	0.34%	56.66%
New Britain	17.69%	3.63%	10.67%	1.55%	2.07%	30.14%
New Canaan	6.09%	-7.97%	1.06%	-8.06%	0.09%	88.34%
New Haven	41.57%	27.51%	32.16%	23.04%	4.47%	31.06%
New London	19.08%	5.02%	15.18%	6.06%	-1.04%	34.62%
New Milford	4.26%	-9.80%	1.69%	-7.43%	-2.36%	61.45%
Newington	14.61%	0.55%	2.99%	-6.13%	6.67%	87.64%
Newtown	5.42%	-8.64%	0.68%	-8.44%	-0.20%	91.67%
North Branford	5.29%	-8.77%	1.33%	-7.79%	-0.98%	88.68%
North Haven	11.82%	-2.24%	2.91%	-6.21%	3.96%	89.86%
Norwalk	20.18%	6.12%	13.13%	4.01%	2.11%	53.07%
Norwich	18.80%	4.74%	8.96%	-0.16%	4.89%	37.95%
Old Saybrook	3.06%	-11.00%	0.00%	-9.12%	-1.88%	79.81%

* The demographics for the host town were used as a proxy benchmark and should be viewed with caution.

**Census populations within the political sub-division are used as the basis for the benchmark.

Table 11: Statewide Average Comparisons for Black Drivers (Sorted Alphabetically)

Department Name	Black Stops	Difference Between Town and State Average	Black Residents Age 16+	Difference Between Town and State Average	Difference Between Net Differences	Non-Resident Black Stops
Orange	18.30%	4.24%	1.31%	-7.81%	12.05%	97.98%
Plainfield	3.13%	-10.93%	0.96%	-8.16%	-2.78%	67.92%
Plainville	7.97%	-6.09%	2.73%	-6.39%	0.30%	75.48%
Plymouth	4.65%	-9.41%	0.00%	-9.12%	-0.29%	90.63%
Portland	2.25%	-11.81%	1.87%	-7.25%	-4.56%	75.00%
Putnam	2.96%	-11.10%	1.17%	-7.95%	-3.16%	51.61%
Redding	3.96%	-10.10%	0.00%	-9.12%	-0.98%	93.51%
Ridgefield	4.42%	-9.64%	0.77%	-8.35%	-1.29%	94.43%
Rocky Hill	10.31%	-3.75%	3.77%	-5.35%	1.60%	80.99%
Southern CT State University*	55.46%	41.40%	32.16%	23.04%	18.36%	52.50%
Seymour	6.66%	-7.40%	2.25%	-6.87%	-0.53%	80.35%
Shelton	7.60%	-6.46%	2.07%	-7.05%	0.59%	70.45%
Simsbury	4.94%	-9.12%	1.46%	-7.66%	-1.46%	72.39%
South Windsor	15.97%	1.91%	3.68%	-5.44%	7.36%	84.03%
Southington	1.96%	-12.10%	1.34%	-7.78%	-4.32%	74.07%
Stamford	14.46%	0.40%	12.86%	3.74%	-3.34%	28.08%
Stonington	3.54%	-10.52%	0.82%	-8.30%	-2.22%	70.71%
Stratford	32.60%	18.54%	12.76%	3.64%	14.91%	62.15%
Suffield	4.25%	-9.81%	1.40%	-7.72%	-2.10%	90.74%
Thomaston	1.98%	-12.08%	0.00%	-9.12%	-2.96%	92.86%
Torrington	4.73%	-9.33%	2.12%	-7.00%	-2.33%	37.65%
Trumbull	20.41%	6.35%	2.90%	-6.22%	12.57%	93.36%
University of Connecticut*	10.01%	-4.05%	4.03%	-5.09%	1.04%	93.98%
Vernon	14.93%	0.87%	4.70%	-4.42%	5.29%	61.69%
Wallingford	8.72%	-5.34%	1.34%	-7.78%	2.45%	87.79%
Waterbury	27.37%	13.31%	17.37%	8.25%	5.06%	13.20%
Waterford	11.94%	-2.12%	2.29%	-6.83%	4.71%	89.66%
Watertown	8.08%	-5.98%	1.24%	-7.88%	1.91%	86.41%
Western CT State University*	10.13%	-3.93%	6.42%	-2.70%	-1.24%	37.50%
West Hartford	14.78%	0.72%	5.65%	-3.47%	4.19%	88.65%
West Haven	25.49%	11.43%	17.70%	8.58%	2.84%	52.75%
Weston	8.86%	-5.20%	1.25%	-7.87%	2.67%	84.38%
Westport	11.04%	-3.02%	1.22%	-7.90%	4.89%	95.78%
Wethersfield	18.51%	4.45%	2.75%	-6.37%	10.82%	94.10%
Willimantic	6.38%	-7.68%	4.08%	-5.04%	-2.64%	53.62%
Wilton	8.23%	-5.83%	1.01%	-8.11%	2.28%	95.67%
Windsor	43.81%	29.75%	32.20%	23.08%	6.67%	58.07%
Windsor Locks	14.50%	0.44%	4.27%	-4.85%	5.29%	80.36%
Winsted	4.14%	-9.92%	1.04%	-8.08%	-1.84%	60.87%
Wolcott	6.74%	-7.32%	1.53%	-7.59%	0.27%	96.00%
Woodbridge	23.35%	9.29%	1.94%	-7.18%	16.47%	97.06%
Yale University*	36.17%	22.11%	32.16%	23.04%	-0.93%	63.43%

* The demographics for the host town were used as a proxy benchmark and should be viewed with caution.
**Census populations within the political sub-division are used as the basis for the benchmark.

Table 12: Statewide Average Comparisons for Hispanic Drivers (Sorted Alphabetically)

Department Name	Hispanic Stops	Difference Between Town and State Average	Hispanic Residents Age 16+	Difference Between Town and State Average	Difference Between Net Differences	Non-Resident Hispanic Stops
Ansonia	12.20%	-0.26%	14.03%	2.12%	-2.38%	68.10%
Avon	6.10%	-6.36%	2.76%	-9.15%	2.80%	87.64%
Berlin	13.35%	0.89%	2.67%	-9.24%	10.13%	94.04%
Bethel	11.95%	-0.51%	6.65%	-5.26%	4.75%	77.52%
Bloomfield	7.23%	-5.23%	4.78%	-7.13%	1.90%	78.89%
Branford	7.06%	-5.40%	3.45%	-8.46%	3.07%	81.13%
Bridgeport	28.09%	15.63%	36.20%	24.29%	-8.66%	13.91%
Bristol	12.41%	-0.05%	7.65%	-4.26%	4.21%	52.00%
Brookfield	7.55%	-4.91%	3.79%	-8.12%	3.21%	82.35%
Canton	1.78%	-10.68%	1.94%	-9.97%	-0.71%	81.48%
State Capitol Police*	22.94%	10.48%	41.02%	29.11%	-18.62%	45.28%
Central CT State University*	13.54%	1.08%	31.75%	19.84%	-18.77%	51.95%
Cheshire	5.41%	-7.05%	2.35%	-9.56%	2.51%	91.23%
Clinton	7.35%	-5.11%	4.41%	-7.50%	2.38%	49.07%
Coventry	3.65%	-8.81%	2.21%	-9.70%	0.90%	83.61%
Cromwell	5.66%	-6.80%	3.90%	-8.01%	1.21%	85.59%
Danbury	25.56%	13.10%	23.25%	11.34%	1.76%	72.09%
Darien	15.93%	3.47%	3.49%	-8.42%	11.88%	95.35%
Derby	12.65%	0.19%	12.37%	0.46%	-0.27%	70.06%
Department of Motor Vehicle*	11.49%	-0.97%	N/A	N/A	N/A	88.60%
East Hampton	2.63%	-9.83%	2.02%	-9.89%	0.06%	66.67%
East Hartford	26.56%	14.10%	22.91%	11.00%	3.10%	43.55%
East Haven	14.50%	2.04%	8.43%	-3.48%	5.51%	68.90%
East Windsor	6.81%	-5.65%	4.34%	-7.57%	1.92%	84.72%
Easton	7.92%	-4.54%	2.56%	-9.35%	4.81%	93.48%
Eastern CT State University*	8.08%	-4.38%	28.88%	16.97%	-21.35%	50.00%
Enfield	7.28%	-5.18%	4.00%	-7.91%	2.73%	53.54%
Fairfield	14.91%	2.45%	4.51%	-7.40%	9.85%	91.54%
Farmington	8.37%	-4.09%	3.20%	-8.71%	4.62%	89.05%
Glastonbury	8.34%	-4.12%	3.60%	-8.31%	4.19%	72.95%
Granby	2.52%	-9.94%	1.39%	-10.52%	0.58%	84.62%
Greenwich	18.41%	5.95%	9.15%	-2.76%	8.71%	83.32%
Groton City**	13.84%	1.38%	11.80%	-0.11%	1.49%	56.12%
Groton Long Point**	1.35%	-11.11%	0.00%	-11.91%	0.80%	100.00%
Groton Town	8.48%	-3.98%	7.40%	-4.51%	0.53%	67.00%
Guilford	3.96%	-8.50%	2.90%	-9.01%	0.51%	70.09%
Hamden	8.90%	-3.56%	7.58%	-4.33%	0.78%	67.59%
Hartford	24.97%	12.51%	41.02%	29.11%	-16.60%	37.55%
Madison	4.31%	-8.15%	1.73%	-10.18%	2.04%	91.25%
Manchester	14.65%	2.19%	9.89%	-2.02%	4.20%	50.32%
Meriden	34.73%	22.27%	24.86%	12.95%	9.32%	20.26%
Middlebury	6.78%	-5.68%	2.22%	-9.69%	4.00%	83.33%
Middletown	9.60%	-2.86%	6.77%	-5.14%	2.28%	53.99%
Milford	9.69%	-2.77%	4.45%	-7.46%	4.70%	79.55%
Monroe	6.60%	-5.86%	4.30%	-7.61%	1.75%	85.38%
Naugatuck	10.98%	-1.48%	7.77%	-4.14%	2.66%	50.09%
New Britain	41.23%	28.77%	31.75%	19.84%	8.93%	19.22%
New Canaan	9.71%	-2.75%	2.69%	-9.22%	6.47%	92.31%
New Haven	20.75%	8.29%	24.79%	12.88%	-4.59%	29.06%
New London	22.01%	9.55%	25.08%	13.17%	-3.61%	27.27%
New Milford	9.65%	-2.81%	5.46%	-6.45%	3.64%	66.22%
Newington	21.63%	9.17%	6.39%	-5.52%	14.69%	85.41%
Newtown	6.25%	-6.21%	2.86%	-9.05%	2.83%	84.08%
North Branford	3.89%	-8.57%	2.31%	-9.60%	1.03%	92.31%
North Haven	8.28%	-4.18%	3.26%	-8.65%	4.46%	93.10%
Norwalk	20.84%	8.38%	22.67%	10.76%	-2.38%	51.58%
Norwich	14.68%	2.22%	10.59%	-1.32%	3.54%	38.63%

* The demographics for the host town were used as a proxy benchmark and should be viewed with caution.

**Census populations within the political sub-division are used as the basis for the benchmark.

Table 12: Statewide Average Comparisons for Hispanic Drivers (Sorted Alphabetically)

Department Name	Hispanic Stops	Difference Between Town and State Average	Hispanic Residents Age 16+	Difference Between Town and State Average	Difference Between Net Differences	Non-Resident Hispanic Stops
Old Saybrook	5.64%	-6.82%	2.93%	-8.98%	2.16%	84.38%
Orange	12.89%	0.43%	2.54%	-9.37%	9.80%	97.64%
Plainfield	4.19%	-8.27%	3.33%	-8.58%	0.31%	71.83%
Plainville	11.34%	-1.12%	5.18%	-6.73%	5.60%	77.36%
Plymouth	5.04%	-7.42%	2.47%	-9.44%	2.01%	97.12%
Portland	1.12%	-11.34%	2.75%	-9.16%	-2.18%	100.00%
Putnam	1.14%	-11.32%	2.20%	-9.71%	-1.60%	75.00%
Redding	8.24%	-4.22%	2.37%	-9.54%	5.32%	94.38%
Ridgefield	10.24%	-2.22%	3.46%	-8.45%	6.23%	93.04%
Rocky Hill	7.74%	-4.72%	4.65%	-7.26%	2.53%	80.59%
Southern CT State University*	8.52%	-3.94%	24.79%	12.88%	-16.81%	58.43%
Seymour	6.60%	-5.86%	5.53%	-6.38%	0.52%	79.74%
Shelton	8.12%	-4.34%	5.17%	-6.74%	2.40%	57.45%
Simsbury	3.42%	-9.04%	2.61%	-9.30%	0.26%	76.99%
South Windsor	10.32%	-2.14%	3.62%	-8.29%	6.16%	84.06%
Southington	6.48%	-5.98%	2.80%	-9.11%	3.13%	77.61%
Stamford	19.74%	7.28%	22.87%	10.96%	-3.69%	26.34%
Stonington	2.68%	-9.78%	1.91%	-10.00%	0.22%	85.33%
Stratford	18.42%	5.96%	11.92%	0.01%	5.95%	65.46%
Suffield	4.25%	-8.21%	2.20%	-9.71%	1.50%	94.44%
Thomaston	4.53%	-7.93%	2.09%	-9.82%	1.89%	96.88%
Torrington	7.80%	-4.66%	6.92%	-4.99%	0.34%	29.69%
Trumbull	15.13%	2.67%	5.06%	-6.85%	9.52%	93.33%
University of Connecticut*	6.15%	-6.31%	5.15%	-6.76%	0.45%	92.16%
Vernon	9.02%	-3.44%	5.21%	-6.70%	3.25%	54.88%
Wallingford	11.91%	-0.55%	6.71%	-5.20%	4.65%	71.82%
Waterbury	27.41%	14.95%	27.54%	15.63%	-0.68%	14.24%
Waterford	11.42%	-1.04%	4.07%	-7.84%	6.79%	86.72%
Watertown	6.28%	-6.18%	2.99%	-8.92%	2.74%	88.75%
Western CT State University*	27.85%	15.39%	23.25%	11.34%	4.05%	18.18%
West Hartford	17.68%	5.22%	8.78%	-3.13%	8.34%	86.71%
West Haven	18.98%	6.52%	15.96%	4.05%	2.47%	51.22%
Weston	5.54%	-6.92%	3.06%	-8.85%	1.93%	95.00%
Westport	8.47%	-3.99%	3.19%	-8.72%	4.74%	96.04%
Wethersfield	27.22%	14.76%	7.10%	-4.81%	19.56%	90.92%
Willimantic	25.15%	12.69%	28.88%	16.97%	-4.28%	18.75%
Wilton	13.12%	0.66%	2.74%	-9.17%	9.83%	94.25%
Windsor	9.25%	-3.21%	7.33%	-4.58%	1.37%	72.02%
Windsor Locks	7.32%	-5.14%	3.46%	-8.45%	3.31%	76.65%
Winsted	4.14%	-8.32%	4.28%	-7.63%	-0.69%	56.52%
Wolcott	8.36%	-4.10%	2.83%	-9.08%	4.97%	67.74%
Woodbridge	9.11%	-3.35%	2.68%	-9.23%	5.88%	96.58%
Yale University*	13.78%	1.32%	24.79%	12.88%	-11.55%	70.47%

* The demographics for the host town were used as a proxy benchmark and should be viewed with caution.

**Census populations within the political sub-division are used as the basis for the benchmark.

Table 13: Statewide Average Comparisons for Minority Drivers (Sorted Alphabetically)

Department Name	Minority Stops	Difference Between Town and State Average	Minority Residents Age 16+	Difference Between Town and State Average	Difference Between Net Differences	Non-Resident Minority Stops
Ansonia	30.00%	0.64%	25.62%	0.39%	0.24%	61.37%
Avon	17.28%	-12.08%	9.82%	-15.41%	3.34%	80.56%
Berlin	25.26%	-4.10%	5.76%	-19.47%	15.37%	93.36%
Bethel	19.91%	-9.45%	13.49%	-11.74%	2.29%	78.91%
Bloomfield	61.99%	32.63%	61.51%	36.28%	-3.65%	57.16%
Branford	12.56%	-16.80%	8.49%	-16.74%	-0.06%	79.56%
Bridgeport	65.41%	36.05%	73.25%	48.02%	-11.97%	16.75%
Bristol	22.36%	-7.00%	12.71%	-12.52%	5.52%	53.37%
Brookfield	13.97%	-15.39%	8.11%	-17.12%	1.73%	80.92%
Canton	6.46%	-22.90%	3.25%	-21.98%	-0.93%	88.78%
State Capitol Police*	52.38%	23.02%	80.76%	55.53%	-32.50%	52.89%
Central CT State University*	32.45%	3.09%	45.00%	19.77%	-16.68%	62.87%
Cheshire	16.45%	-12.91%	8.62%	-16.61%	3.69%	87.19%
Clinton	11.98%	-17.38%	6.12%	-19.11%	1.73%	62.46%
Coventry	8.75%	-20.61%	3.79%	-21.44%	0.82%	84.25%
Cromwell	20.97%	-8.39%	10.57%	-14.66%	6.27%	80.29%
Danbury	36.11%	6.75%	38.64%	13.41%	-6.66%	74.04%
Darien	29.79%	0.43%	7.17%	-18.06%	18.49%	94.51%
Derby	28.90%	-0.46%	20.56%	-4.67%	4.22%	77.13%
Department of Motor Vehicle*	31.38%	2.02%	N/A	N/A	N/A	87.48%
East Hampton	8.53%	-20.83%	4.60%	-20.63%	-0.20%	58.97%
East Hartford	65.49%	36.13%	51.63%	26.40%	9.73%	45.18%
East Haven	23.11%	-6.25%	13.98%	-11.25%	5.00%	71.14%
East Windsor	22.99%	-6.37%	14.58%	-10.65%	4.28%	81.89%
Easton	13.25%	-16.11%	5.56%	-19.67%	3.56%	93.51%
Eastern CT State University*	17.17%	-12.19%	34.55%	9.32%	-21.51%	70.59%
Enfield	18.36%	-11.00%	8.65%	-16.58%	5.58%	51.59%
Fairfield	31.83%	2.47%	10.00%	-15.23%	17.70%	91.71%
Farmington	21.75%	-7.61%	12.59%	-12.64%	5.03%	86.61%
Glastonbury	21.07%	-8.29%	11.81%	-13.42%	5.14%	72.11%
Granby	7.26%	-22.10%	3.19%	-22.04%	-0.06%	82.67%
Greenwich	29.18%	-0.18%	17.95%	-7.28%	7.10%	81.25%
Groton City**	32.14%	2.78%	26.90%	1.67%	1.11%	57.98%
Groton Long Point**	5.41%	-23.95%	0.00%	-25.2300%	1.28%	100.00%
Groton Town	22.73%	-6.63%	20.39%	-4.84%	-1.79%	67.86%
Guilford	8.70%	-20.66%	5.67%	-19.56%	-1.10%	63.04%
Hamden	41.84%	12.48%	30.92%	5.69%	6.79%	56.80%
Hartford	64.24%	34.88%	80.76%	55.53%	-20.64%	44.84%
Madison	7.82%	-21.54%	4.26%	-20.97%	-0.57%	84.14%
Manchester	41.05%	11.69%	27.95%	2.72%	8.97%	51.98%
Meriden	50.50%	21.14%	34.86%	9.63%	11.51%	25.22%
Middlebury	11.86%	-17.50%	5.58%	-19.65%	2.16%	80.95%
Middletown	30.74%	1.38%	23.49%	-1.74%	3.12%	44.31%
Milford	24.43%	-4.93%	11.62%	-13.61%	8.67%	81.57%
Monroe	13.09%	-16.27%	7.56%	-17.67%	1.39%	84.06%
Naugatuck	21.68%	-7.68%	15.18%	-10.05%	2.37%	53.57%
New Britain	60.21%	30.85%	45.00%	19.77%	11.08%	23.02%
New Canaan	18.94%	-10.42%	7.15%	-18.08%	7.65%	86.59%
New Haven	63.90%	34.54%	62.82%	37.59%	-3.04%	31.29%
New London	42.16%	12.80%	43.57%	18.34%	-5.54%	31.33%
New Milford	15.12%	-14.24%	9.69%	-15.54%	1.30%	64.18%
Newington	39.50%	10.14%	14.51%	-10.72%	20.86%	84.12%
Newtown	13.56%	-15.80%	5.76%	-19.47%	3.67%	84.37%
North Branford	10.58%	-18.78%	5.02%	-20.21%	1.43%	87.74%
North Haven	21.69%	-7.67%	10.51%	-14.72%	7.05%	90.26%
Norwalk	42.56%	13.20%	40.80%	15.57%	-2.37%	53.11%

* The demographics for the host town were used as a proxy benchmark and should be viewed with caution.

**Census populations within the political sub-division are used as the basis for the benchmark.

Table 13: Statewide Average Comparisons for Minority Drivers (Sorted Alphabetically)

Department Name	Minority Stops	Difference Between Town and State Average	Minority Residents Age 16+	Difference Between Town and State Average	Difference Between Net Differences	Non-Resident Minority Stops
Norwich	38.28%	8.92%	29.09%	3.86%	5.06%	39.37%
Old Saybrook	10.46%	-18.90%	5.15%	-20.08%	1.18%	77.53%
Orange	33.95%	4.59%	10.75%	-14.48%	19.07%	96.03%
Plainfield	8.03%	-21.33%	5.32%	-19.91%	-1.42%	66.91%
Plainville	20.87%	-8.49%	10.00%	-15.23%	6.73%	75.99%
Plymouth	10.41%	-18.95%	2.47%	-22.76%	3.81%	93.49%
Portland	3.93%	-25.43%	4.63%	-20.60%	-4.82%	85.71%
Putnam	5.05%	-24.31%	3.37%	-21.86%	-2.45%	60.38%
Redding	14.21%	-15.15%	4.37%	-20.86%	5.71%	90.58%
Ridgefield	17.71%	-11.65%	7.29%	-17.94%	6.29%	88.21%
Rocky Hill	21.28%	-8.08%	17.20%	-8.03%	-0.05%	76.44%
Southern CT State University*	64.94%	35.58%	62.82%	37.59%	-2.00%	53.83%
Seymour	14.22%	-15.14%	9.77%	-15.46%	0.32%	79.75%
Shelton	17.10%	-12.26%	10.83%	-14.40%	2.14%	62.63%
Simsbury	11.06%	-18.30%	7.65%	-17.58%	-0.72%	70.14%
South Windsor	29.54%	0.18%	14.60%	-10.63%	10.80%	79.98%
Southington	9.07%	-20.29%	6.17%	-19.06%	-1.24%	74.93%
Stamford	38.22%	8.86%	43.86%	18.63%	-9.76%	28.46%
Stonington	7.93%	-21.43%	4.35%	-20.88%	-0.55%	77.03%
Stratford	52.93%	23.57%	27.20%	1.97%	21.60%	63.58%
Suffield	9.12%	-20.24%	4.91%	-20.32%	0.08%	92.24%
Thomaston	7.93%	-21.43%	2.09%	-23.14%	1.71%	96.43%
Torrington	13.52%	-15.84%	11.02%	-14.21%	-1.63%	32.24%
Trumbull	38.35%	8.99%	11.91%	-13.32%	22.31%	91.75%
University of Connecticut*	25.04%	-4.32%	17.98%	-7.25%	2.93%	87.96%
Vernon	25.98%	-3.38%	14.05%	-11.18%	7.80%	60.00%
Wallingford	22.10%	-7.26%	11.14%	-14.09%	6.83%	76.94%
Waterbury	55.15%	25.79%	48.10%	22.87%	2.92%	14.01%
Waterford	25.95%	-3.41%	9.85%	-15.38%	11.98%	87.31%
Watertown	14.91%	-14.45%	5.82%	-19.41%	4.96%	86.84%
Western CT State University*	43.04%	13.68%	38.64%	13.41%	0.27%	26.47%
West Hartford	37.54%	8.18%	21.79%	-3.44%	11.62%	85.41%
West Haven	45.73%	16.37%	37.60%	12.37%	4.00%	52.04%
Weston	14.68%	-14.68%	7.26%	-17.97%	3.29%	86.79%
Westport	21.36%	-8.00%	8.28%	-16.95%	8.95%	94.33%
Wethersfield	47.42%	18.06%	12.47%	-12.76%	30.82%	91.59%
Willimantic	32.98%	3.62%	34.55%	9.32%	-5.70%	27.38%
Wilton	24.74%	-4.62%	8.09%	-17.14%	12.52%	92.72%
Windsor	55.32%	25.96%	43.92%	18.69%	7.26%	60.91%
Windsor Locks	24.85%	-4.51%	12.73%	-12.50%	7.99%	77.43%
Winsted	9.37%	-19.99%	6.12%	-19.11%	-0.88%	55.77%
Wolcott	15.09%	-14.27%	5.43%	-19.80%	5.54%	80.36%
Woodbridge	36.02%	6.66%	12.82%	-12.41%	19.06%	94.97%
Yale University*	54.58%	25.22%	62.82%	37.59%	-12.37%	66.95%

* The demographics for the host town were used as a proxy benchmark and should be viewed with caution.
**Census populations within the political sub-division are used as the basis for the benchmark.

Table 16/17a: Ratio of Minority EDP to Minority Stops (Sorted Alphabetically)

Department Name	Number of Stops	% Minority Stops	% Minority EDP	Absolute Difference	Ratio
Ansonia	1,782	27.10%	25.00%	2.10%	1.08
Avon	332	16.27%	13.13%	3.13%	1.24
Berlin	2,167	22.24%	12.83%	9.41%	1.73
Bethel	1,290	22.40%	16.16%	6.25%	1.39
Bloomfield	1,874	50.85%	43.65%	7.20%	1.16
Branford	1,660	12.53%	12.84%	-0.31%	0.98
Bridgeport	2,205	63.72%	62.13%	1.59%	1.03
Bristol	2,049	18.45%	13.98%	4.47%	1.32
Brookfield	642	12.62%	12.32%	0.30%	1.02
Canton	587	3.92%	6.54%	-2.62%	0.60
Cheshire	2,297	15.63%	14.03%	1.60%	1.11
Clinton	746	9.12%	8.56%	0.56%	1.07
Coventry	478	6.28%	4.90%	1.38%	1.28
Cromwell	519	18.50%	14.96%	3.54%	1.24
Danbury	1,729	33.72%	33.05%	0.67%	1.02
Darien	1,045	28.23%	15.27%	12.96%	1.85
Derby	836	27.03%	21.42%	5.62%	1.26
East Hampton	166	3.61%	5.49%	-1.88%	0.66
East Hartford	3,805	64.10%	40.28%	23.82%	1.59
East Haven	814	18.92%	16.48%	2.44%	1.15
East Windsor	348	18.39%	18.58%	-0.19%	0.99
Easton	172	16.28%	7.88%	8.40%	2.07
Enfield	1,160	15.17%	12.56%	2.61%	1.21
Fairfield	3,403	32.18%	16.94%	15.23%	1.90
Farmington	1,451	17.16%	18.64%	-1.48%	0.92
Glastonbury	1,462	15.73%	15.59%	0.15%	1.01
Granby	383	5.48%	6.13%	-0.64%	0.90
Greenwich	2,399	27.59%	25.17%	2.43%	1.10
Groton City	507	21.89%	17.94%	3.95%	1.22
Groton Long Point	23	0.00%	17.94%	-17.94%	0.00
Groton Town	1,622	18.68%	17.94%	0.74%	1.04
Guilford	1,073	7.55%	8.06%	-0.51%	0.94
Hamden	2,040	39.31%	29.43%	9.88%	1.34
Hartford	2,805	57.47%	48.85%	8.62%	1.18
Madison	1,221	7.94%	6.48%	1.46%	1.23
Manchester	1,613	33.73%	26.29%	7.44%	1.28
Meriden	1,054	46.39%	30.95%	15.44%	1.50
Middlebury	89	11.24%	10.90%	0.34%	1.03
Middletown	900	25.67%	21.87%	3.80%	1.17
Milford	1,000	20.70%	17.75%	2.95%	1.17
Monroe	1,991	11.75%	11.20%	0.56%	1.05
Naugatuck	1,737	19.40%	16.43%	2.98%	1.18
New Britain	2,916	57.44%	38.57%	18.87%	1.49
New Canaan	2,297	18.81%	13.13%	5.68%	1.43
New Haven	4,564	58.39%	46.49%	11.90%	1.26
New London	485	34.64%	33.84%	0.80%	1.02
New Milford	1,734	15.11%	11.07%	4.03%	1.36

Table 16/17a: Ratio of Minority EDP to Minority Stops (Sorted Alphabetically)

Department Name	Number of Stops	% Minority Stops	% Minority EDP	Absolute Difference	Ratio
Newington	1,283	33.13%	18.45%	14.67%	1.80
Newtown	4,126	11.63%	8.68%	2.96%	1.34
North Branford	364	7.69%	8.82%	-1.13%	0.87
North Haven	638	19.28%	17.72%	1.56%	1.09
Norwalk	1,766	35.11%	36.93%	-1.82%	0.95
Norwich	2,217	36.27%	24.54%	11.73%	1.48
Old Saybrook	988	8.91%	8.56%	0.34%	1.04
Orange	1,724	30.22%	18.84%	11.38%	1.60
Plainfield	374	6.95%	6.70%	0.25%	1.04
Plainville	1,005	18.01%	13.96%	4.05%	1.29
Plymouth	635	8.19%	4.22%	3.97%	1.94
Portland	60	5.00%	6.53%	-1.53%	0.77
Putnam	254	3.15%	6.13%	-2.98%	0.51
Redding	815	15.71%	6.93%	8.77%	2.27
Ridgefield	3,206	17.40%	15.24%	2.16%	1.14
Rocky Hill	1,299	20.02%	19.80%	0.21%	1.01
Seymour	938	10.55%	12.20%	-1.65%	0.86
Shelton	157	11.46%	16.74%	-5.27%	0.68
Simsbury	1,309	9.85%	11.35%	-1.49%	0.87
South Windsor	1,332	26.05%	17.65%	8.40%	1.48
Southington	1,419	7.26%	9.87%	-2.61%	0.74
Stamford	173	29.48%	39.13%	-9.65%	0.75
Stonington	824	5.83%	7.16%	-1.33%	0.81
Stratford	577	49.05%	27.72%	21.33%	1.77
Suffield	420	6.90%	8.27%	-1.37%	0.83
Thomaston	198	7.07%	6.32%	0.75%	1.12
Torrington	1,617	11.13%	11.99%	-0.85%	0.93
Trumbull	953	35.68%	18.53%	17.14%	1.92
Vernon	819	16.36%	15.36%	1.00%	1.07
Wallingford	2,834	19.41%	15.44%	3.96%	1.26
Waterbury	1,002	50.90%	40.06%	10.83%	1.27
Waterford	1,280	21.88%	13.85%	8.02%	1.58
Watertown	564	11.52%	10.49%	1.04%	1.10
West Hartford	3,030	34.75%	24.25%	10.50%	1.43
West Haven	997	44.33%	35.51%	8.83%	1.25
Weston	152	15.79%	9.41%	6.38%	1.68
Westport	1,989	20.97%	17.79%	3.18%	1.18
Wethersfield	1,310	42.44%	16.54%	25.90%	2.57
Willimantic	711	30.38%	29.04%	1.34%	1.05
Wilton	1,360	21.99%	16.26%	5.73%	1.35
Winchester	209	6.22%	7.02%	-0.80%	0.89
Windsor	1,849	47.76%	33.23%	14.52%	1.44
Windsor Locks	713	23.00%	18.82%	4.18%	1.22
Wolcott	158	12.66%	7.97%	4.69%	1.59
Woodbridge	620	35.81%	17.29%	18.52%	2.07

Table 16/17b: Ratio of Black EDP to Black Stops (Sorted Alphabetically)

Department Name	Number of Stops	% Black Stops	% Black EDP	Absolute Difference	Ratio
Ansonia	1,782	14.48%	9.43%	5.05%	1.54
Avon	332	7.83%	3.31%	4.52%	2.36
Berlin	2,167	8.77%	3.47%	5.30%	2.53
Bethel	1,290	6.82%	2.79%	4.03%	2.45
Bloomfield	1,874	41.09%	32.40%	8.69%	1.27
Branford	1,660	4.76%	3.91%	0.85%	1.22
Bridgeport	2,205	34.60%	26.63%	7.97%	1.30
Bristol	2,049	6.30%	3.83%	2.47%	1.64
Brookfield	642	2.96%	2.43%	0.53%	1.22
Canton	587	1.53%	1.30%	0.23%	1.18
Cheshire	2,297	8.27%	3.73%	4.54%	2.22
Clinton	746	2.14%	1.25%	0.89%	1.72
Coventry	478	2.09%	1.15%	0.94%	1.81
Cromwell	519	10.60%	5.33%	5.27%	1.99
Danbury	1,729	7.46%	6.15%	1.32%	1.21
Darien	1,045	10.62%	3.29%	7.33%	3.23
Derby	836	14.00%	6.77%	7.22%	2.07
East Hampton	166	1.20%	1.43%	-0.23%	0.84
East Hartford	3,805	37.16%	17.09%	20.07%	2.17
East Haven	814	6.27%	4.14%	2.12%	1.51
East Windsor	348	11.21%	7.59%	3.62%	1.48
Easton	172	5.81%	1.07%	4.74%	5.42
Enfield	1,160	7.07%	4.10%	2.97%	1.72
Fairfield	3,403	15.90%	5.03%	10.86%	3.16
Farmington	1,451	6.20%	5.77%	0.43%	1.07
Glastonbury	1,462	6.09%	4.13%	1.96%	1.47
Granby	383	2.87%	2.17%	0.70%	1.32
Greenwich	2,399	6.29%	5.77%	0.53%	1.09
Groton City	507	7.30%	5.25%	2.05%	1.39
Groton Long Point	23	0.00%	5.25%	-5.25%	0.00
Groton Town	1,622	9.56%	5.25%	4.31%	1.82
Guilford	1,073	1.49%	1.80%	-0.31%	0.83
Hamden	2,040	28.87%	16.12%	12.75%	1.79
Hartford	2,805	34.33%	21.02%	13.31%	1.63
Madison	1,221	2.54%	1.41%	1.13%	1.80
Manchester	1,613	18.10%	9.72%	8.38%	1.86
Meriden	1,054	12.05%	7.63%	4.42%	1.58
Middlebury	89	0.00%	2.42%	-2.42%	0.00
Middletown	900	15.67%	9.72%	5.95%	1.61
Milford	1,000	10.50%	5.47%	5.03%	1.92
Monroe	1,991	4.07%	2.89%	1.18%	1.41
Naugatuck	1,737	7.66%	4.71%	2.95%	1.63
New Britain	2,916	16.26%	9.81%	6.44%	1.66
New Canaan	2,297	4.88%	3.24%	1.64%	1.51
New Haven	4,564	36.64%	22.73%	13.91%	1.61
New London	485	13.20%	11.49%	1.71%	1.15
New Milford	1,734	3.46%	2.22%	1.24%	1.56

Table 16/17b: Ratio of Black EDP to Black Stops (Sorted Alphabetically)

Department Name	Number of Stops	% Black Stops	% Black EDP	Absolute Difference	Ratio
Newington	1,283	11.38%	5.19%	6.19%	2.19
Newtown	4,126	4.46%	1.74%	2.72%	2.57
North Branford	364	3.30%	2.93%	0.36%	1.12
North Haven	638	11.44%	6.38%	5.06%	1.79
Norwalk	1,766	16.31%	12.07%	4.23%	1.35
Norwich	2,217	18.40%	7.47%	10.94%	2.46
Old Saybrook	988	2.63%	1.63%	1.01%	1.62
Orange	1,724	14.91%	5.84%	9.07%	2.55
Plainfield	374	2.41%	1.51%	0.90%	1.60
Plainville	1,005	6.87%	4.12%	2.74%	1.66
Plymouth	635	2.83%	0.64%	2.20%	4.43
Portland	60	5.00%	2.50%	2.50%	2.00
Putnam	254	1.57%	1.88%	-0.31%	0.84
Redding	815	5.28%	0.91%	4.37%	5.81
Ridgefield	3,206	3.49%	3.45%	0.05%	1.01
Rocky Hill	1,299	9.31%	5.84%	3.48%	1.60
Seymour	938	3.94%	3.34%	0.61%	1.18
Shelton	157	5.73%	5.03%	0.70%	1.14
Simsbury	1,309	4.58%	3.34%	1.24%	1.37
South Windsor	1,332	13.59%	5.56%	8.03%	2.44
Southington	1,419	1.48%	2.63%	-1.15%	0.56
Stamford	173	9.25%	11.85%	-2.61%	0.78
Stonington	824	1.94%	1.73%	0.21%	1.12
Stratford	577	27.38%	12.06%	15.33%	2.27
Suffield	420	5.00%	2.72%	2.28%	1.84
Thomaston	198	2.02%	1.54%	0.48%	1.31
Torrington	1,617	2.97%	2.83%	0.14%	1.05
Trumbull	953	17.52%	6.02%	11.50%	2.91
Vernon	819	8.18%	5.27%	2.91%	1.55
Wallingford	2,834	8.05%	3.64%	4.40%	2.21
Waterbury	1,002	25.05%	14.33%	10.72%	1.75
Waterford	1,280	10.08%	3.90%	6.17%	2.58
Watertown	564	5.50%	3.01%	2.49%	1.83
West Hartford	3,030	13.76%	7.77%	5.99%	1.77
West Haven	997	25.78%	16.36%	9.41%	1.58
Weston	152	11.18%	2.09%	9.10%	5.35
Westport	1,989	10.66%	5.21%	5.44%	2.04
Wethersfield	1,310	15.95%	4.90%	11.05%	3.26
Willimantic	711	4.36%	4.17%	0.19%	1.04
Wilton	1,360	6.18%	4.23%	1.94%	1.46
Winchester	209	2.39%	1.40%	1.00%	1.71
Windsor	1,849	36.83%	20.40%	16.43%	1.81
Windsor Locks	713	13.46%	7.14%	6.33%	1.89
Wolcott	158	4.43%	2.44%	1.99%	1.82
Woodbridge	620	23.39%	4.72%	18.67%	4.96

Table 16/17c: Ratio of Hispanic EDP to Hispanic Stops (Sorted Alphabetically)

Department Name	Number of Stops	% Hispanic Stops	% Hispanic EDP	Absolute Difference	Ratio
Ansonia	1,782	11.84%	13.44%	-1.60%	0.88
Avon	332	6.33%	4.72%	1.61%	1.34
Berlin	2,167	11.72%	6.49%	5.23%	1.81
Bethel	1,290	13.26%	8.30%	4.95%	1.60
Bloomfield	1,874	6.72%	8.28%	-1.55%	0.81
Branford	1,660	7.47%	5.53%	1.94%	1.35
Bridgeport	2,205	27.26%	30.54%	-3.28%	0.89
Bristol	2,049	11.03%	7.99%	3.04%	1.38
Brookfield	642	7.94%	6.24%	1.70%	1.27
Canton	587	1.70%	3.39%	-1.68%	0.50
Cheshire	2,297	5.75%	5.99%	-0.24%	0.96
Clinton	746	5.90%	5.26%	0.63%	1.12
Coventry	478	3.77%	2.71%	1.06%	1.39
Cromwell	519	5.78%	6.40%	-0.61%	0.90
Danbury	1,729	23.71%	19.40%	4.31%	1.22
Darien	1,045	15.41%	7.65%	7.76%	2.01
Derby	836	12.44%	12.13%	0.31%	1.03
East Hampton	166	1.20%	2.45%	-1.25%	0.49
East Hartford	3,805	25.41%	17.84%	7.57%	1.42
East Haven	814	11.55%	9.08%	2.47%	1.27
East Windsor	348	6.32%	7.00%	-0.68%	0.90
Easton	172	9.30%	3.68%	5.63%	2.53
Enfield	1,160	6.47%	6.04%	0.43%	1.07
Fairfield	3,403	14.52%	7.92%	6.59%	1.83
Farmington	1,451	6.55%	7.91%	-1.36%	0.83
Glastonbury	1,462	5.88%	5.90%	-0.02%	1.00
Granby	383	2.09%	2.66%	-0.57%	0.79
Greenwich	2,399	18.38%	12.70%	5.68%	1.45
Groton City	507	11.24%	7.13%	4.11%	1.58
Groton Long Point	23	0.00%	7.13%	-7.13%	0.00
Groton Town	1,622	7.27%	7.13%	0.15%	1.02
Guilford	1,073	3.73%	3.94%	-0.21%	0.95
Hamden	2,040	9.22%	8.51%	0.70%	1.08
Hartford	2,805	22.25%	23.75%	-1.51%	0.94
Madison	1,221	4.18%	2.85%	1.32%	1.46
Manchester	1,613	12.09%	10.04%	2.05%	1.20
Meriden	1,054	33.68%	20.74%	12.94%	1.62
Middlebury	89	8.99%	5.31%	3.68%	1.69
Middletown	900	8.89%	7.71%	1.18%	1.15
Milford	1,000	7.90%	7.63%	0.27%	1.04
Monroe	1,991	6.48%	5.93%	0.55%	1.09
Naugatuck	1,737	10.71%	8.50%	2.21%	1.26
New Britain	2,916	39.81%	25.89%	13.92%	1.54
New Canaan	2,297	10.84%	5.98%	4.87%	1.81
New Haven	4,564	20.64%	18.64%	2.00%	1.11
New London	485	20.21%	18.71%	1.50%	1.08
New Milford	1,734	10.50%	6.13%	4.37%	1.71
Newington	1,283	17.07%	8.66%	8.41%	1.97

Table 16/17c: Ratio of Hispanic EDP to Hispanic Stops (Sorted Alphabetically)

Department Name	Number of Stops	% Hispanic Stops	% Hispanic EDP	Absolute Difference	Ratio
Newtown	4,126	5.21%	4.37%	0.84%	1.19
North Branford	364	3.85%	4.00%	-0.15%	0.96
North Haven	638	6.58%	7.26%	-0.67%	0.91
Norwalk	1,766	16.93%	19.85%	-2.92%	0.85
Norwich	2,217	13.04%	9.43%	3.61%	1.38
Old Saybrook	988	4.66%	4.42%	0.23%	1.05
Orange	1,724	12.24%	7.25%	4.99%	1.69
Plainfield	374	4.55%	3.82%	0.73%	1.19
Plainville	1,005	10.35%	7.28%	3.06%	1.42
Plymouth	635	4.57%	3.28%	1.29%	1.39
Portland	60	0.00%	3.46%	-3.46%	0.00
Putnam	254	0.79%	3.45%	-2.66%	0.23
Redding	815	8.10%	3.65%	4.44%	2.22
Ridgefield	3,206	10.61%	7.86%	2.75%	1.35
Rocky Hill	1,299	7.39%	7.41%	-0.02%	1.00
Seymour	938	5.76%	6.64%	-0.88%	0.87
Shelton	157	5.10%	7.99%	-2.89%	0.64
Simsbury	1,309	3.13%	4.45%	-1.31%	0.70
South Windsor	1,332	9.91%	5.92%	3.99%	1.67
Southington	1,419	5.21%	4.93%	0.29%	1.06
Stamford	173	15.03%	20.11%	-5.08%	0.75
Stonington	824	2.43%	3.27%	-0.85%	0.74
Stratford	577	19.06%	12.59%	6.48%	1.51
Suffield	420	1.43%	3.85%	-2.42%	0.37
Thomaston	198	3.54%	4.21%	-0.68%	0.84
Torrington	1,617	7.36%	7.08%	0.28%	1.04
Trumbull	953	16.05%	8.51%	7.54%	1.89
Vernon	819	6.59%	5.96%	0.63%	1.11
Wallingford	2,834	10.16%	8.59%	1.57%	1.18
Waterbury	1,002	25.55%	22.61%	2.94%	1.13
Waterford	1,280	10.16%	6.21%	3.95%	1.64
Watertown	564	5.50%	5.56%	-0.06%	0.99
West Hartford	3,030	16.14%	10.22%	5.92%	1.58
West Haven	997	17.55%	15.13%	2.42%	1.16
Weston	152	4.61%	4.18%	0.42%	1.10
Westport	1,989	8.55%	8.24%	0.31%	1.04
Wethersfield	1,310	25.19%	8.59%	16.60%	2.93
Willimantic	711	24.75%	22.83%	1.92%	1.08
Wilton	1,360	11.76%	7.44%	4.32%	1.58
Winchester	209	2.39%	4.60%	-2.21%	0.52
Windsor	1,849	8.44%	8.80%	-0.37%	0.96
Windsor Locks	713	6.45%	7.39%	-0.94%	0.87
Wolcott	158	8.23%	4.24%	3.99%	1.94
Woodbridge	620	8.87%	5.53%	3.34%	1.60

Table 18/19a: Ratio of Minority Resident Population to Minority Resident Stops
(Sorted Alphabetically)

Department Name	Number of Residents	Minority Residents	Resident Stops	Minority Resident Stops	Difference	Ratio
Ansonia	14,979	25.62%	1700	31.18%	5.55%	1.22
Avon	13,855	9.82%	411	11.92%	2.11%	1.21
Berlin	16,083	5.76%	1256	7.72%	1.96%	1.34
Bethel	14,675	13.49%	1046	13.00%	-0.49%	0.96
Bloomfield	16,982	61.51%	1717	81.07%	19.56%	1.32
Branford	23,532	8.49%	1858	6.94%	-1.54%	0.82
Bridgeport	109,401	73.25%	4285	71.20%	-2.05%	0.97
Bristol	48,439	12.71%	2855	22.80%	10.10%	1.79
Brookfield	12,847	8.11%	604	8.94%	0.83%	1.10
Canton	7,992	3.25%	350	3.14%	-0.11%	0.97
Cheshire	21,049	8.62%	1878	6.39%	-2.23%	0.74
Clinton	10,540	6.12%	1303	10.05%	3.93%	1.64
Coventry	9,779	3.79%	699	3.29%	-0.50%	0.87
Cromwell	11,357	10.57%	622	13.02%	2.46%	1.23
Danbury	64,361	38.64%	1022	48.73%	10.09%	1.26
Darien	14,004	7.17%	608	6.91%	-0.26%	0.96
Derby	10,391	20.56%	498	37.15%	16.59%	1.81
East Hampton	10,255	4.60%	236	6.78%	2.18%	1.47
East Hartford	40,229	51.63%	4159	73.29%	21.66%	1.42
East Haven	24,114	13.98%	1310	16.26%	2.28%	1.16
East Windsor	9,164	14.58%	299	14.72%	0.14%	1.01
Easton	5,553	5.56%	157	3.18%	-2.38%	0.57
Enfield	33,218	8.65%	3418	15.16%	6.50%	1.75
Fairfield	45,567	10.00%	1901	10.89%	0.89%	1.09
Farmington	20,318	12.59%	731	19.56%	6.97%	1.55
Glastonbury	26,217	11.81%	1790	14.41%	2.61%	1.22
Granby	8,716	3.19%	374	3.48%	0.29%	1.09
Greenwich	46,370	17.95%	2197	17.84%	-0.11%	0.99
Groton City*	7,960	26.90%	792	36.24%	9.34%	1.35
Groton Long Point*	2,030	0.00%	12	0.00%	0.00%	0.00
Groton Town	31,520	20.39%	2089	20.63%	0.24%	1.01
Guilford	17,672	5.67%	1552	6.12%	0.45%	1.08
Hamden	50,012	30.92%	2044	42.91%	11.99%	1.39
Hartford	93,669	80.76%	2383	87.54%	6.78%	1.08
Madison	14,073	4.26%	1584	2.90%	-1.35%	0.68
Manchester	46,667	27.95%	2552	40.87%	12.92%	1.46
Meriden	47,445	34.86%	1782	57.24%	22.38%	1.64
Middlebury	5,843	5.58%	47	8.51%	2.93%	1.53
Middletown	38,747	23.49%	1595	34.98%	11.49%	1.49
Milford	43,135	11.62%	1366	10.47%	-1.15%	0.90
Monroe	14,918	7.56%	1857	6.52%	-1.05%	0.86
Naugatuck	25,099	15.18%	2585	19.61%	4.44%	1.29
New Britain	57,164	45.00%	5843	66.06%	21.06%	1.47
New Canaan	14,138	7.15%	1874	7.26%	0.11%	1.01
New Haven	100,702	62.82%	7039	79.95%	17.14%	1.27
New London	21,835	43.57%	714	60.78%	17.22%	1.40
New Milford	21,891	9.69%	1779	11.86%	2.17%	1.22

*Census populations within the political sub-division are used as the basis for the benchmark.

Table 18/19a: Ratio of Minority Resident Population to Minority Resident Stops
(Sorted Alphabetically)

Department Name	Number of Residents	Minority Residents	Resident Stops	Minority Resident Stops	Difference	Ratio
Newington	24,978	14.51%	1489	23.10%	8.59%	1.59
Newtown	20,171	5.76%	4060	5.20%	-0.56%	0.90
North Branford	11,549	5.02%	279	4.66%	-0.36%	0.93
North Haven	19,608	10.51%	427	8.67%	-1.85%	0.82
Norwalk	68,034	40.80%	1990	53.37%	12.57%	1.31
Norwich	31,638	29.09%	2980	46.41%	17.32%	1.60
Old Saybrook	8,330	5.15%	1037	7.71%	2.56%	1.50
Orange	11,017	10.75%	538	11.52%	0.78%	1.07
Plainfield	11,918	5.32%	776	5.80%	0.48%	1.09
Plainville	14,605	10.00%	1141	14.37%	4.37%	1.44
Plymouth	9,660	2.47%	361	3.88%	1.40%	1.57
Portland	7,480	4.63%	69	1.45%	-3.18%	0.31
Putnam	7,507	3.37%	290	7.24%	3.87%	2.15
Redding	6,955	4.37%	486	5.35%	0.98%	1.22
Ridgefield	18,111	7.29%	2594	6.21%	-1.08%	0.85
Rocky Hill	16,224	17.20%	1353	14.56%	-2.64%	0.85
Seymour	13,260	9.77%	1258	7.87%	-1.90%	0.81
Shelton	32,010	10.83%	311	11.90%	1.07%	1.10
Simsbury	17,773	7.65%	1469	7.42%	-0.23%	0.97
South Windsor	20,162	14.60%	1462	16.96%	2.36%	1.16
Southington	34,301	6.17%	1950	4.82%	-1.35%	0.78
Stamford	98,070	43.86%	4084	41.72%	-2.13%	0.95
Stonington	15,078	4.35%	923	5.53%	1.17%	1.27
Stratford	40,980	27.20%	1319	45.94%	18.75%	1.69
Suffield	10,782	4.91%	227	3.96%	-0.95%	0.81
Thomaston	6,224	2.09%	241	0.83%	-1.26%	0.40
Torrington	29,251	11.02%	3230	15.29%	4.28%	1.39
Trumbull	27,678	11.91%	570	15.96%	4.05%	1.34
Vernon	23,800	14.05%	1461	25.87%	11.82%	1.84
Wallingford	36,530	11.14%	4217	12.14%	1.00%	1.09
Waterbury	83,964	48.10%	1772	64.45%	16.35%	1.34
Waterford	15,760	9.85%	1107	13.73%	3.88%	1.39
Watertown	18,154	5.82%	455	5.49%	-0.33%	0.94
West Hartford	49,650	21.79%	1567	30.19%	8.40%	1.39
West Haven	44,518	37.60%	3077	41.73%	4.13%	1.11
Weston	7,255	7.26%	175	4.00%	-3.26%	0.55
Westport	19,410	8.28%	1501	4.33%	-3.95%	0.52
Wethersfield	21,607	12.47%	826	21.67%	9.20%	1.74
Willimantic	20,176	34.55%	1623	47.87%	13.32%	1.39
Wilton	12,973	8.09%	1014	8.48%	0.39%	1.05
Windsor	23,222	43.92%	2079	59.45%	15.53%	1.35
Windsor Locks	10,117	12.73%	697	18.36%	5.63%	1.44
Winsted	9,133	6.12%	315	7.30%	1.18%	1.19
Wolcott	13,175	5.43%	186	5.91%	0.49%	1.09
Woodbridge	7,119	12.82%	183	15.85%	3.02%	1.24

*Census populations within the political sub-division are used as the basis for the benchmark.

Table 18/19b: Ratio of Black Resident Population to Black Resident Stops
(Sorted Alphabetically)

Department Name	Number of Residents	Black Residents	Resident Stops	Black Resident Stops	Difference	Ratio
Ansonia	14,979	9.74%	1700	19.41%	9.67%	1.99
Avon	13,855	1.41%	411	3.41%	1.99%	2.41
Berlin	16,083	0.65%	1256	2.47%	1.82%	3.78
Bethel	14,675	1.74%	1046	2.58%	0.84%	1.49
Bloomfield	16,982	54.76%	1717	74.78%	20.02%	1.37
Branford	23,532	1.76%	1858	2.96%	1.20%	1.68
Bridgeport	109,401	31.82%	4285	38.37%	6.55%	1.21
Bristol	48,439	3.24%	2855	8.65%	5.41%	2.67
Brookfield	12,847	1.05%	604	2.81%	1.76%	2.68
Canton	7,992	0.00%	350	0.57%	0.57%	0.00
Cheshire	21,049	1.27%	1878	2.40%	1.12%	1.88
Clinton	10,540	0.00%	1303	0.61%	0.61%	0.00
Coventry	9,779	0.79%	699	1.43%	0.64%	1.82
Cromwell	11,357	3.69%	622	8.84%	5.15%	2.40
Danbury	64,361	6.42%	1022	10.08%	3.66%	1.57
Darien	14,004	0.00%	608	1.64%	1.64%	0.00
Derby	10,391	6.03%	498	15.66%	9.63%	2.60
East Hampton	10,255	1.10%	236	3.81%	2.71%	3.46
East Hartford	40,229	22.52%	4159	41.12%	18.60%	1.83
East Haven	24,114	2.47%	1310	3.82%	1.35%	1.54
East Windsor	9,164	5.96%	299	9.36%	3.41%	1.57
Easton	5,553	0.00%	157	0.00%	0.00%	0.00
Enfield	33,218	2.63%	3418	7.93%	5.30%	3.01
Fairfield	45,567	1.73%	1901	4.31%	2.58%	2.49
Farmington	20,318	2.20%	731	5.88%	3.68%	2.67
Glastonbury	26,217	1.80%	1790	3.02%	1.21%	1.67
Granby	8,716	0.92%	374	1.60%	0.69%	1.75
Greenwich	46,370	2.03%	2197	3.87%	1.84%	1.90
Groton City*	7,960	7.70%	792	16.79%	9.09%	2.18
Groton Long Point*	2,030	0.00%	12	0.00%	0.00%	0.00
Groton Town	31,520	6.07%	2089	9.96%	3.88%	1.64
Guilford	17,672	0.70%	1552	1.16%	0.46%	1.65
Hamden	50,012	18.28%	2044	35.08%	16.80%	1.92
Hartford	93,669	35.80%	2383	48.38%	12.59%	1.35
Madison	14,073	0.49%	1584	1.07%	0.58%	2.19
Manchester	46,667	10.15%	2552	22.26%	12.10%	2.19
Meriden	47,445	7.80%	1782	14.70%	6.91%	1.89
Middlebury	5,843	0.00%	47	0.00%	0.00%	0.00
Middletown	38,747	11.68%	1595	24.51%	12.84%	2.10
Milford	43,135	2.23%	1366	4.47%	2.23%	2.00
Monroe	14,918	1.32%	1857	2.37%	1.05%	1.79
Naugatuck	25,099	4.11%	2585	7.93%	3.82%	1.93
New Britain	57,164	10.67%	5843	17.61%	6.94%	1.65
New Canaan	14,138	1.06%	1874	2.03%	0.97%	1.91
New Haven	100,702	32.16%	7039	52.19%	20.03%	1.62
New London	21,835	15.18%	714	26.19%	11.01%	1.73
New Milford	21,891	1.69%	1779	3.60%	1.91%	2.13

*Census populations within the political sub-division are used as the basis for the benchmark.

Table 18/19b: Ratio of Black Resident Population to Black Resident Stops
(Sorted Alphabetically)

Department Name	Number of Residents	Black Residents	Resident Stops	Black Resident Stops	Difference	Ratio
Newington	24,978	2.99%	1489	6.65%	3.65%	2.22
Newtown	20,171	0.68%	4060	1.11%	0.43%	1.63
North Branford	11,549	1.33%	279	2.15%	0.82%	1.61
North Haven	19,608	2.91%	427	4.92%	2.01%	1.69
Norwalk	68,034	13.13%	1990	25.33%	12.20%	1.93
Norwich	31,638	8.96%	2980	23.32%	14.36%	2.60
Old Saybrook	8,330	0.00%	1037	2.03%	2.03%	0.00
Orange	11,017	1.31%	538	3.16%	1.85%	2.42
Plainfield	11,918	0.96%	776	2.19%	1.23%	2.27
Plainville	14,605	2.73%	1141	5.61%	2.88%	2.05
Plymouth	9,660	0.00%	361	2.49%	2.49%	0.00
Portland	7,480	1.87%	69	1.45%	-0.42%	0.77
Putnam	7,507	1.17%	290	5.17%	4.00%	4.41
Redding	6,955	0.00%	486	1.03%	1.03%	0.00
Ridgefield	18,111	0.77%	2594	0.73%	-0.04%	0.95
Rocky Hill	16,224	3.77%	1353	5.69%	1.93%	1.51
Seymour	13,260	2.25%	1258	3.58%	1.33%	1.59
Shelton	32,010	2.07%	311	4.18%	2.11%	2.02
Simsbury	17,773	1.46%	1469	3.06%	1.60%	2.09
South Windsor	20,162	3.68%	1462	7.32%	3.64%	1.99
Southington	34,301	1.34%	1950	1.08%	-0.26%	0.81
Stamford	98,070	12.86%	4084	15.87%	3.01%	1.23
Stonington	15,078	0.82%	923	3.14%	2.33%	3.85
Stratford	40,980	12.76%	1319	29.42%	16.66%	2.31
Suffield	10,782	1.40%	227	2.20%	0.80%	1.57
Thomaston	6,224	0.00%	241	0.41%	0.41%	0.00
Torrington	29,251	2.12%	3230	4.92%	2.81%	2.33
Trumbull	27,678	2.90%	570	6.84%	3.94%	2.36
Vernon	23,800	4.70%	1461	14.24%	9.54%	3.03
Wallingford	36,530	1.34%	4217	2.54%	1.20%	1.90
Waterbury	83,964	17.37%	1772	32.28%	14.91%	1.86
Waterford	15,760	2.29%	1107	5.15%	2.86%	2.25
Watertown	18,154	1.24%	455	3.08%	1.84%	2.48
West Hartford	49,650	5.65%	1567	9.25%	3.60%	1.64
West Haven	44,518	17.70%	3077	22.91%	5.21%	1.29
Weston	7,255	1.25%	175	2.86%	1.60%	2.28
Westport	19,410	1.22%	1501	1.67%	0.45%	1.37
Wethersfield	21,607	2.75%	826	5.93%	3.18%	2.16
Willimantic	20,176	4.08%	1623	5.91%	1.83%	1.45
Wilton	12,973	1.01%	1014	1.68%	0.67%	1.66
Windsor	23,222	32.20%	2079	50.51%	18.31%	1.57
Windsor Locks	10,117	4.27%	697	9.33%	5.06%	2.18
Winsted	9,133	1.04%	315	2.86%	1.82%	2.75
Wolcott	13,175	1.53%	186	0.54%	-1.00%	0.35
Woodbridge	7,119	1.94%	183	6.01%	4.07%	3.10

*Census populations within the political sub-division are used as the basis for the benchmark.

Table 18/19c: Ratio of Hispanic Resident Population to Hispanic Resident Stops
(Sorted Alphabetically)

Department Name	Number of Residents	Hispanic Residents	Resident Stops	Hispanic Resident Stops	Difference	Ratio
Ansonia	14,979	14.03%	1700	10.47%	-3.56%	0.75
Avon	13,855	2.76%	411	2.68%	-0.08%	0.97
Berlin	16,083	2.67%	1256	3.66%	0.99%	1.37
Bethel	14,675	6.65%	1046	8.32%	1.67%	1.25
Bloomfield	16,982	4.78%	1717	4.66%	-0.12%	0.97
Branford	23,532	3.45%	1858	3.61%	0.16%	1.05
Bridgeport	109,401	36.20%	4285	31.62%	-4.58%	0.87
Bristol	48,439	7.65%	2855	13.03%	5.38%	1.70
Brookfield	12,847	3.79%	604	4.47%	0.68%	1.18
Canton	7,992	1.94%	350	1.43%	-0.51%	0.74
Cheshire	21,049	2.35%	1878	1.44%	-0.91%	0.61
Clinton	10,540	4.41%	1303	8.37%	3.95%	1.90
Coventry	9,779	2.21%	699	1.43%	-0.78%	0.65
Cromwell	11,357	3.90%	622	2.57%	-1.33%	0.66
Danbury	64,361	23.25%	1022	37.08%	13.83%	1.59
Darien	14,004	3.49%	608	3.13%	-0.37%	0.89
Derby	10,391	12.37%	498	21.29%	8.92%	1.72
East Hampton	10,255	2.02%	236	1.69%	-0.32%	0.84
East Hartford	40,229	22.91%	4159	30.61%	7.70%	1.34
East Haven	24,114	8.43%	1310	10.99%	2.56%	1.30
East Windsor	9,164	4.34%	299	3.68%	-0.66%	0.85
Easton	5,553	2.56%	157	1.91%	-0.65%	0.75
Enfield	33,218	4.00%	3418	5.76%	1.77%	1.44
Fairfield	45,567	4.51%	1901	5.21%	0.69%	1.15
Farmington	20,318	3.20%	731	6.16%	2.95%	1.92
Glastonbury	26,217	3.60%	1790	5.53%	1.93%	1.54
Granby	8,716	1.39%	374	1.07%	-0.32%	0.77
Greenwich	46,370	9.15%	2197	10.01%	0.86%	1.09
Groton City*	7,960	11.80%	792	16.29%	4.49%	1.38
Groton Long Point*	2,030	0.00%	12	0.00%	0.00%	0.00
Groton Town	31,520	7.40%	2089	7.90%	0.50%	1.07
Guilford	17,672	2.90%	1552	2.26%	-0.65%	0.78
Hamden	50,012	7.58%	2044	6.85%	-0.73%	0.90
Hartford	93,669	41.02%	2383	38.52%	-2.49%	0.94
Madison	14,073	1.73%	1584	0.88%	-0.84%	0.51
Manchester	46,667	9.89%	2552	15.09%	5.19%	1.52
Meriden	47,445	24.86%	1782	41.98%	17.11%	1.69
Middlebury	5,843	2.22%	47	4.26%	2.03%	1.91
Middletown	38,747	6.77%	1595	9.03%	2.26%	1.33
Milford	43,135	4.45%	1366	4.61%	0.17%	1.04
Monroe	14,918	4.30%	1857	3.02%	-1.29%	0.70
Naugatuck	25,099	7.77%	2585	10.68%	2.91%	1.37
New Britain	57,164	31.75%	5843	47.48%	15.72%	1.50
New Canaan	14,138	2.69%	1874	2.13%	-0.55%	0.79
New Haven	100,702	24.79%	7039	26.81%	2.02%	1.08
New London	21,835	25.08%	714	33.61%	8.53%	1.34
New Milford	21,891	5.46%	1779	7.14%	1.68%	1.31

*Census populations within the political sub-division are used as the basis for the benchmark.

Table 18/19c: Ratio of Hispanic Resident Population to Hispanic Resident Stops
(Sorted Alphabetically)

Newington	24,978	6.39%	1489	11.62%	5.23%	1.82
Newtown	20,171	2.86%	4060	2.44%	-0.43%	0.85
North Branford	11,549	2.31%	279	1.08%	-1.24%	0.47
North Haven	19,608	3.26%	427	2.34%	-0.92%	0.72
Norwalk	68,034	22.67%	1990	26.98%	4.31%	1.19
Norwich	31,638	10.59%	2980	18.02%	7.43%	1.70
Old Saybrook	8,330	2.93%	1037	2.89%	-0.04%	0.99
Orange	11,017	2.54%	538	2.60%	0.06%	1.02
Plainfield	11,918	3.33%	776	2.58%	-0.75%	0.77
Plainville	14,605	5.18%	1141	7.36%	2.18%	1.42
Plymouth	9,660	2.47%	361	0.83%	-1.64%	0.34
Portland	7,480	2.75%	69	0.00%	-2.75%	0.00
Putnam	7,507	2.20%	290	1.03%	-1.16%	0.47
Redding	6,955	2.37%	486	1.85%	-0.52%	0.78
Ridgefield	18,111	3.46%	2594	2.12%	-1.34%	0.61
Rocky Hill	16,224	4.65%	1353	4.36%	-0.29%	0.94
Seymour	13,260	5.53%	1258	3.66%	-1.87%	0.66
Shelton	32,010	5.17%	311	6.43%	1.26%	1.24
Simsbury	17,773	2.61%	1469	1.77%	-0.84%	0.68
South Windsor	20,162	3.62%	1462	4.72%	1.10%	1.31
Southington	34,301	2.80%	1950	3.08%	0.27%	1.10
Stamford	98,070	22.87%	4084	22.18%	-0.69%	0.97
Stonington	15,078	1.91%	923	1.19%	-0.72%	0.62
Stratford	40,980	11.92%	1319	15.16%	3.24%	1.27
Suffield	10,782	2.20%	227	1.32%	-0.88%	0.60
Thomaston	6,224	2.09%	241	0.41%	-1.67%	0.20
Torrington	29,251	6.92%	3230	9.16%	2.25%	1.33
Trumbull	27,678	5.06%	570	5.09%	0.03%	1.01
Vernon	23,800	5.21%	1461	10.13%	4.92%	1.94
Wallingford	36,530	6.71%	4217	7.99%	1.28%	1.19
Waterbury	83,964	27.54%	1772	31.94%	4.41%	1.16
Waterford	15,760	4.07%	1107	6.32%	2.25%	1.55
Watertown	18,154	2.99%	455	1.98%	-1.01%	0.66
West Hartford	49,650	8.78%	1567	12.95%	4.17%	1.47
West Haven	44,518	15.96%	3077	17.61%	1.65%	1.10
Weston	7,255	3.06%	175	0.57%	-2.49%	0.19
Westport	19,410	3.19%	1501	1.20%	-1.99%	0.38
Wethersfield	21,607	7.10%	826	13.44%	6.33%	1.89
Willimantic	20,176	28.88%	1623	40.85%	11.97%	1.41
Wilton	12,973	2.74%	1014	3.55%	0.81%	1.30
Windsor	23,222	7.33%	2079	7.12%	-0.21%	0.97
Windsor Locks	10,117	3.46%	697	5.60%	2.14%	1.62
Winsted	9,133	4.28%	315	3.17%	-1.11%	0.74
Wolcott	13,175	2.83%	186	5.38%	2.55%	1.90
Woodbridge	7,119	2.68%	183	2.73%	0.05%	1.02

*Census populations within the political sub-division are used as the basis for the benchmark.

Table 20: Departments with Disparities Relative to Descriptive Benchmarks

Department Name	State Average			EDP			Resident Population			Total
	M	B	H	M	B	H	M	B	H	
Wethersfield	30.82	10.82	19.56	25.9	11.05	16.6			6.33	6.5
Stratford	21.6	14.91		21.33	15.33		18.75	16.66		6
Meriden	11.51			15.44		12.94	22.38	6.91	17.11	5.5
New Britain	11.08			18.87		13.92	21.06		15.72	5
Newington	20.86		14.69	14.67	6.19	8.41			5.23	4.5
Trumbull	22.31	12.57		17.14	11.5	7.54				4.5
Darien	18.49		11.88	12.96	7.33	7.76				4
East Hartford				23.82	20.07		21.66	18.6		4
New Haven				11.9	13.91		17.14	20.03		4
Norwich				11.73	10.94		17.32	14.36		4
Waterbury				10.83	10.72		16.35	14.91		4
Windsor				14.52	16.43		15.53	18.31		4
Woodbridge	19.06	16.47		18.52	18.67					4
Fairfield	17.7			15.23	10.86	6.59				3.5
Orange	19.07	12.05		11.38	9.07					3.5
Hamden					12.75		11.99	16.8		3
Manchester					8.38		12.92	12.1		2.5
West Hartford	11.62			10.5	5.99					2.5
Berlin			10.13		5.3	5.23				2
Bloomfield							19.56	20.02		2
Danbury							10.09		13.83	2
Derby					7.22		16.59	9.63		2
Hartford					13.31			12.59		2
Middletown							11.49	12.84		2
New London							17.22	11.01		2
Norwalk							12.57	12.2		2
Willimantic							13.32		11.97	2
South Windsor	10.8				8.03					1.5
Vernon							11.82	9.54		1.5
Bristol							10.1	5.41		1.5
Windsor Locks					6.33			5.06		1
Easton				8.4		5.63				1
Cromwell					5.27			5.15		1
Enfield							6.5	5.3		1
Groton City								9.09		0.5
Redding				8.77						0.5
Weston					9.1					0.5
Waterford					6.17					0.5
Westport					5.44					0.5
North Haven					5.06					0.5
Milford					5.03					0.5
Ansonia								9.67		0.5

* The values in this chart indicate the actual amount that the stop data exceeds the benchmark.

Appendix C

Table 26: Department Veil of Darkness Analysis, Combined Inter-twilight

Department	VOD Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Ansonia	Coefficient	-0.102	-0.063	-0.614***	-0.299**
	SE	(0.17)	(0.176)	(0.195)	(0.139)
	ESS	1,658	1,628	1,563	1,858
Avon	Coefficient	-0.123	-1.001	-1.443**	-1.132*
	SE	(0.562)	(0.798)	(0.613)	(0.605)
	ESS	357	341	336	359
Berlin	Coefficient	0.183	0.113	0.128	0.128
	SE	(0.267)	(0.295)	(0.256)	(0.204)
	ESS	1,631	1,590	1,637	1,817
Bethel	Coefficient	-0.473	-0.173	-0.144	-0.148
	SE	(0.358)	(0.397)	(0.38)	(0.293)
	ESS	696	678	711	760
Bloomfield	Coefficient	-0.539***	-0.571***	-0.49	-0.567***
	SE	(0.187)	(0.19)	(0.328)	(0.187)
	ESS	1,116	1,080	552	1,150
Branford	Coefficient	0.006	-0.096	-0.297	-0.217
	SE	(0.313)	(0.323)	(0.278)	(0.222)
	ESS	1,059	1,054	1,076	1,146
Bridgeport	Coefficient	-0.026	-0.058	-0.286	-0.123
	SE	(0.17)	(0.172)	(0.191)	(0.156)
	ESS	1,458	1,424	1,206	1,988
Bristol	Coefficient	0.164	0.078	0.073	0.071
	SE	(0.2)	(0.218)	(0.17)	(0.141)
	ESS	2,185	2,153	2,259	2,442
Brookfield	Coefficient	0.327	0.127	0.501	0.419
	SE	(0.591)	(0.772)	(0.425)	(0.381)
	ESS	572	562	586	606
Canton	Coefficient	1.183	9.264***	-0.285	-0.067
	SE	(1.125)	(3.474)	(1.611)	(1.062)
	ESS	480	472	475	479
Cheshire	Coefficient	-0.278	-0.227	-0.108	-0.157
	SE	(0.212)	(0.228)	(0.308)	(0.193)
	ESS	1,556	1,525	1,452	1,615
Clinton	Coefficient	0.166	0.023	-0.473	-0.299
	SE	(0.4)	(0.506)	(0.43)	(0.331)
	ESS	725	706	731	758
Coventry	Coefficient	0.222	1.123	1.013	0.833
	SE	(1.063)	(1.041)	(0.765)	(0.601)
	ESS	452	446	454	462
Cromwell	Coefficient	0.377	0.417	-0.205	0.237
	SE	(0.397)	(0.437)	(0.801)	(0.397)
	ESS	408	399	371	419
Danbury	Coefficient	-0.293	-0.03	-0.305	-0.239
	SE	(0.355)	(0.411)	(0.23)	(0.215)
	ESS	574	550	742	813

Table 26: Department Veil of Darkness Analysis, Combined Inter-twilight

Department	VOD Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Darien	Coefficient	0.103	0.142	-0.349	-0.134
	SE	(0.313)	(0.337)	(0.316)	(0.244)
	ESS	612	594	610	695
Derby	Coefficient	-0.072	-0.187	-0.131	-0.1
	SE	(0.318)	(0.338)	(0.294)	(0.239)
	ESS	776	767	763	876
East Hampton	Coefficient	-0.143	-0.032		-0.186
	SE	(2.043)	(2.014)		(2.022)
	ESS	121	119		122
East Hartford	Coefficient	0.007	0.006		0.105
	SE	(0.193)	(0.195)	(0.206)	(0.176)
	ESS	998	973	838	1,320
East Haven	Coefficient	0.111	-0.135	0.119	0.052
	SE	(0.292)	(0.327)	(0.255)	(0.211)
	ESS	798	782	844	915
East Windsor	Coefficient	-0.069	-0.008	0.356	0.066
	SE	(0.495)	(0.501)	(0.664)	(0.416)
	ESS	287	286	273	306
Easton	Coefficient	-128.6*	-43.7	-1.194	-1.304
	SE	(72.12)	(3078)	(1.06)	(0.98)
	ESS	103	102	110	115
Enfield	Coefficient	0.553***	0.564**	-0.156	0.237
	SE	(0.209)	(0.231)	(0.252)	(0.175)
	ESS	1,919	1,889	1,861	2,007
Fairfield	Coefficient	-0.091	-0.122	-0.544***	-0.3**
	SE	(0.14)	(0.148)	(0.169)	(0.119)
	ESS	2,452	2,395	2,322	2,814
Farmington	Coefficient	-0.164	-0.411	-0.012	-0.25
	SE	(0.258)	(0.323)	(0.354)	(0.254)
	ESS	1,190	1,117	1,108	1,209
Glastonbury	Coefficient	-0.044	-0.219	-0.242	-0.213
	SE	(0.221)	(0.295)	(0.287)	(0.212)
	ESS	1,456	1,380	1,401	1,502
Granby	Coefficient	0.25	0.249	2.108*	0.524
	SE	(0.846)	(1.023)	(1.127)	(0.856)
	ESS	344	341	332	347
Greenwich	Coefficient	-0.19	-0.374	0.018	-0.092
	SE	(0.224)	(0.275)	(0.185)	(0.16)
	ESS	1,534	1,468	1,642	1,768
Groton City	Coefficient	-0.229	-0.125	0.024	-0.05
	SE	(0.408)	(0.494)	(0.446)	(0.354)
	ESS	432	413	416	480
Groton Long Point	Coefficient				
	SE				
	ESS				

Table 26: Department Veil of Darkness Analysis, Combined Inter-twilight

Department	VOD Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Guilford	Coefficient	0.116	0.632	-0.573	-0.145
	SE	(0.369)	(0.631)	(0.43)	(0.374)
	ESS	1,069	1,044	1,064	1,079
Hamden	Coefficient	-0.026	-0.03	0.099	-0.015
	SE	(0.167)	(0.168)	(0.251)	(0.158)
	ESS	1,393	1,376	997	1,528
Hartford	Coefficient	0.39	0.328	-0.572	0.045
	SE	(0.288)	(0.295)	(0.357)	(0.282)
	ESS	921	906	744	1,180
Madison	Coefficient	0.046	-0.127	-1.067*	-0.66
	SE	(0.421)	(0.545)	(0.58)	(0.431)
	ESS	876	862	872	897
Manchester	Coefficient	0.049	0.031	0.13	0.084
	SE	(0.163)	(0.177)	(0.197)	(0.145)
	ESS	1,566	1,495	1,375	1,720
Meriden	Coefficient	0.404	0.454	0.129	0.23
	SE	(0.311)	(0.32)	(0.238)	(0.215)
	ESS	530	520	713	831
Middlebury	Coefficient				
	SE				
	ESS				
Middletown	Coefficient	0.052	0.122	0.382	0.222
	SE	(0.252)	(0.26)	(0.332)	(0.221)
	ESS	699	689	611	747
Milford	Coefficient	0.412	0.413	-0.749	-0.008
	SE	(0.51)	(0.57)	(0.952)	(0.463)
	ESS	320	308	288	337
Monroe	Coefficient	-0.124	-0.345	-0.364	-0.323
	SE	(0.29)	(0.323)	(0.324)	(0.235)
	ESS	1,687	1,667	1,693	1,783
Naugatuck	Coefficient	-0.37	-0.379	-0.166	-0.161
	SE	(0.27)	(0.294)	(0.228)	(0.192)
	ESS	1,260	1,244	1,313	1,419
New Britain	Coefficient	0.13	0.169	-0.219**	-0.098
	SE	(0.145)	(0.15)	(0.111)	(0.101)
	ESS	1,903	1,853	2,623	3,138
New Canaan	Coefficient	-0.227	-0.534*	-0.233	-0.404*
	SE	(0.234)	(0.282)	(0.277)	(0.208)
	ESS	1,650	1,589	1,635	1,740
New Haven	Coefficient	0.395***	0.388***	0.015	0.281***
	SE	(0.091)	(0.092)	(0.115)	(0.085)
	ESS	4,330	4,256	2,873	5,300
New London	Coefficient	0.285	0.357	-0.472	-0.074
	SE	(0.409)	(0.422)	(0.34)	(0.302)
	ESS	270	267	296	346

Table 26: Department Veil of Darkness Analysis, Combined Inter-twilight

Department	VOD Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
New Milford	Coefficient	-0.997*	-0.618	-1.432***	-1.204***
	SE	(0.525)	(0.519)	(0.444)	(0.349)
	ESS	979	964	1,025	1,057
Newington	Coefficient	0.192	0.142	0.023	0.07
	SE	(0.185)	(0.209)	(0.165)	(0.142)
	ESS	1,305	1,244	1,354	1,556
Newtown	Coefficient	-0.257	-0.297	0.051	-0.121
	SE	(0.207)	(0.243)	(0.216)	(0.166)
	ESS	3,448	3,378	3,413	3,615
North Branford	Coefficient	1.131	0.771	-0.763	0.179
	SE	(0.868)	(0.949)	(0.901)	(0.675)
	ESS	310	306	303	318
North Haven	Coefficient	-0.676	-0.603	0.038	-0.215
	SE	(0.431)	(0.453)	(0.482)	(0.351)
	ESS	451	443	423	486
Norwalk	Coefficient	-0.435**	-0.424**	0.211	-0.125
	SE	(0.195)	(0.201)	(0.213)	(0.164)
	ESS	1,107	1,082	1,040	1,318
Norwich	Coefficient	1.334	1.744*	2.166**	1.829**
	SE	(0.86)	(0.974)	(0.932)	(0.788)
	ESS	277	268	261	321
Old Saybrook	Coefficient	0.269	0.615	0.016	0.211
	SE	(0.375)	(0.487)	(0.337)	(0.288)
	ESS	1,181	1,153	1,191	1,221
Orange	Coefficient	0.014	0.016	0.027	0.025
	SE	(0.18)	(0.194)	(0.212)	(0.158)
	ESS	1,380	1,326	1,269	1,533
Plainfield	Coefficient	0.203	0.203	-0.417	0.254
	SE	(0.72)	(0.72)	(0.729)	(0.562)
	ESS	420	420	421	435
Plainville	Coefficient	-0.434	-0.499	0.047	-0.144
	SE	(0.273)	(0.304)	(0.247)	(0.205)
	ESS	1,101	1,083	1,115	1,200
Plymouth	Coefficient	0.101	-0.088	-0.154	-0.175
	SE	(0.591)	(0.66)	(0.559)	(0.444)
	ESS	541	537	537	560
Portland	Coefficient				
	SE				
	ESS				
Putnam	Coefficient	-0.493	-0.493	4.834**	-0.619
	SE	(1.945)	(1.945)	(2.075)	(1.229)
	ESS	311	311	304	312
Redding	Coefficient	0.651	0.32	-0.857	-0.445
	SE	(0.565)	(0.677)	(0.563)	(0.448)
	ESS	509	500	530	547

Table 26: Department Veil of Darkness Analysis, Combined Inter-twilight

Department	VOD Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Ridgefield	Coefficient	0.087	0.409	0.53*	0.495**
	SE	(0.319)	(0.459)	(0.289)	(0.251)
	ESS	1,586	1,526	1,619	1,672
Rocky Hill	Coefficient	-0.128	-0.111	0.255	0.09
	SE	(0.22)	(0.249)	(0.26)	(0.19)
	ESS	1,147	1,104	1,089	1,223
Seymour	Coefficient	-0.186	-0.237	-0.007	-0.119
	SE	(0.343)	(0.362)	(0.366)	(0.276)
	ESS	968	963	971	1,031
Shelton	Coefficient	0.368	0.368	-0.382	0.092
	SE	(1.253)	(1.253)	(0.936)	(0.793)
	ESS	132	132	137	146
Simsbury	Coefficient	0.505	0.667	-0.712	0.052
	SE	(0.438)	(0.477)	(0.729)	(0.393)
	ESS	738	721	707	742
South Windsor	Coefficient	0.148	0.178	-0.65**	-0.072
	SE	(0.22)	(0.238)	(0.328)	(0.203)
	ESS	1,027	990	924	1,105
Southington	Coefficient	-0.072	-0.193	0.146	0.124
	SE	(0.632)	(0.839)	(0.373)	(0.352)
	ESS	1,032	1,020	1,062	1,080
Stamford	Coefficient	0.292*	0.302*	0.017	0.136
	SE	(0.151)	(0.166)	(0.149)	(0.123)
	ESS	1,239	1,166	1,241	1,463
Stonington	Coefficient	-0.102	-0.629	1.155	-0.038
	SE	(0.41)	(0.454)	(0.815)	(0.406)
	ESS	848	836	819	850
Stratford	Coefficient	0.47*	0.46	0.274	0.401
	SE	(0.284)	(0.289)	(0.309)	(0.26)
	ESS	451	438	374	563
Suffield	Coefficient	-1.643	-1.492	7.044***	-0.807
	SE	(1.148)	(1.183)	(1.956)	(0.862)
	ESS	300	297	286	301
Thomaston	Coefficient	0.626	-0.018	-0.483	-0.132
	SE	(1.126)	(1.772)	(0.817)	(0.672)
	ESS	274	269	277	280
Torrington	Coefficient	-0.116	-0.201	0.312	0.123
	SE	(0.302)	(0.334)	(0.242)	(0.208)
	ESS	1,520	1,505	1,554	1,625
Trumbull	Coefficient	-0.086	-0.206	0.015	-0.117
	SE	(0.223)	(0.238)	(0.254)	(0.188)
	ESS	829	800	764	962
Vernon	Coefficient	0.146	0.095	0.181	0.142
	SE	(0.288)	(0.297)	(0.315)	(0.228)
	ESS	914	905	883	989

Table 26: Department Veil of Darkness Analysis, Combined Inter-twilight

Department	VOD Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Wallingford	Coefficient	0.089	0.143	-0.208	-0.055
	SE	(0.208)	(0.224)	(0.183)	(0.148)
	ESS	2,280	2,247	2,353	2,552
Waterbury	Coefficient	-0.448	-0.448	-0.274	-0.378
	SE	(0.472)	(0.473)	(0.503)	(0.403)
	ESS	328	326	306	448
Waterford	Coefficient	-0.356*	-0.569***	-0.363*	-0.471***
	SE	(0.186)	(0.201)	(0.212)	(0.159)
	ESS	1,445	1,399	1,413	1,575
Watertown	Coefficient	0.109	-0.106	0.8	0.222
	SE	(0.598)	(0.617)	(0.602)	(0.444)
	ESS	336	332	329	353
West Hartford	Coefficient	-0.326**	-0.304*	-0.332**	-0.284**
	SE	(0.155)	(0.175)	(0.154)	(0.126)
	ESS	2,232	2,103	2,232	2,603
West Haven	Coefficient	-0.062	-0.047	-0.002	-0.023
	SE	(0.146)	(0.149)	(0.162)	(0.123)
	ESS	1,479	1,454	1,361	1,793
Weston	Coefficient	-0.032	-0.032		0.494
	SE	(0.912)	(0.912)		(0.935)
	ESS	88	88		91
Westport	Coefficient	0.052	0.1	-0.2	-0.007
	SE	(0.202)	(0.219)	(0.243)	(0.172)
	ESS	1,572	1,532	1,471	1,688
Wethersfield	Coefficient	-0.288	-0.394**	-0.233	-0.277*
	SE	(0.192)	(0.198)	(0.17)	(0.145)
	ESS	1,023	1,004	1,128	1,380
Willimantic	Coefficient	-0.193	-0.337	-1.018***	-0.855***
	SE	(0.386)	(0.408)	(0.245)	(0.221)
	ESS	517	510	668	718
Wilton	Coefficient	-0.422	-0.347	0.025	-0.153
	SE	(0.283)	(0.327)	(0.249)	(0.213)
	ESS	1,150	1,107	1,171	1,256
Windsor	Coefficient	0.137	0.203	-0.468*	0.08
	SE	(0.144)	(0.146)	(0.25)	(0.139)
	ESS	1,517	1,470	965	1,626
Windsor Locks	Coefficient	0.075	0.043	0.023	0.021
	SE	(0.301)	(0.325)	(0.464)	(0.279)
	ESS	700	674	620	722
Winsted	Coefficient	-3.5***	-3.395**		-5.567***
	SE	(1.184)	(1.559)		(2.078)
	ESS	186	182		187
Wolcott	Coefficient	-0.764	-0.764	-0.896	-0.5
	SE	(0.941)	(0.941)	(1.092)	(0.896)
	ESS	130	130	132	139

Table 26: Department Veil of Darkness Analysis, Combined Inter-twilight

Department	VOD Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Woodbridge	Coefficient	0.305	0.136	-0.792	-0.099
	SE	(0.296)	(0.313)	(0.505)	(0.286)
	ESS	407	390	321	436
State Police- All Other	Coefficient	-0.154	-0.123	-0.101	-0.1
	SE	(0.137)	(0.15)	(0.176)	(0.123)
	ESS	3,900	3,740	3,556	4,244
State Police- Troop A	Coefficient	-0.242*	-0.293**	-0.162	-0.215**
	SE	(-0.13)	(-0.143)	(-0.125)	(-0.103)
	ESS	4,403	4,264	4,611	5,141
State Police- Troop B	Coefficient	-0.203	-0.066	-0.083	-0.074
	SE	(-0.241)	(-0.287)	(-0.228)	(-0.185)
	ESS	2,346	2,313	2,375	2,458
State Police- Troop C	Coefficient	-0.277***	-0.182	-0.273**	-0.223**
	SE	(-0.092)	(-0.121)	(-0.124)	(-0.09)
	ESS	8,673	8,146	8,089	8,709
State Police- Troop D	Coefficient	0.405***	0.245	0.218	0.191*
	SE	(-0.135)	(-0.171)	(-0.144)	(-0.115)
	ESS	5,625	5,474	5,571	5,803
State Police- Troop E	Coefficient	-0.061	-0.115	0.249**	0.041
	SE	(-0.093)	(-0.108)	(-0.121)	(-0.086)
	ESS	6,606	6,335	6,178	6,809
State Police- Troop F	Coefficient	0.009	-0.128	-0.164	-0.135
	SE	(-0.116)	(-0.138)	(-0.138)	(-0.102)
	ESS	6,442	6,238	6,230	6,746
State Police- Troop G	Coefficient	-0.138	-0.078	-0.156	-0.103
	SE	(-0.097)	(-0.105)	(-0.109)	(-0.084)
	ESS	4,511	4,249	4,147	5,222
State Police- Troop H	Coefficient	-0.249**	-0.211	-0.218	-0.187*
	SE	(-0.12)	(-0.13)	(-0.147)	(-0.108)
	ESS	3,678	3,468	3,237	4,066
State Police- Troop I	Coefficient	0.043	-0.011	-0.315*	-0.144
	SE	(-0.145)	(-0.16)	(-0.173)	(-0.127)
	ESS	2,709	2,606	2,558	3,005
State Police- Troop K	Coefficient	-0.152	-0.169	-0.379***	-0.303***
	SE	(-0.133)	(-0.156)	(-0.141)	(-0.111)
	ESS	4,535	4,407	4,469	4,812
State Police- Troop L	Coefficient	0.439**	0.193	-0.045	0.025
	SE	(-0.21)	(-0.25)	(-0.201)	(-0.166)
	ESS	2,753	2,700	2,784	2,920

Table 27: Department Veil of Darkness Analysis, Combined Inter-twilight and Moving Violations

Department	VOD Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Ansonia	Coefficient	-0.255	-0.220	-0.481*	-0.332*
	SE	(0.213)	(0.220)	(0.251)	(0.177)
	ESS	1,005	988	932	1105
Avon	Coefficient	0.533	0.635	-1.798*	0.0880
	SE	(0.700)	(0.870)	(0.991)	(0.787)
	ESS	233	223	216	232
Berlin	Coefficient	0.311	0.220	-0.210	-0.0285
	SE	(0.423)	(0.476)	(0.400)	(0.321)
	ESS	540	520	539	595
Bethel	Coefficient	-0.503	-0.286	-0.227	-0.278
	SE	(0.396)	(0.438)	(0.450)	(0.335)
	ESS	502	490	505	543
Bloomfield	Coefficient	-0.599***	-0.588**	-0.265	-0.579**
	SE	(0.231)	(0.235)	(0.391)	(0.229)
	ESS	727	703	381	749
Branford	Coefficient	-0.362	-0.362	-0.782	-0.558
	SE	(0.694)	(0.694)	(0.727)	(0.512)
	ESS	444	444	445	463
Bridgeport	Coefficient	-0.0705	-0.0966	-0.266	-0.141
	SE	(0.224)	(0.226)	(0.250)	(0.209)
	ESS	538	527	408	731
Bristol	Coefficient	-0.228	-0.282	0.590**	0.225
	SE	(0.316)	(0.348)	(0.280)	(0.221)
	ESS	979	966	1,003	1,076
Brookfield	Coefficient	0.617	0.916	0.427	0.414
	SE	(0.823)	(1.375)	(0.487)	(0.468)
	ESS	301	295	312	319
Canton	Coefficient	1.231	7.564*	0.482	0.0237
	SE	(0.980)	(4.309)	(1.478)	(1.098)
	ESS	323	316	319	322
Cheshire	Coefficient	-0.204	-0.138	-0.749	-0.318
	SE	(0.333)	(0.357)	(0.670)	(0.316)
	ESS	742	729	698	758
Clinton	Coefficient	0.398	0.129	-1.243**	-0.941*
	SE	(0.760)	(0.738)	(0.620)	(0.505)
	ESS	357	347	363	370
Coventry	Coefficient	0.0306	1.877**	0.930	1.103
	SE	(1.140)	(0.860)	(0.926)	(0.700)
	ESS	197	193	193	200
Cromwell	Coefficient	0.307	1.225	1.411	1.137*
	SE	(0.663)	(0.803)	(1.137)	(0.619)
	ESS	167	164	158	173
Danbury	Coefficient	-1.482**	-1.379**	0.132	-0.148
	SE	(0.586)	(0.664)	(0.384)	(0.354)
	ESS	231	222	279	310

Table 27: Department Veil of Darkness Analysis, Combined Inter-twilight and Moving Violations

Department	VOD Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Darien	Coefficient	-0.289	-0.224	-0.680	-0.540
	SE	(0.514)	(0.537)	(0.475)	(0.378)
	ESS	299	292	307	338
Derby	Coefficient	-0.281	-0.514	-0.372	-0.385
	SE	(0.440)	(0.470)	(0.430)	(0.340)
	ESS	374	368	370	424
East Hampton	Coefficient	0.312	0.348		0.239
	SE	(2.309)	(1.858)		(3.003)
	ESS	63	62		64
East Hartford	Coefficient	-0.0300	-0.0542	-0.0164	-0.0373
	SE	(0.278)	(0.280)	(0.304)	(0.256)
	ESS	470	456	389	611
East Haven	Coefficient	0.344	-0.155	0.284	0.166
	SE	(0.507)	(0.785)	(0.525)	(0.431)
	ESS	328	316	340	358
East Windsor	Coefficient	-0.841	-0.692	1.498	-0.250
	SE	(0.820)	(0.836)	(1.774)	(0.735)
	ESS	171	170	165	179
Easton	Coefficient	-12.09*	-85.13	-1.402	-1.249
	SE	(7.230)	(4457.4)	(1.701)	(1.059)
	ESS	89	88	92	95
Enfield	Coefficient	0.493*	0.564*	-0.490	0.116
	SE	(0.286)	(0.330)	(0.359)	(0.248)
	ESS	1,077	1,056	1,037	1,109
Fairfield	Coefficient	0.179	0.242	-0.346	0.0245
	SE	(0.244)	(0.266)	(0.335)	(0.219)
	ESS	1,008	980	948	1,097
Farmington	Coefficient	-0.406	-0.742	0.512	-0.169
	SE	(0.398)	(0.563)	(0.620)	(0.421)
	ESS	440	409	398	435
Glastonbury	Coefficient	-0.240	-0.123	-0.369	-0.258
	SE	(0.330)	(0.517)	(0.451)	(0.346)
	ESS	688	648	657	697
Granby	Coefficient	1.277	0.536	20.43	0.310
	SE	(1.455)	(1.660)	(25.29)	(1.165)
	ESS	201	200	194	205
Greenwich	Coefficient	-0.456	-0.750*	-0.0607	-0.258
	SE	(0.340)	(0.443)	(0.314)	(0.267)
	ESS	798	764	807	858
Groton	Coefficient	-0.0507	-0.268	-0.736**	-0.438*
	SE	(0.286)	(0.321)	(0.370)	(0.266)
	ESS	731	709	673	751
Groton City	Coefficient	-0.453	-0.560	-0.136	-0.225
	SE	(0.491)	(0.612)	(0.496)	(0.403)
	ESS	308	296	301	342

Table 27: Department Veil of Darkness Analysis, Combined Inter-twilight and Moving Violations

Department	VOD Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Groton Long Point	Coefficient				
	SE				
	ESS				
Guilford	Coefficient	0.114	0.370	-0.440	-0.102
	SE	(0.433)	(0.706)	(0.508)	(0.438)
	ESS	724	707	719	729
Hamden	Coefficient	-0.131	-0.111	-0.00460	-0.0792
	SE	(0.265)	(0.268)	(0.414)	(0.246)
	ESS	523	516	397	569
Hartford	Coefficient	0.0488	-0.00714	-0.145	-0.116
	SE	(0.410)	(0.423)	(0.434)	(0.390)
	ESS	317	311	225	429
Madison	Coefficient	-0.456	-0.798	-1.291	-1.060*
	SE	(0.586)	(0.798)	(0.907)	(0.636)
	ESS	450	441	444	457
Manchester	Coefficient	-0.177	-0.213	0.497*	0.107
	SE	(0.236)	(0.275)	(0.296)	(0.212)
	ESS	860	812	741	908
Meriden	Coefficient	0.0817	-0.0562	-0.113	-0.0352
	SE	(0.466)	(0.489)	(0.369)	(0.315)
	ESS	248	242	298	347
Middlebury	Coefficient				
	SE				
	ESS				
Middletown	Coefficient	-0.200	-0.0784	0.833	0.279
	SE	(0.387)	(0.408)	(0.531)	(0.339)
	ESS	342	334	299	362
Milford	Coefficient	-0.139	-2.269	-3.115*	-2.349**
	SE	(0.977)	(1.554)	(1.817)	(1.076)
	ESS	118	111	107	117
Monroe	Coefficient	-0.0657	-0.311	-0.393	-0.366
	SE	(0.397)	(0.447)	(0.447)	(0.326)
	ESS	820	808	825	858
Naugatuck	Coefficient	-0.552	-0.572	-0.190	-0.264
	SE	(0.370)	(0.385)	(0.334)	(0.269)
	ESS	654	648	673	729
New Britain	Coefficient	0.0718	0.118	-0.102	-0.0222
	SE	(0.194)	(0.202)	(0.153)	(0.137)
	ESS	1,050	1,021	1,335	1,591
New Canaan	Coefficient	-0.357	-0.647	-0.0942	-0.337
	SE	(0.340)	(0.407)	(0.378)	(0.290)
	ESS	786	756	776	814
New Haven	Coefficient	0.360***	0.362***	-0.158	0.188
	SE	(0.132)	(0.133)	(0.170)	(0.121)
	ESS	1,927	1,887	1,355	2,331

Table 27: Department Veil of Darkness Analysis, Combined Inter-twilight and Moving Violations

Department	VOD Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
New London	Coefficient	0.550	0.721	-0.0246	0.439
	SE	(0.545)	(0.568)	(0.460)	(0.405)
	ESS	160	158	171	200
New Milford	Coefficient	-0.841	-0.486	-1.308***	-1.105***
	SE	(0.594)	(0.641)	(0.482)	(0.387)
	ESS	642	632	680	705
Newington	Coefficient	0.220	0.247	0.372	0.349
	SE	(0.325)	(0.372)	(0.308)	(0.256)
	ESS	551	525	552	615
Newtown	Coefficient	-0.424	-0.314	0.111	-0.0874
	SE	(0.263)	(0.312)	(0.280)	(0.211)
	ESS	2,406	2,353	2,371	2,513
North Branford	Coefficient				-2.258*
	SE				(1.354)
	ESS				130
North Haven	Coefficient	-1.138	-1.049	-1.249	-0.989
	SE	(0.819)	(0.854)	(0.878)	(0.655)
	ESS	191	190	177	202
Norwalk	Coefficient	-0.918**	-0.943**	-0.240	-0.593*
	SE	(0.378)	(0.398)	(0.394)	(0.316)
	ESS	302	294	288	359
Norwich	Coefficient	2.103**	2.420**	2.922***	2.460***
	SE	(1.067)	(1.193)	(1.086)	(0.951)
	ESS	183	178	178	213
Old Saybrook	Coefficient	0.404	1.207*	-1.363**	-0.104
	SE	(0.504)	(0.617)	(0.593)	(0.466)
	ESS	620	605	613	629
Orange	Coefficient	-0.706**	-0.494	0.167	-0.259
	SE	(0.289)	(0.303)	(0.355)	(0.253)
	ESS	587	566	531	644
Plainfield	Coefficient	0.388	0.388	0.0142	0.336
	SE	(0.856)	(0.856)	(0.776)	(0.640)
	ESS	313	313	315	326
Plainville	Coefficient	-0.0296	0.252	0.347	0.570
	SE	(0.473)	(0.615)	(0.597)	(0.451)
	ESS	494	482	483	510
Plymouth	Coefficient	-0.257	-11.51***	9.877***	0.766
	SE	(0.683)	(3.386)	(3.227)	(1.145)
	ESS	214	211	211	215
Portland	Coefficient				
	SE				
	ESS				
Putnam	Coefficient				
	SE				
	ESS				

Table 27: Department Veil of Darkness Analysis, Combined Inter-twilight and Moving Violations

Department	VOD Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Redding	Coefficient	0.490	0.135	-0.675	-0.312
	SE	(0.763)	(0.871)	(0.692)	(0.595)
	ESS	303	299	309	321
Ridgefield	Coefficient	-0.495	-0.0703	0.149	0.0748
	SE	(0.422)	(0.557)	(0.389)	(0.333)
	ESS	983	947	1,007	1,041
Rocky Hill	Coefficient	-0.261	-0.144	0.0275	-0.0406
	SE	(0.316)	(0.375)	(0.392)	(0.285)
	ESS	643	618	612	672
Seymour	Coefficient	-0.368	-0.414	-0.437	-0.414
	SE	(0.402)	(0.416)	(0.433)	(0.326)
	ESS	759	756	761	801
Shelton	Coefficient				1.302
	SE				(1.219)
	ESS				63
Simsbury	Coefficient	0.716	0.551	-0.772	-0.0819
	SE	(0.517)	(0.542)	(0.792)	(0.452)
	ESS	508	495	488	513
South Windsor	Coefficient	-0.195	-0.337	-0.811	-0.516
	SE	(0.376)	(0.424)	(0.543)	(0.346)
	ESS	428	407	382	441
Southington	Coefficient	-0.717	-0.599	0.577	0.253
	SE	(0.957)	(1.300)	(0.599)	(0.581)
	ESS	625	618	623	636
Stamford	Coefficient	0.256	0.250	-0.0612	0.0657
	SE	(0.225)	(0.257)	(0.235)	(0.185)
	ESS	691	649	677	771
Stonington	Coefficient	0.266	-0.0154	1.880*	0.521
	SE	(0.508)	(0.559)	(1.021)	(0.489)
	ESS	551	545	533	554
Stratford	Coefficient	0.186	0.130	0.377	0.218
	SE	(0.506)	(0.512)	(0.510)	(0.442)
	ESS	149	141	143	186
Suffield	Coefficient	-1.649	-1.497	6.406***	-0.828
	SE	(1.103)	(1.134)	(1.838)	(0.837)
	ESS	260	257	246	261
Thomaston	Coefficient	0.204		-167.4	-29.77
	SE	(1.905)		(6320.0)	(42.58)
	ESS	167		167	168
Torrington	Coefficient	0.160	0.174	0.584*	0.458
	SE	(0.418)	(0.465)	(0.339)	(0.293)
	ESS	861	854	873	907
Trumbull	Coefficient	-0.135	-0.226	-0.128	-0.203
	SE	(0.422)	(0.476)	(0.514)	(0.362)
	ESS	247	237	224	270

Table 27: Department Veil of Darkness Analysis, Combined Inter-twilight and Moving Violations

Department	VOD Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Vernon	Coefficient	-0.386	-0.485	0.356	-0.134
	SE	(0.331)	(0.336)	(0.452)	(0.289)
	ESS	528	522	504	563
Wallingford	Coefficient	0.178	0.00342	-0.275	-0.155
	SE	(0.345)	(0.377)	(0.348)	(0.269)
	ESS	840	825	856	910
Waterbury	Coefficient	-2.458***	-2.458***	-2.230**	-2.357***
	SE	(0.848)	(0.848)	(1.129)	(0.813)
	ESS	74	74	66	98
Waterford	Coefficient	-0.0654	-0.299	-0.230	-0.278
	SE	(0.249)	(0.274)	(0.300)	(0.216)
	ESS	834	803	805	890
Watertown	Coefficient	1.993**	-3.815**	-1.295	-1.524
	SE	(0.993)	(1.650)	(0.824)	(0.930)
	ESS	178	177	178	184
West Hartford	Coefficient	-0.549*	-0.691**	0.133	-0.196
	SE	(0.300)	(0.345)	(0.312)	(0.246)
	ESS	647	615	644	734
West Haven	Coefficient	0.295	0.324	0.109	0.225
	SE	(0.231)	(0.240)	(0.245)	(0.190)
	ESS	776	762	735	902
Weston	Coefficient	0.0494	0.0494		0.169
	SE	(1.509)	(1.509)		(1.507)
	ESS	64	64		66
Westport	Coefficient	0.121	0.274	-0.211	0.0863
	SE	(0.319)	(0.379)	(0.453)	(0.293)
	ESS	723	698	684	756
Wethersfield	Coefficient	-1.182***	-1.249***	-0.225	-0.628**
	SE	(0.428)	(0.452)	(0.348)	(0.288)
	ESS	319	311	339	391
Willimantic	Coefficient	-0.806	-0.822	-0.548	-0.520
	SE	(0.847)	(0.841)	(0.393)	(0.371)
	ESS	184	183	240	253
Wilton	Coefficient	-0.456	-0.247	-0.216	-0.232
	SE	(0.418)	(0.515)	(0.367)	(0.321)
	ESS	670	643	668	707
Windsor	Coefficient	0.155	0.303	-0.800**	0.119
	SE	(0.195)	(0.201)	(0.365)	(0.189)
	ESS	799	766	534	844
Windsor Locks	Coefficient	-0.817	-0.518	-0.642	-0.553
	SE	(0.516)	(0.568)	(0.711)	(0.447)
	ESS	357	344	318	369
Winsted	Coefficient	-5.920***	-11.67***	-4.211	-14.12*
	SE	(2.102)	(4.312)	(2.631)	(7.769)
	ESS	116	113	110	115

Table 27: Department Veil of Darkness Analysis, Combined Inter-twilight and Moving Violations

Department	VOD Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Wolcott	Coefficient			-1.257	-1.735
	SE			(1.189)	(1.427)
	ESS			70	71
Woodbridge	Coefficient	0.682	0.394	-0.381	0.107
	SE	(0.459)	(0.515)	(0.687)	(0.431)
	ESS	182	171	152	190
State Police- All Other	Coefficient	-0.218	-0.265	-0.431*	-0.323*
	SE	(0.180)	(0.203)	(0.249)	(0.170)
	ESS	2,210	2,102	1,990	2,378
State Police- Troop A	Coefficient	-0.0140	-0.0768	0.325	0.175
	SE	(0.219)	(0.256)	(0.212)	(0.176)
	ESS	1,579	1,519	1,621	1,777
State Police- Troop B	Coefficient	-0.719**	-0.144	-0.435	-0.255
	SE	(0.344)	(0.397)	(0.400)	(0.292)
	ESS	927	910	908	947
State Police- Troop C	Coefficient	-0.137	0.163	-0.000123	0.0781
	SE	(0.131)	(0.177)	(0.191)	(0.137)
	ESS	3,129	2,875	2,856	3,076
State Police- Troop D	Coefficient	-0.0836	-0.433	0.333	-0.0112
	SE	(0.233)	(0.319)	(0.257)	(0.209)
	ESS	1,627	1,560	1,595	1,660
State Police- Troop E	Coefficient	-0.0621	-0.0258	0.385**	0.119
	SE	(0.132)	(0.157)	(0.187)	(0.128)
	ESS	3,120	2,956	2,842	3,158
State Police- Troop F	Coefficient	-0.00404	-0.0559	-0.205	-0.101
	SE	(0.183)	(0.218)	(0.216)	(0.159)
	ESS	2,272	2,192	2,210	2,394
State Police- Troop G	Coefficient	-0.600***	-0.521***	-0.216	-0.355***
	SE	(0.138)	(0.152)	(0.160)	(0.123)
	ESS	2,156	2,005	1,934	2,427
State Police- Troop H	Coefficient	-0.669***	-0.693***	-0.465**	-0.542***
	SE	(0.184)	(0.204)	(0.223)	(0.164)
	ESS	1,718	1,619	1,518	1,884
State Police- Troop I	Coefficient	-0.0184	-0.0840	-0.636**	-0.337*
	SE	(0.214)	(0.237)	(0.281)	(0.195)
	ESS	1,154	1,101	1,069	1,258
State Police- Troop K	Coefficient	-0.278	-0.156	0.0665	-0.0377
	SE	(0.207)	(0.246)	(0.235)	(0.180)
	ESS	1,943	1,885	1,875	2,003
State Police- Troop L	Coefficient	0.598*	0.386	-0.384	-0.0234
	SE	(0.346)	(0.404)	(0.368)	(0.284)
	ESS	930	907	934	976

Table 28: Department Synthetic Control Analysis

Department	Synthetic Control Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Ansonia	Coefficient	0.360***	0.279***	0.0581	0.222***
	SE	(0.033)	(0.032)	(0.037)	(0.027)
	Treatment (Raw)	17.5%	16.5%	12.2%	28.0%
	Control	17.1%	15.3%	13.6%	28.4%
	ESS	228,360			
Avon	Coefficient	-0.704***	-0.420***	-0.817***	-0.749***
	SE	(0.11)	(0.094)	(0.131)	(0.092)
	Treatment (Raw)	11.0%	8.3%	5.9%	14.2%
	Control	17.1%	15.2%	13.3%	28.1%
	ESS	706,926			
Berlin	Coefficient	-0.388***	-0.349***	-0.0681**	-0.255***
	SE	(0.037)	(0.034)	(0.033)	(0.027)
	Treatment (Raw)	11.3%	9.5%	13.2%	22.2%
	Control	16.4%	14.3%	13.3%	27.3%
	ESS	164,912			
Bethel	Coefficient	-0.971***	-0.764***	0.156***	-0.308***
	SE	(0.067)	(0.058)	(0.048)	(0.041)
	Treatment (Raw)	7.3%	5.4%	11.8%	17.0%
	Control	16.7%	14.8%	12.1%	26.5%
	ESS	321,019			
Bloomfield	Coefficient	2.569***	2.425***	0.283***	1.890***
	SE	(0.035)	(0.033)	(0.052)	(0.03)
	Treatment (Raw)	56.1%	54.0%	7.3%	60.8%
	Control	16.5%	14.6%	13.4%	27.5%
	ESS	698,295			
Branford	Coefficient	-1.253***	-1.332***	-0.779***	-1.015***
	SE	(0.059)	(0.057)	(0.051)	(0.041)
	Treatment (Raw)	5.1%	4.7%	6.8%	11.4%
	Control	19.5%	17.1%	12.9%	29.6%
	ESS	165,276			
Bridgeport	Coefficient	1.388***	1.332***	1.249***	1.284***
	SE	(0.04)	(0.039)	(0.042)	(0.035)
	Treatment (Raw)	39.7%	37.6%	28.6%	65.2%
	Control	16.8%	14.8%	13.1%	27.5%
	ESS	698,731			
Bristol	Coefficient	-0.593***	-0.613***	-0.153***	-0.356***
	SE	(0.043)	(0.04)	(0.037)	(0.03)
	Treatment (Raw)	10.2%	9.1%	13.2%	22.0%
	Control	18.0%	16.0%	13.8%	29.4%
	ESS	665,790			
Brookfield	Coefficient	-1.114***	-0.865***	-0.227***	-0.597***
	SE	(0.087)	(0.071)	(0.062)	(0.052)
	Treatment (Raw)	5.8%	3.8%	8.3%	11.9%
	Control	15.0%	13.1%	11.6%	24.3%
	ESS	306,291			

Table 28: Department Synthetic Control Analysis

Department	Synthetic Control Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Canton	Coefficient	-1.296***	-0.890***	-1.836***	-1.537***
	SE	(0.213)	(0.195)	(0.231)	(0.164)
	Treatment (Raw)	6.0%	3.9%	2.4%	6.2%
	Control	11.9%	10.9%	10.4%	21.1%
	ESS	818			
Cheshire	Coefficient	-0.533***	-0.502***	-0.832***	-0.689***
	SE	(0.04)	(0.038)	(0.047)	(0.032)
	Treatment (Raw)	9.9%	8.5%	6.0%	14.3%
	Control	17.3%	15.4%	13.5%	28.5%
	ESS	690,065			
Clinton	Coefficient	-1.390***	-1.094***	-0.505***	-0.844***
	SE	(0.088)	(0.072)	(0.061)	(0.051)
	Treatment (Raw)	5.3%	3.5%	7.5%	10.9%
	Control	17.2%	15.2%	13.3%	28.2%
	ESS	703,806			
Coventry	Coefficient	-0.859***	-0.608***	-0.457***	-0.599***
	SE	(0.148)	(0.127)	(0.121)	(0.095)
	Treatment (Raw)	5.0%	3.4%	4.6%	7.9%
	Control	14.3%	12.7%	11.2%	23.3%
	ESS	31,756			
Cromwell	Coefficient	-0.128**	-0.119**	-0.961***	-0.414***
	SE	(0.052)	(0.049)	(0.077)	(0.045)
	Treatment (Raw)	14.4%	12.5%	4.6%	16.9%
	Control	17.1%	15.2%	13.4%	28.1%
	ESS	704,761			
Danbury	Coefficient	-0.369***	-0.256***	0.938***	0.421***
	SE	(0.05)	(0.045)	(0.034)	(0.03)
	Treatment (Raw)	10.1%	7.8%	24.7%	32.1%
	Control	17.1%	15.2%	13.0%	27.7%
	ESS	684,625			
Darien	Coefficient	0.129**	0.210***	0.513***	0.318***
	SE	(0.065)	(0.061)	(0.064)	(0.05)
	Treatment (Raw)	14.1%	11.5%	15.8%	27.1%
	Control	14.4%	12.5%	10.8%	23.0%
	ESS	14,337			
Derby	Coefficient	0.285***	0.208***	0.249***	0.281***
	SE	(0.049)	(0.048)	(0.052)	(0.039)
	Treatment (Raw)	15.8%	14.7%	12.1%	26.5%
	Control	17.1%	15.2%	13.3%	28.1%
	ESS	702,527			
East Hampton	Coefficient	-1.295***	-1.176***	-1.578***	-1.397***
	SE	(0.162)	(0.144)	(0.174)	(0.124)
	Treatment (Raw)	4.7%	3.6%	2.7%	6.2%
	Control	17.1%	15.2%	13.3%	28.1%
	ESS	707,869			

Table 28: Department Synthetic Control Analysis

Department	Synthetic Control Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
East Hartford	Coefficient	1.929***	1.804***	1.476***	1.708***
	SE	(0.022)	(0.022)	(0.024)	(0.019)
	Treatment (Raw)	38.9%	37.2%	26.1%	62.7%
	Control	16.6%	14.6%	13.0%	27.3%
	ESS	693,019			
East Haven	Coefficient	-0.610***	-0.535***	0.0526	-0.228***
	SE	(0.077)	(0.07)	(0.058)	(0.049)
	Treatment (Raw)	8.4%	7.1%	13.5%	20.4%
	Control	17.2%	15.3%	13.4%	28.3%
	ESS	700,690			
Easton	Coefficient	-1.119***	-0.897***	-0.0937	-0.575***
	SE	(0.224)	(0.201)	(0.16)	(0.135)
	Treatment (Raw)	5.4%	4.1%	8.0%	12.1%
	Control	16.3%	14.5%	12.2%	26.3%
	ESS	33,328			
East Windsor	Coefficient	0.0639	0.0478	-0.496***	-0.134**
	SE	(0.067)	(0.064)	(0.088)	(0.057)
	Treatment (Raw)	14.6%	13.0%	6.8%	19.6%
	Control	17.1%	15.2%	13.3%	28.1%
	ESS	706,959			
Enfield	Coefficient	-0.672***	-0.653***	-0.976***	-0.816***
	SE	(0.046)	(0.042)	(0.054)	(0.036)
	Treatment (Raw)	11.2%	9.5%	7.0%	16.2%
	Control	17.2%	15.3%	13.4%	28.3%
	ESS	695,047			
Fairfield	Coefficient	0.00895	-0.0270	0.0400	-0.00125
	SE	(0.027)	(0.026)	(0.027)	(0.021)
	Treatment (Raw)	15.7%	14.2%	14.1%	28.0%
	Control	17.1%	15.2%	13.3%	28.1%
	ESS	696,724			
Farmington	Coefficient	-0.761***	-0.509***	-0.568***	-0.708***
	SE	(0.066)	(0.059)	(0.08)	(0.053)
	Treatment (Raw)	12.0%	8.3%	7.9%	15.8%
	Control	21.9%	20.4%	10.2%	30.4%
	ESS	877			
Glastonbury	Coefficient	-0.614***	-0.322***	-0.591***	-0.596***
	SE	(0.037)	(0.032)	(0.038)	(0.028)
	Treatment (Raw)	12.4%	8.4%	8.0%	16.3%
	Control	17.2%	15.2%	13.4%	28.2%
	ESS	698,759			
Granby	Coefficient	-0.977***	-0.989***	-1.777***	-1.306***
	SE	(0.114)	(0.107)	(0.168)	(0.099)
	Treatment (Raw)	5.6%	4.9%	2.7%	7.6%
	Control	16.7%	14.8%	13.1%	27.5%
	ESS	356,027			

Table 28: Department Synthetic Control Analysis

Department	Synthetic Control Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Greenwich	Coefficient	-0.630***	-0.462***	0.307***	-0.0951***
	SE	(0.033)	(0.029)	(0.024)	(0.021)
	Treatment (Raw)	10.4%	7.7%	18.7%	26.1%
	Control	17.2%	15.3%	13.2%	28.1%
	ESS	693,845			
Groton	Coefficient	-0.387***	-0.311***	-0.508***	-0.482***
	SE	(0.04)	(0.037)	(0.045)	(0.032)
	Treatment (Raw)	17.5%	14.5%	10.4%	24.2%
	Control	16.4%	14.5%	14.4%	28.5%
	ESS	410,787			
Guilford	Coefficient	-1.547***	-1.140***	-0.894***	-1.189***
	SE	(0.097)	(0.074)	(0.087)	(0.068)
	Treatment (Raw)	4.3%	2.3%	3.6%	5.7%
	Control	14.8%	12.9%	11.7%	24.3%
	ESS	289,337			
Hamden	Coefficient	1.150***	1.035***	-0.133***	0.714***
	SE	(0.026)	(0.026)	(0.044)	(0.024)
	Treatment (Raw)	36.4%	35.4%	8.6%	43.7%
	Control	16.8%	14.9%	13.4%	27.8%
	ESS	698,757			
Hartford	Coefficient	2.154***	2.040***	1.785***	1.884***
	SE	(0.048)	(0.046)	(0.051)	(0.039)
	Treatment (Raw)	39.5%	38.3%	27.2%	64.9%
	Control	15.5%	13.7%	14.8%	28.1%
	ESS	211,227			
Ledyard	Coefficient	0.905	3.722***	-16.93	-1.123*
	SE	(0.684)	(0.505)	#VALUE!	(0.575)
	Treatment (Raw)	30.0%	10.0%	0.0%	10.0%
	Control	17.1%	15.1%	13.3%	28.1%
	ESS	709,041			
Madison	Coefficient	-1.766***	-1.468***	-1.349***	-1.542***
	SE	(0.088)	(0.074)	(0.079)	(0.062)
	Treatment (Raw)	3.9%	2.7%	3.9%	6.5%
	Control	17.2%	15.3%	13.4%	28.2%
	ESS	702,610			
Manchester	Coefficient	0.732***	0.729***	0.430***	0.598***
	SE	(0.03)	(0.029)	(0.036)	(0.026)
	Treatment (Raw)	27.6%	24.2%	15.2%	38.6%
	Control	17.1%	15.1%	13.1%	27.9%
	ESS	668,822			
Meriden	Coefficient	0.271***	0.227***	1.143***	0.726***
	SE	(0.047)	(0.046)	(0.039)	(0.035)
	Treatment (Raw)	17.6%	16.6%	32.6%	48.2%
	Control	16.6%	14.7%	12.8%	27.1%
	ESS	675,578			

Table 28: Department Synthetic Control Analysis

Department	Synthetic Control Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Middlebury	Coefficient	-1.555***	-1.128***	-0.546	-1.377***
	SE	(0.372)	(0.33)	(0.363)	(0.301)
	Treatment (Raw)	4.7%	3.6%	5.6%	9.0%
	Control	17.1%	15.2%	13.3%	28.1%
	ESS	708,608			
Middletown	Coefficient	0.399***	0.338***	-0.328***	0.125***
	SE	(0.037)	(0.036)	(0.051)	(0.032)
	Treatment (Raw)	21.1%	19.6%	8.9%	28.3%
	Control	15.6%	13.6%	13.0%	26.3%
	ESS	661,479			
Milford	Coefficient	-0.655***	-0.560***	-0.624***	-0.699***
	SE	(0.037)	(0.035)	(0.04)	(0.029)
	Treatment (Raw)	14.9%	12.7%	10.0%	22.4%
	Control	17.1%	15.2%	13.3%	28.1%
	ESS	701,516			
Monroe	Coefficient	-0.859***	-0.801***	-0.728***	-0.791***
	SE	(0.057)	(0.052)	(0.057)	(0.042)
	Treatment (Raw)	6.7%	5.5%	6.3%	11.7%
	Control	15.0%	13.3%	12.0%	25.0%
	ESS	6,680			
Naugatuck	Coefficient	-0.272***	-0.304***	-0.233***	-0.258***
	SE	(0.038)	(0.036)	(0.038)	(0.029)
	Treatment (Raw)	12.3%	11.0%	10.9%	21.4%
	Control	17.4%	15.4%	13.5%	28.5%
	ESS	683,063			
New Britain	Coefficient	0.699***	0.637***	1.553***	1.181***
	SE	(0.026)	(0.025)	(0.022)	(0.02)
	Treatment (Raw)	20.1%	18.8%	42.7%	60.2%
	Control	17.0%	15.1%	12.7%	27.4%
	ESS	695,190			
New Canaan	Coefficient	-0.205***	-0.171***	0.00456	-0.0592
	SE	(0.061)	(0.052)	(0.053)	(0.042)
	Treatment (Raw)	8.3%	5.6%	9.5%	14.9%
	Control	12.0%	9.4%	12.0%	21.0%
	ESS	16,556			
New Haven	Coefficient	-1.002***	-0.893***	-1.933***	-1.443***
	SE	(0.053)	(0.052)	(0.059)	(0.048)
	Treatment (Raw)	46.3%	44.5%	20.4%	63.8%
	Control	16.1%	14.2%	13.1%	26.9%
	ESS	684,545			
Newington	Coefficient	0.0870***	0.167***	0.528***	0.324***
	SE	(0.028)	(0.027)	(0.025)	(0.021)
	Treatment (Raw)	17.8%	14.7%	21.2%	35.5%
	Control	17.1%	15.2%	13.2%	27.9%
	ESS	697,158			

Table 28: Department Synthetic Control Analysis

Department	Synthetic Control Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
New London	Coefficient	0.627***	0.560***	0.798***	0.698***
	SE	(0.055)	(0.053)	(0.052)	(0.042)
	Treatment (Raw)	19.8%	18.6%	20.3%	37.7%
	Control	17.1%	15.1%	13.3%	28.0%
	ESS	706,028			
New Milford	Coefficient	-1.376***	-1.187***	-0.582***	-0.922***
	SE	(0.074)	(0.065)	(0.057)	(0.047)
	Treatment (Raw)	5.7%	4.1%	8.2%	12.1%
	Control	17.2%	15.3%	13.4%	28.2%
	ESS	701,107			
Newtown	Coefficient	-1.382***	-1.257***	-1.376***	-1.438***
	SE	(0.044)	(0.038)	(0.043)	(0.033)
	Treatment (Raw)	7.1%	5.3%	5.5%	10.7%
	Control	17.5%	15.5%	13.6%	28.7%
	ESS	685,112			
North Branford	Coefficient	-1.354***	-1.147***	-1.252***	-1.253***
	SE	(0.136)	(0.127)	(0.148)	(0.105)
	Treatment (Raw)	5.6%	4.7%	4.3%	9.0%
	Control	17.2%	15.3%	13.4%	28.3%
	ESS	702,849			
North Haven	Coefficient	-0.401***	-0.413***	-0.208***	-0.358***
	SE	(0.061)	(0.058)	(0.069)	(0.05)
	Treatment (Raw)	13.6%	12.3%	9.3%	20.8%
	Control	18.7%	16.6%	11.5%	27.7%
	ESS	31,009			
Norwalk	Coefficient	0.459***	0.394***	0.483***	0.445***
	SE	(0.027)	(0.026)	(0.027)	(0.022)
	Treatment (Raw)	23.4%	22.2%	21.1%	42.9%
	Control	17.0%	15.0%	13.1%	27.7%
	ESS	691,801			
Norwich	Coefficient	0.247***	0.335***	0.0433	0.120***
	SE	(0.033)	(0.03)	(0.038)	(0.027)
	Treatment (Raw)	24.9%	20.1%	13.8%	33.1%
	Control	16.9%	15.1%	13.3%	28.0%
	ESS	696,173			
Old Saybrook	Coefficient	-1.832***	-1.447***	-1.161***	-1.457***
	SE	(0.081)	(0.066)	(0.066)	(0.054)
	Treatment (Raw)	5.0%	3.2%	5.2%	8.3%
	Control	17.2%	15.3%	13.4%	28.2%
	ESS	702,866			
Orange	Coefficient	0.121***	0.186***	-0.0247	0.0356
	SE	(0.04)	(0.038)	(0.046)	(0.034)
	Treatment (Raw)	21.0%	18.2%	12.6%	30.5%
	Control	17.3%	15.2%	11.8%	26.7%
	ESS	64,451			

Table 28: Department Synthetic Control Analysis

Department	Synthetic Control Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Plainfield	Coefficient	-1.829***	-1.785***	-1.398***	-1.601***
	SE	(0.131)	(0.126)	(0.136)	(0.099)
	Treatment (Raw)	3.4%	2.8%	3.3%	6.1%
	Control	17.1%	15.2%	13.3%	28.1%
	ESS	706,117			
Plainville	Coefficient	-0.486***	-0.421***	-0.0971**	-0.287***
	SE	(0.05)	(0.046)	(0.045)	(0.036)
	Treatment (Raw)	10.1%	8.6%	11.7%	19.9%
	Control	16.5%	14.6%	12.0%	26.2%
	ESS	87,958			
Plymouth	Coefficient	-1.358***	-1.263***	-1.126***	-1.225***
	SE	(0.098)	(0.092)	(0.093)	(0.071)
	Treatment (Raw)	5.5%	4.7%	5.3%	9.9%
	Control	17.2%	15.2%	13.4%	28.2%
	ESS	601,285			
Portland	Coefficient	-0.327	-0.414	-2.999***	-1.009**
	SE	(0.497)	(0.5)	(0.376)	(0.394)
	Treatment (Raw)	5.0%	4.4%	2.4%	6.8%
	Control	17.1%	15.2%	13.3%	28.1%
	ESS	708,713			
Putnam	Coefficient	-1.759***	-1.651***	-2.586***	-2.053***
	SE	(0.129)	(0.114)	(0.195)	(0.11)
	Treatment (Raw)	3.1%	2.3%	1.0%	3.2%
	Control	15.4%	12.9%	11.8%	24.3%
	ESS	10,304			
Redding	Coefficient	-1.224***	-0.994***	-0.332***	-0.668***
	SE	(0.079)	(0.067)	(0.053)	(0.046)
	Treatment (Raw)	5.2%	3.6%	8.5%	12.0%
	Control	17.2%	15.2%	13.3%	28.2%
	ESS	704,572			
Ridgefield	Coefficient	-1.239***	-0.911***	-0.262***	-0.633***
	SE	(0.042)	(0.034)	(0.029)	(0.025)
	Treatment (Raw)	6.7%	4.1%	10.0%	14.1%
	Control	17.3%	15.4%	13.4%	28.4%
	ESS	693,972			
Rocky Hill	Coefficient	-0.235***	-0.0856**	-0.444***	-0.323***
	SE	(0.038)	(0.034)	(0.043)	(0.03)
	Treatment (Raw)	13.7%	10.5%	8.0%	18.3%
	Control	17.1%	15.2%	13.4%	28.2%
	ESS	701,425			
Seymour	Coefficient	-0.822***	-0.784***	-0.775***	-0.797***
	SE	(0.047)	(0.043)	(0.049)	(0.036)
	Treatment (Raw)	8.0%	6.8%	6.1%	12.6%
	Control	17.2%	15.2%	13.4%	28.2%
	ESS	701,902			

Table 28: Department Synthetic Control Analysis

Department	Synthetic Control Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Shelton	Coefficient	-0.605***	-0.513***	-0.486***	-0.521***
	SE	(0.117)	(0.108)	(0.114)	(0.085)
	Treatment (Raw)	8.6%	7.1%	7.6%	14.6%
	Control	17.1%	15.2%	13.3%	28.1%
	ESS	707,854			
Simsbury	Coefficient	-0.583***	-0.458***	-1.166***	-0.812***
	SE	(0.063)	(0.055)	(0.084)	(0.052)
	Treatment (Raw)	7.2%	5.3%	3.0%	8.1%
	Control	14.7%	13.0%	12.0%	24.5%
	ESS	265,303			
Southington	Coefficient	-1.607***	-1.514***	-0.766***	-1.122***
	SE	(0.084)	(0.075)	(0.06)	(0.049)
	Treatment (Raw)	3.2%	2.5%	5.6%	7.9%
	Control	17.7%	15.7%	13.7%	29.0%
	ESS	683,256			
South Windsor	Coefficient	0.251***	0.305***	-0.0910**	0.115***
	SE	(0.036)	(0.033)	(0.043)	(0.029)
	Treatment (Raw)	19.5%	16.3%	10.4%	26.5%
	Control	17.1%	15.1%	13.3%	28.1%
	ESS	702,241			
Stamford	Coefficient	-0.0819	0.0336	0.410***	0.160***
	SE	(0.07)	(0.065)	(0.068)	(0.054)
	Treatment (Raw)	18.6%	14.7%	19.1%	33.6%
	Control	17.1%	15.2%	13.2%	28.0%
	ESS	702,059			
Stonington	Coefficient	-1.390***	-1.167***	-1.501***	-1.476***
	SE	(0.091)	(0.077)	(0.104)	(0.071)
	Treatment (Raw)	5.8%	3.9%	2.9%	6.4%
	Control	17.2%	15.3%	13.4%	28.3%
	ESS	700,810			
Stratford	Coefficient	0.357***	0.366***	0.0966*	0.277***
	SE	(0.047)	(0.046)	(0.055)	(0.04)
	Treatment (Raw)	32.7%	31.5%	18.0%	48.9%
	Control	25.6%	24.2%	18.1%	42.0%
	ESS	12,369			
Suffield	Coefficient	-0.971***	-1.014***	-1.631***	-1.242***
	SE	(0.249)	(0.228)	(0.226)	(0.178)
	Treatment (Raw)	5.2%	4.4%	4.0%	8.2%
	Control	17.1%	15.2%	13.3%	28.1%
	ESS	707,223			
Thomaston	Coefficient	-1.634***	-1.303***	-1.071***	-1.264***
	SE	(0.332)	(0.248)	(0.214)	(0.187)
	Treatment (Raw)	3.2%	2.2%	4.4%	6.4%
	Control	15.7%	13.9%	12.6%	26.1%
	ESS	84,374			

Table 28: Department Synthetic Control Analysis

Department	Synthetic Control Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Torrington	Coefficient	-1.273***	-1.250***	-0.958***	-1.172***
	SE	(0.049)	(0.046)	(0.044)	(0.035)
	Treatment (Raw)	6.7%	5.8%	7.6%	12.5%
	Control	17.5%	15.5%	13.5%	28.6%
	ESS	687,389			
Trumbull	Coefficient	0.722***	0.736***	0.667***	0.698***
	SE	(0.0350)	(0.0368)	(0.0390)	(0.0294)
	Treatment (Raw)	21.1%	18.8%	15.7%	34.2%
	Control	13.2%	11.6%	10.5%	21.9%
	ESS	100,380			
Vernon	Coefficient	0.143***	0.200***	-0.119***	0.0833***
	SE	(0.0328)	(0.0342)	(0.0423)	(0.0283)
	Treatment (Raw)	16.2%	14.7%	8.8%	23.4%
	Control	14.2%	12.2%	10.2%	22.1%
	ESS	228,643			
Wallingford	Coefficient	-0.743***	-0.763***	-0.175***	-0.478***
	SE	(0.0278)	(0.0298)	(0.0266)	(0.0213)
	Treatment (Raw)	9.9%	8.4%	12.3%	20.6%
	Control	19.2%	17.3%	12.1%	29.0%
	ESS	36,178			
Waterbury	Coefficient	1.415***	1.522***	0.985***	1.167***
	SE	(0.0615)	(0.0634)	(0.0570)	(0.0478)
	Treatment (Raw)	30.6%	30.1%	29.8%	58.7%
	Control	13.9%	13.0%	26.6%	38.8%
	ESS	5,170			
Waterford	Coefficient				
	SE				
	Treatment (Raw)	14.6%	12.2%	11.6%	23.2%
	Control				
	ESS				
Watertown	Coefficient	-0.232***	-0.236***	-0.427***	-0.362***
	SE	(0.0680)	(0.0720)	(0.0794)	(0.0560)
	Treatment (Raw)	8.8%	7.7%	6.3%	13.4%
	Control	10.8%	9.6%	10.0%	19.2%
	ESS	24,992			
West Hartford	Coefficient	0.597***	0.513***	0.629***	0.559***
	SE	(0.0282)	(0.0306)	(0.0295)	(0.0232)
	Treatment (Raw)	19.2%	15.2%	17.3%	32.1%
	Control	12.8%	11.0%	11.2%	22.0%
	ESS	18,017			
West Haven	Coefficient	0.604***	0.683***	0.489***	0.599***
	SE	(0.0248)	(0.0253)	(0.0280)	(0.0213)
	Treatment (Raw)	26.8%	25.5%	18.7%	43.9%
	Control	19.2%	17.2%	14.3%	31.0%
	ESS	332,970			

Table 28: Department Synthetic Control Analysis

Department	Synthetic Control Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Weston	Coefficient				
	SE				
	Treatment (Raw)	6.9%	6.0%	6.1%	12.1%
	Control				
	ESS				
Westport	Coefficient	-0.546***	-0.609***	-0.631***	-0.651***
	SE	(0.0275)	(0.0295)	(0.0323)	(0.0228)
	Treatment (Raw)	12.3%	10.3%	8.6%	18.7%
	Control	19.1%	17.2%	13.8%	30.5%
	ESS	450,454			
Wethersfield	Coefficient	0.613***	0.659***	1.255***	0.968***
	SE	(0.0273)	(0.0283)	(0.0250)	(0.0213)
	Treatment (Raw)	20.5%	18.9%	29.2%	47.7%
	Control	16.6%	14.7%	12.6%	26.9%
	ESS	241,215			
Wilton	Coefficient	-0.265***	-0.419***	0.154***	-0.126***
	SE	(0.0350)	(0.0396)	(0.0336)	(0.0273)
	Treatment (Raw)	11.3%	8.5%	12.8%	20.9%
	Control	14.6%	12.7%	10.8%	23.2%
	ESS	267,670			
Winchester	Coefficient	-0.247	-0.189	-0.560***	-0.493***
	SE	(0.166)	(0.181)	(0.194)	(0.141)
	Treatment (Raw)	5.4%	5.0%	3.9%	7.6%
	Control	6.4%	5.4%	6.3%	11.5%
	ESS	1,449			
Windham	Coefficient	-0.314***	-0.310***	1.260***	0.661***
	SE	(0.0449)	(0.0480)	(0.0292)	(0.0257)
	Treatment (Raw)	8.4%	7.3%	25.7%	32.6%
	Control	13.3%	11.5%	9.2%	20.4%
	ESS	209,981			
Windsor	Coefficient	1.900***	2.058***	0.397***	1.508***
	SE	(0.0229)	(0.0237)	(0.0364)	(0.0213)
	Treatment (Raw)	45.8%	43.8%	9.5%	52.8%
	Control	12.5%	10.3%	11.0%	21.1%
	ESS	96,026			
Windsor Locks	Coefficient	0.635***	0.669***	0.107*	0.459***
	SE	(0.0395)	(0.0421)	(0.0555)	(0.0355)
	Treatment (Raw)	16.7%	14.4%	7.3%	21.6%
	Control	9.8%	8.2%	7.2%	15.2%
	ESS	91,472			
Wolcott	Coefficient	0.587***	0.865***	0.785***	0.775***
	SE	(0.153)	(0.161)	(0.155)	(0.118)
	Treatment (Raw)	9.1%	8.7%	9.0%	17.0%
	Control	5.8%	4.2%	4.6%	8.7%
	ESS	1,194			

Table 28: Department Synthetic Control Analysis

Department	Synthetic Control Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Woodbridge	Coefficient	1.340***	1.391***	0.483***	1.031***
	SE	(0.0457)	(0.0482)	(0.0650)	(0.0414)
	Treatment (Raw)	23.3%	20.9%	8.5%	29.0%
	Control	7.9%	6.7%	6.8%	13.3%
	ESS	20,723			

Table 28a: Variables used in the Synthetic Control Methodology

Contiguous Towns Characteristics, Department of Interest (American Community Survey 2014, 5-Year Estimates)

- White Alone, Percent of Population
- Black Alone, Percent of Population
- Hispanic, Percent of Population

Town Characteristics, Department of Interest (American Community Survey 2014, 5-Year Estimates)

- White Alone, Percent of Population
- Black Alone, Percent of Population
- Hispanic, Percent of Population
- Male, Percent of Population
- Total Population
- Area, Square Meters
- Population Density, Population Per Square Meter
- Age 20 to 24, Percent of Population
- Age 25 to 54, Percent of Population
- Median Earnings
- Vacant Housing (including seasonal housing), Percent of Housing
- Rental Housing, Percent of Housing
- Commute to Work: Car, Truck, or Van, Percent of Workers 16 Years and Over
- Employment in Retail Sector, Percent of Total Employment
- Employment in Entertainment Sector, Percent of Total Employment

Traffic Stop Characteristics, Department of Interest (Traffic Stop Data 2013-15, 5-Year Estimates)

- Total Officers in Department
- Department Traffic Stop Volume, Standardized across Departments
- Time of Day, Cubic Spline with Seven Knots
- Day of Week, Seven Binary indicators
- Month of Year, Twelve Binary indicators
- Year of Data, Three Binary Indicators
- Reason for Stop, Six Binary Indicators
- Town Resident, One Binary indicator
- State Resident, One Binary indicator

Table 30: Department KPT Hit Rate Analysis

Department	KPT Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Ansonia	Differential	9%	9%	-7%	2%
	Chi2 P-value	47%	51%	79%	100%
	ESS	115	114	110	127
Avon	Differential	25%			
	Chi2 P-value	100%			
	ESS	10			
Berlin	Differential				
	Chi2 P-value				
	ESS				
Bethel	Differential	48%	48%		59%
	Chi2 P-value	23%	23%		3%
	ESS	19	19		22
Bloomfield	Differential	23%	23%	-25%	18%
	Chi2 P-value	28%	28%	90%	47%
	ESS	34	34	15	37
Branford	Differential			6%	13%
	Chi2 P-value			96%	32%
	ESS			103	111
Bridgeport	Differential	4%	4%	5%	4%
	Chi2 P-value	39%	43%	30%	28%
	ESS	183	177	144	258
Bristol	Differential			-16%	-4%
	Chi2 P-value			31%	89%
	ESS			75	82
Brookfield	Differential				
	Chi2 P-value				
	ESS				
Canton	Differential	31%	22%		31%
	Chi2 P-value	55%	90%		55%
	ESS	31	30		31
Cheshire	Differential	35%	35%	35%	34%
	Chi2 P-value	2%	2%	11%	1%
	ESS	71	71	63	79
Clinton	Differential			14%	14%
	Chi2 P-value			63%	63%
	ESS			100	100
Coventry	Differential				
	Chi2 P-value				
	ESS				
Cromwell	Differential				
	Chi2 P-value				
	ESS				
Danbury	Differential	-8%	-8%	-1%	-6%
	Chi2 P-value	100%	100%	100%	100%
	ESS	26	26	28	34

Table 30: Department KPT Hit Rate Analysis

Department	KPT Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Darien	Differential	-20%	-20%	4%	-7%
	Chi2 P-value	41%	41%	100%	79%
	ESS	44	44	46	58
Derby	Differential				
	Chi2 P-value				
	ESS				
East Hampton	Differential	-36%	-36%		-36%
	Chi2 P-value	37%	37%		37%
	ESS	21	21		21
East Hartford	Differential	6%	6%	8%	6%
	Chi2 P-value	39%	44%	31%	30%
	ESS	268	266	200	359
East Haven	Differential				
	Chi2 P-value				
	ESS				
East Windsor	Differential				
	Chi2 P-value				
	ESS				
Easton	Differential				
	Chi2 P-value				
	ESS				
Enfield	Differential	-21%	-21%	-26%	-21%
	Chi2 P-value	37%	37%	25%	20%
	ESS	61	61	60	69
Fairfield	Differential	1%	0%	-5%	-1%
	Chi2 P-value	100%	100%	90%	100%
	ESS	84	83	70	101
Farmington	Differential			3%	3%
	Chi2 P-value			100%	100%
	ESS			29	29
Glastonbury	Differential	0%	1%	12%	7%
	Chi2 P-value	100%	100%	37%	47%
	ESS	153	151	153	175
Granby	Differential				
	Chi2 P-value				
	ESS				
Greenwich	Differential	5%	9%	18%	17%
	Chi2 P-value	91%	66%	7%	5%
	ESS	59	57	69	83
Groton City	Differential	-11%	-13%	-6%	-8%
	Chi2 P-value	54%	48%	89%	61%
	ESS	50	49	46	64
Groton Town	Differential	17%	17%		22%
	Chi2 P-value	85%	85%		51%
	ESS	18	18		21

Table 30: Department KPT Hit Rate Analysis

Department	KPT Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Guilford	Differential				
	Chi2 P-value				
	ESS				
Hamden	Differential	11%	11%		12%
	Chi2 P-value	30%	30%		21%
	ESS	94	94		101
Hartford	Differential	-15%	-16%	-4%	-10%
	Chi2 P-value	34%	32%	100%	52%
	ESS	69	68	48	98
Madison	Differential				
	Chi2 P-value				
	ESS				
Manchester	Differential	5%	5%	6%	6%
	Chi2 P-value	76%	76%	80%	68%
	ESS	85	85	72	115
Meriden	Differential	-22%	-22%	-11%	-16%
	Chi2 P-value	1%	1%	14%	2%
	ESS	117	116	130	180
Middletown	Differential	13%	13%	9%	12%
	Chi2 P-value	5%	6%	38%	3%
	ESS	304	303	253	337
Milford	Differential	8%	8%	9%	9%
	Chi2 P-value	13%	16%	21%	6%
	ESS	307	305	272	364
Monroe	Differential			18%	23%
	Chi2 P-value			89%	64%
	ESS			27	28
Naugatuck	Differential	-11%	-12%	-3%	-8%
	Chi2 P-value	12%	11%	87%	19%
	ESS	204	203	196	233
New Britain	Differential	11%	11%	9%	10%
	Chi2 P-value	18%	18%	21%	11%
	ESS	136	136	211	270
New Canaan	Differential	3%	3%	-30%	-3%
	Chi2 P-value	100%	100%	69%	100%
	ESS	33	33	33	35
New Haven	Differential	9%	9%	5%	8%
	Chi2 P-value	1%	1%	26%	1%
	ESS	723	722	332	888
New London	Differential	-23%	-23%	16%	2%
	Chi2 P-value	77%	77%	70%	100%
	ESS	19	19	24	27
New Milford	Differential	9%	6%		6%
	Chi2 P-value	90%	100%		100%
	ESS	44	43		43

Table 30: Department KPT Hit Rate Analysis

Department	KPT Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Newington	Differential	-7%	-8%	-1%	-4%
	Chi2 P-value	68%	62%	100%	80%
	ESS	67	66	85	106
Newtown	Differential				
	Chi2 P-value				
	ESS				
North Branford	Differential			8%	8%
	Chi2 P-value			100%	100%
	ESS			14	14
North Haven	Differential			9%	18%
	Chi2 P-value			70%	8%
	ESS			78	94
Norwalk	Differential	1%	1%	0%	0%
	Chi2 P-value	89%	91%	100%	100%
	ESS	346	345	261	445
Norwich	Differential	4%	3%	13%	8%
	Chi2 P-value	52%	62%	5%	13%
	ESS	307	304	266	366
Old Saybrook	Differential				
	Chi2 P-value				
	ESS				
Orange	Differential	-6%	-6%	-18%	-13%
	Chi2 P-value	100%	100%	73%	65%
	ESS	28	28	25	33
Plainfield	Differential	-10%	-18%		-5%
	Chi2 P-value	100%	100%		100%
	ESS	43	42		44
Plainville	Differential	5%	4%	-19%	-8%
	Chi2 P-value	72%	79%	3%	26%
	ESS	186	185	197	225
Plymouth	Differential	-6%	-6%	-9%	-4%
	Chi2 P-value	100%	100%	72%	94%
	ESS	66	66	69	78
Portland	Differential				
	Chi2 P-value				
	ESS				
Putnam	Differential				
	Chi2 P-value				
	ESS				
Redding	Differential				
	Chi2 P-value				
	ESS				
Ridgefield	Differential				-38%
	Chi2 P-value				84%
	ESS				10

Table 30: Department KPT Hit Rate Analysis

Department	KPT Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Rocky Hill	Differential	-6%	-6%		10%
	Chi2 P-value	95%	95%		52%
	ESS	67	67		78
Seymour	Differential				
	Chi2 P-value				
	ESS				
Shelton	Differential				
	Chi2 P-value				
	ESS				
Simsbury	Differential	17%	17%		0%
	Chi2 P-value	100%	100%		100%
	ESS	21	21		22
South Windsor	Differential	-3%	-4%	-13%	-8%
	Chi2 P-value	100%	100%	78%	68%
	ESS	54	53	45	59
Southington	Differential	32%	32%		2%
	Chi2 P-value	94%	94%		100%
	ESS	13	13		16
Stamford	Differential	7%	7%	-6%	1%
	Chi2 P-value	91%	91%	100%	100%
	ESS	35	35	31	44
Stonington	Differential				
	Chi2 P-value				
	ESS				
Stratford	Differential	-11%	-11%	-5%	-9%
	Chi2 P-value	11%	13%	65%	16%
	ESS	154	151	120	195
Suffield	Differential				
	Chi2 P-value				
	ESS				
Thomaston	Differential				
	Chi2 P-value				
	ESS				
Torrington	Differential	5%	5%	0%	2%
	Chi2 P-value	76%	76%	100%	100%
	ESS	124	124	113	139
Trumbull	Differential	-5%	-9%	-19%	-13%
	Chi2 P-value	100%	90%	67%	59%
	ESS	43	42	38	48
Vernon	Differential	9%	7%	11%	8%
	Chi2 P-value	31%	46%	28%	22%
	ESS	238	235	219	277
Wallingford	Differential	3%	3%	2%	3%
	Chi2 P-value	93%	97%	96%	79%
	ESS	178	175	204	228

Table 30: Department KPT Hit Rate Analysis

Department	KPT Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
Waterbury	Differential	34%	34%	27%	32%
	Chi2 P-value	0%	0%	1%	0%
	ESS	89	89	87	131
Waterford	Differential	-22%	-27%	11%	-6%
	Chi2 P-value	8%	4%	48%	63%
	ESS	120	118	115	135
Watertown	Differential				
	Chi2 P-value				
	ESS				
West Hartford	Differential	14%	13%	15%	14%
	Chi2 P-value	6%	9%	0%	0%
	ESS	456	454	520	573
West Haven	Differential	14%	14%	16%	15%
	Chi2 P-value	16%	16%	17%	5%
	ESS	78	78	68	101
Weston	Differential				
	Chi2 P-value				
	ESS				
Westport	Differential	6%	6%	7%	6%
	Chi2 P-value	47%	49%	55%	36%
	ESS	201	196	168	228
Wethersfield	Differential	4%	4%	2%	2%
	Chi2 P-value	55%	64%	83%	67%
	ESS	234	231	268	331
Willimantic	Differential	15%	13%	19%	17%
	Chi2 P-value	17%	26%	0%	0%
	ESS	176	174	231	261
Wilton	Differential			20%	20%
	Chi2 P-value			100%	100%
	ESS			12	12
Windsor	Differential				
	Chi2 P-value				
	ESS				
Windsor Locks	Differential	-18%	-18%		-18%
	Chi2 P-value	88%	88%		88%
	ESS	19	19		19
Winsted	Differential				
	Chi2 P-value				
	ESS				
Wolcott	Differential				
	Chi2 P-value				
	ESS				
Woodbridge	Differential	-31%	-31%		-38%
	Chi2 P-value	62%	62%		41%
	ESS	12	12		13

Table 30: Department KPT Hit Rate Analysis

Department	KPT Estimate	Non-Caucasian	Black	Hispanic	Black or Hispanic
State Police- Troop A	Differential	18%	0%	14%	7%
	Chi2 P-value	0%	100%	2%	16%
	ESS	328	328	293	414
State Police- Troop B	Differential	20%	8%	-2%	4%
	Chi2 P-value	73%	76%	63%	83%
	ESS	113	113	115	126
State Police- Troop C	Differential	10%	-5%	14%	6%
	Chi2 P-value	81%	41%	0%	2%
	ESS	477	477	468	556
State Police- Troop D	Differential	0%	-3%	-12%	-8%
	Chi2 P-value	88%	88%	31%	50%
	ESS	250	250	252	280
State Police- Troop E	Differential	0%	-4%	-1%	0%
	Chi2 P-value	45%	59%	83%	44%
	ESS	325	325	292	359
State Police- Troop F	Differential	14%	-22%	2%	1%
	Chi2 P-value	12%	2%	7%	0%
	ESS	159	159	140	178
State Police- Troop G	Differential	-1%	2%	0%	0%
	Chi2 P-value	59%	73%	87%	77%
	ESS	256	256	181	316
State Police- Troop H	Differential	-20%	-5%	7%	3%
	Chi2 P-value	76%	45%	4%	13%
	ESS	255	255	229	356
State Police- Troop I	Differential	-18%	-27%	-23%	-12%
	Chi2 P-value	100%	0%	89%	7%
	ESS	127	127	121	169
State Police- Troop K	Differential	-10%	-3%	2%	2%
	Chi2 P-value	41%	81%	57%	49%
	ESS	206	206	207	250
State Police- Troop L	Differential	-14%	-15%	-14%	-9%
	Chi2 P-value	2%	12%	100%	37%
	ESS	203	203	222	248