STATE OF CONNECTICUT

TRAFFIC STOP DATA ANALYSIS AND FINDINGS, 2015-16

SUPPLEMENTAL REPORT

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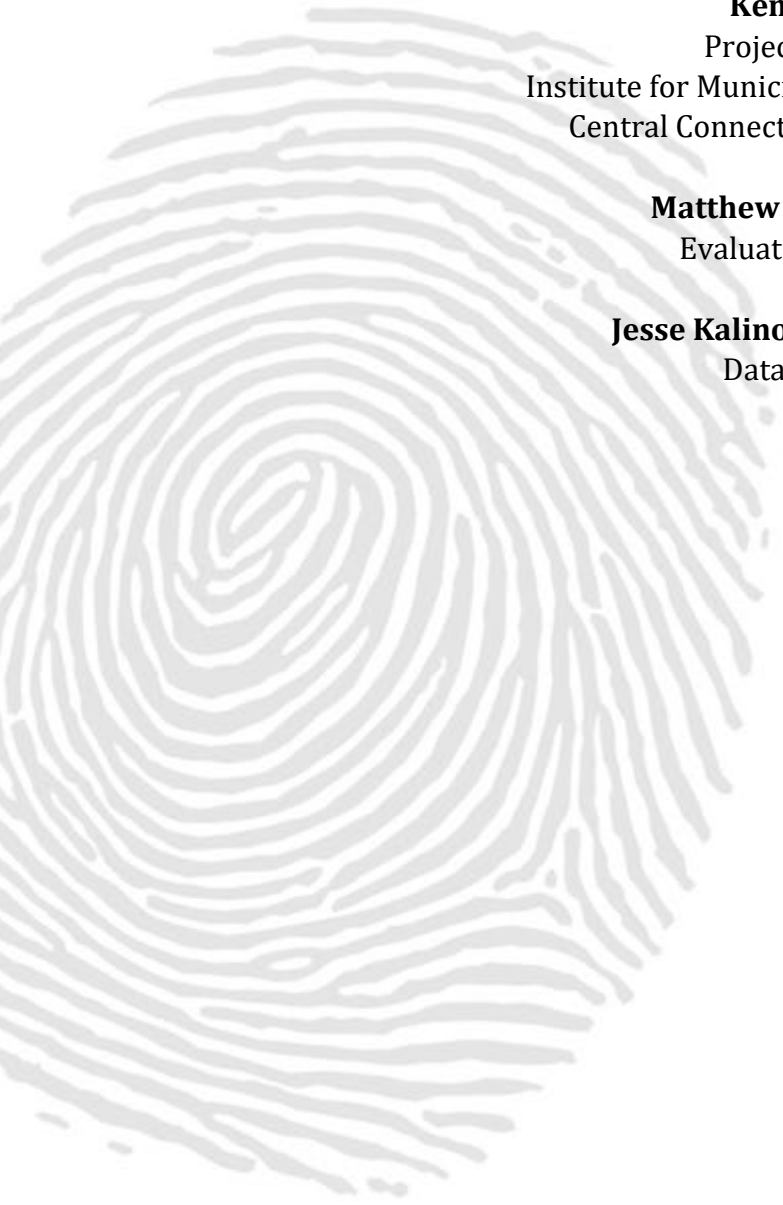Central Connecticut State University

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EXECUTIVE SUMMARY OF FINDINGS

The Alvin W. Penn Racial Profiling Prohibition Act (Public Act 99-198) was first enacted in 1999 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, in response to the US Justice Department's documentation of racial profiling by members of the East Haven Police Department, the Connecticut General Assembly made several changes to the law in an effort to ensure its effective implementation. 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.

As per section 54-1m of the Connecticut General Statutes, the IMRP is required to submit an annual report analyzing traffic stops records for all police departments in Connecticut. The *Traffic Stop Data Analysis and Findings, 2015-16* report published by the IMRP presented the results from an analysis in two parts, (1) a study of the 560,000 traffic stops conducted during the 12-month study period from October 1, 2015 through September 30, 2016 and (2) a study of the more than 1,755,000 traffic stops conducted over the first three years of this initiative from October 1, 2013 to September 30, 2016.

Part I of the report analyzed Connecticut traffic stop data from October 1, 2015 – September 30, 2016. The report found that statewide a total of 14.7% of motorists stopped during the study period were observed to be black. A comparable 13.1% of stops were of motorists from a Hispanic descent. The results presented in the state-level Veil of Darkness analysis provide strong evidence that a disparity exists in the rate of minority traffic stops by both municipal and State Police departments in the 2015 to 2016 sample. The level of significance remains relatively consistent for both groups when the sample is reduced to only moving violations. This, we conclude that these results are relatively robust and that the State Police disparity is likely driving much of the overall statewide disparity. The results from the post-stop analysis confirm that the disparity carries through to post-stop behavior across all racial and ethnic groups. In aggregate, Connecticut police departments exhibit a strong tendency to be less successful in motorist searches across all minority groups. Again, it is impossible to clearly link these observed disparities to racial profiling as these differences may be driven by any combination of policing policy, heterogeneous enforcement patterns, or individual officer behavior.

Part II of the report analyzed Connecticut traffic stop data over a three year period from October 1, 2013 – September 30, 2016. The report found that statewide a total 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 presented in the state-level Veil of Darkness analysis provide strong evidence that a disparity exists in the rate of minority traffic stops by both municipal and State Police departments in the combined 2013 to 2016 sample. Throughout, the disparity persists through the inclusion of both municipal

departments as well as officer fixed-effects. Further, the level of significance grows across all specifications when the sample is restricted to moving violations.

In addition to the state level results in both parts of the report, a total of eight municipal police departments 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 eight municipal departments 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 warranted further investigation. The agencies identified were: **Ansonia, Berlin, Darien, Madison, Monroe, Newtown, Norwich, and Ridgefield.**

A main goal for the follow-up analysis 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. Ultimately the approach included in this report is 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 eight 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 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, researchers 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 Norwich, 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 Norwich. 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 this report.

The final section of this report 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 336 unique officer identifiers were listed in the traffic stop database for the eight municipal departments that were part of the follow-up analysis. After limiting the sample to officers with 50 or more traffic stops, a total of 198 officers were examined. Of the officers examined, 21 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 12 of the 21 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.

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 researchers 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 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.

PROJECT 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.

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.

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.

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.

I.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. In November 2017, the IMRP released the third statewide *Traffic Stop Data Analysis and Findings, 2015-16* report which analyzed stops between October 1, 2015 and September 30, 2016. This analysis is considered one of the most comprehensive analyses done in the country.

The 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.

A second statistical technique used was 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.

In addition to the "Veil of Darkness" test and Synthetic Control analysis researchers also used three measures that are descriptive in nature and compare department-level data to three benchmarks (statewide average, estimated commuter driving populations, and resident population). These methods are referred to as population benchmarks and are commonly used to evaluate racial disparities in police data across the country. The statewide average comparison provides a simple and effective way to establish a baseline for all departments from which the relative differences between department stop numbers and the average for the state are compared. A comparison to the statewide average is presented alongside the context necessary to understand differences between local jurisdictions. Next, researchers adjust "static" residential census data to approximate the estimated driving demographics in a particular jurisdiction. 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 estimate is a composition of the driving population during typical commuting hours based on data provided by the U.S. Census Bureau. The final population benchmark comparison limits the analysis to stops involving only residents of the community and compares them to the community demographics based on the 2010 decennial census for residents age 16 and over. Although any one of these benchmarks cannot

provide by itself a rigorous enough analysis to draw conclusions regarding racial disparities, if taken together with the more rigorous statistical methods they do serve as a useful tool.

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.

As per section 54-1m of the Connecticut General Statutes, the IMRP is required to submit an annual report analyzing traffic stops records for all police departments in Connecticut. The *Traffic Stop Data Analysis and Findings, 2015-16* report published by the IMRP presented the results from an analysis in two parts, (1) a study of the 560,000 traffic stops conducted during the 12-month study period from October 1, 2015 through September 30, 2016 and (2) a study of the more than 1,755,000 traffic stops conducted over the first three years of this initiative from October 1, 2013 to September 30, 2016.

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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 November 2017 report, the project staff began 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 information presented in the subsequent sections is essentially a series of follow-up reports, one conducted for each department listed above. Each of these reports outlines additional descriptive measures that were applied to department-level data for the eight municipal departments. In additional, 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.

I.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. 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 eight municipal police departments to map traffic stops during our study period. Researchers were provided with longitude and latitude information for most departments. 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.

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 Norwich. Due to the relatively low number of stops that we could adequately identify longitude and latitude coordinates for in the case of Norwich, 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 Norwich, 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 for each of the eight identified departments.

I.B. (1): ANSONIA FOLLOW-UP ANALYSIS SUMMARY

This analysis continues the work of the Racial Profiling Prohibition Project's study of traffic stops conducted since October 1, 2013. This follow-up report focuses on data reported for stops conducted from October 1, 2015 through September 30, 2016. Table 1.0 below compares summary racial data for reported traffic stops in Ansonia over a three-year period.

Table 1.0: Ansonia Traffic Stops – 2013 - 2016

	2013-2014 Stops		2014-2015 Stops		2015-2016 Stops	
White	3,517	72.0%	3,202	70.0%	3,515	68.8%
Black	740	15.2%	762	16.7%	845	16.5%
AsPac*	16	0.3%	42	0.9%	46	0.9%
AI/AN**	18	0.4%	10	0.2%	7	0.1%
Hispanic	592	12.1%	558	12.2%	697	13.6%
Total	**4,883**		**4,574**		**5,110**	

*Asian Pacific Non-Hispanic
** American Indian/Alaska Native Non-Hispanic

Overview of the November 2017 Traffic Stop Analysis

The November 2017 Traffic Stop Analysis report indicated that for the October 1, 2013 – September 30, 2016 study period the Ansonia Police Department made 14,564 traffic stops. Of these, 29.8% were minority stops (12.7% Hispanic and 16.1% black). The aggregate three-year VOD analysis indicated a statistically significant disparity in the rate that Hispanic motorists were stopped during daylight relative to darkness. Within the inter-twilight window, the odds that a Hispanic motorist was stopped during daylight was 1.4 times larger than the odds during darkness. These results were statistically significant at the 99% level and robust to the inclusion of a variety of controls, officer fixed-effects, and a restricted sample of moving violations. Although certain assumptions have been made in the design of each methodology, it is reasonable to conclude that departments with consistent data disparities separating them from the majority of other departments should be subject to further review and analysis with respect to the factors that may have caused these differences.

Descriptive Analysis of the 2015-2016 Traffic Stop Data

The racial and ethnic disparities in the Ansonia Police Department data were studied using a more detailed review of traffic enforcement during the most recent data collection year (October 1, 2015 through September 30, 2016). Although the disparity was identified as part of the three-year aggregate analysis, detailed stop location information was provided only for the third year of data collection. There is a sufficient number of traffic stops in the third-year dataset to complete a thorough follow-up analysis.

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. Unfortunately, the descriptive information on stop locations was only specific to allow accurate mapping of 53% of the traffic stops reported. Due to the limited amount of detailed location information available in Ansonia, we conducted both a limited census tract-based analysis and supplemented it with a descriptive analysis of major corridors and roadways. The location information typically identified the road where the traffic stop took place, but not the specific point on the road. Although analyzing traffic stops by

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census tract is the preferred method, analyzing traffic stops by corridor proved just as effective an approach. We also supplemented the corridor analysis with visuals from the stops that we could map. Although this accounts for just more than half of the stops conducted during our study period, it still helps to illustrate overall traffic enforcement trends.

According to the 2010 census, Ansonia is a town with approximately 14,979 residents over the age of 16. Approximately 26% of the driving age population in Ansonia is identified as a minority. Table 2.0 outlines the basic demographic information for Ansonia residents over age 16.

Table 2.0: Ansonia Population

Race/Ethnicity	16+ Population Total	% Population Total
White Non-Hispanic	11,141	74.4%
Black Non-Hispanic	1,459	9.7%
AsPac Non-Hispanic	278	1.9%
Hispanic	2,101	14.0%
Other	0	0.0%
Total	**14,979**	

Ansonia is approximately six square miles in area and is bisected by the Naugatuck River. On the west side of the river, the city borders Derby and Seymour along Silver Hill. One the east side, the city's Hilltop neighborhood meets with the border of Woodbridge. Residential housing occupies the vast majority of land in town with one- or two-family houses on plots of land between one-quarter of an acre and one acre. Ansonia is situated off Route 8 and has two on-ramps and two off-ramps on the west side of town. Route 8 begins at Interstate 95 in Bridgeport and is a state highway running north-south through Waterbury to the Massachusetts state line.

Three other municipalities border Ansonia, Seymour to its north, Woodbridge to its east, and Derby to its west and south. Woodbridge and Seymour are predominantly white demographically, with an average white driving age population of 89% (compared to Ansonia's white driving age population of 74.4%). Derby has a white driving age population comparable to Ansonia at 79%. Of the drivers stopped in Ansonia overall, only 40% were residents of the town.

Figure 1.1: Ansonia Census Tract Map
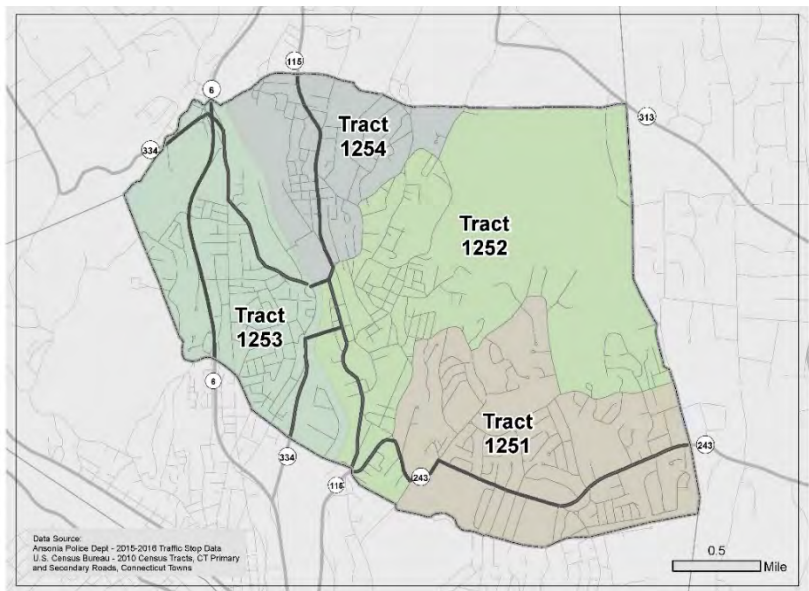
The U.S. Census Bureau divides Ansonia into four census tracts. Figure 1.1 is a map that outlines the boundaries of Ansonia census tracts, which will be referred to throughout this report. The resident driving age population in each

census tract varies from about 2,500 to about 4,500 people, with the largest concentration (30% of the total population) in tract 1252. Census tract 1251 has the lowest percentage of minority residents at 9.4%, while the other three census tracts are approximately 30% minority. Figure 1.2 shows the distribution for each census tract in terms of white and non-white driving age population.

Figure 1.2: Age 16 and Older Resident Population by Census Tract
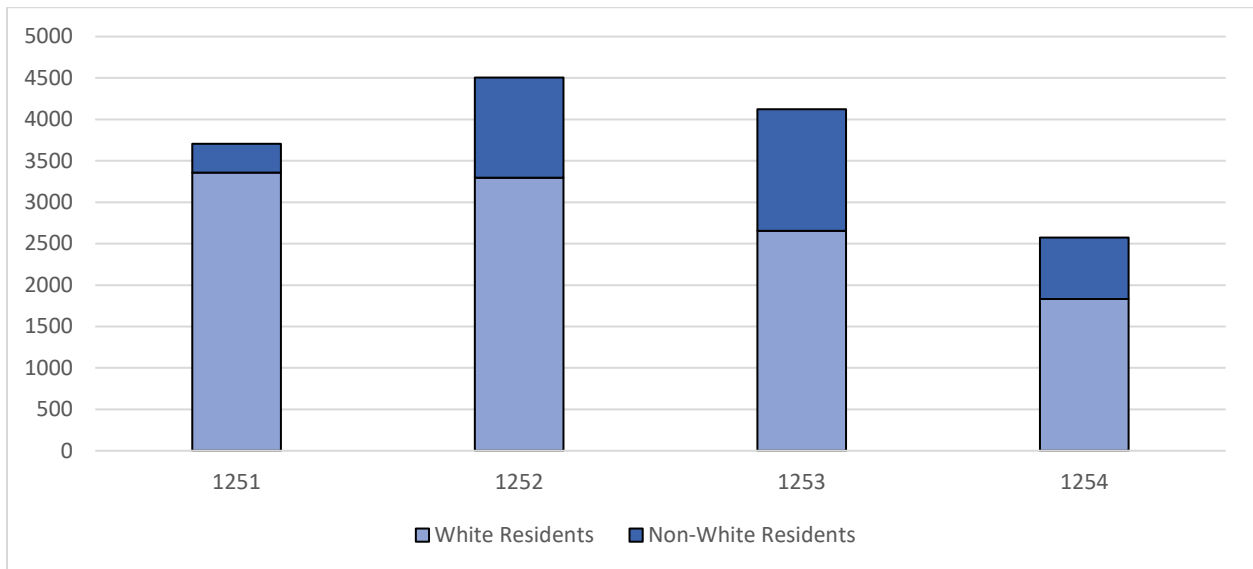
Figure 1.3 illustrates the volume of traffic enforcement that occurred in each Ansonia census tract. A large percentage of traffic enforcement activity (48%) occurred in one census tract (1252) in the downtown portion of town. Census tract 1253 accounts for over 30% of all traffic stops, is the tract west of the Naugatuck River, and includes all of Route 8 in town. Over 47% of all stops could not be mapped. These are not considered in our analysis, for purposes of discussing traffic stops by census tract.

Figure 1.3: Traffic Stops by Census Tract
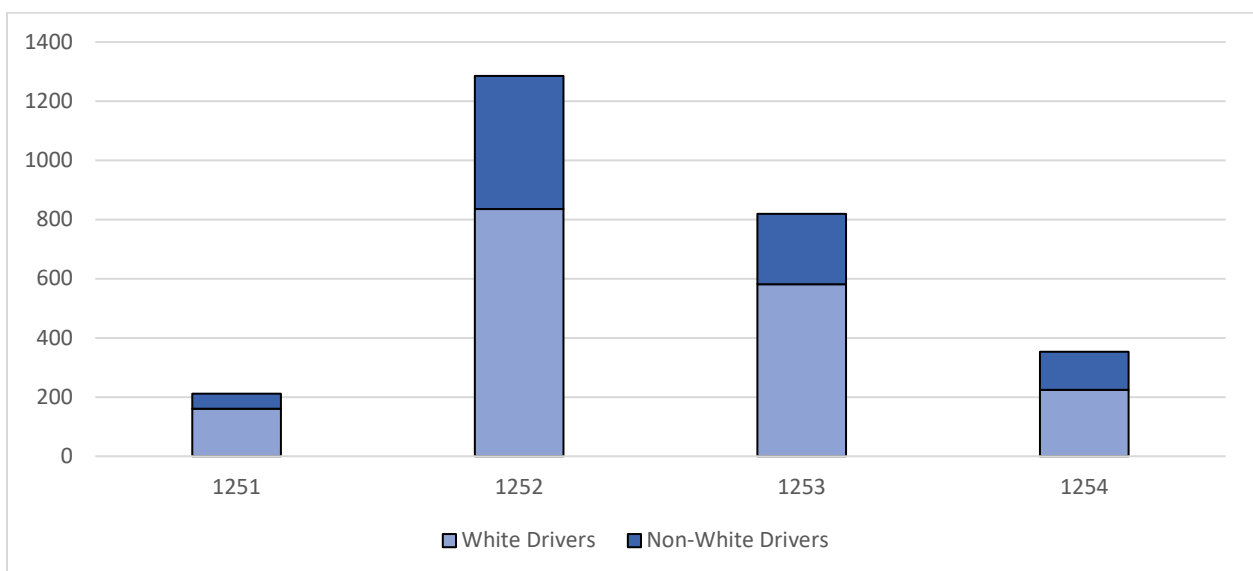
Figure 1.4 is a map of traffic stops made in Ansonia. Ansonia's overall resident population is 25% minority and 32% of all Ansonia residents who were stopped were minority. Approximately 31% of non-resident drivers stopped in Ansonia were minority. The census tract with the highest enforcement (1252) accounts for almost half of all stops in town. This is most likely because this tract covers the downtown area and many of the major traffic generators in the town.

Figure 1.4: Traffic Stop Map
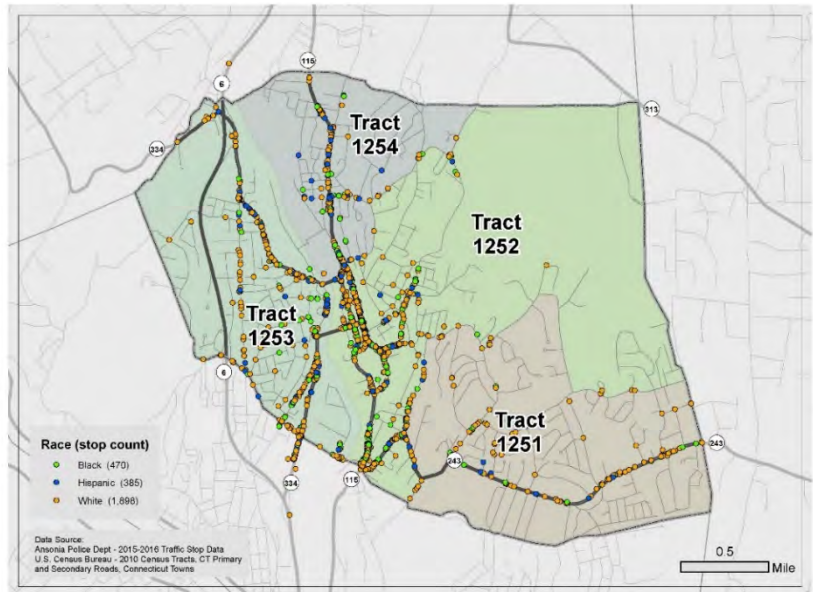
Traffic Stop Breakdown by Race/Ethnicity

In Ansonia, 31% of all drivers stopped were minority drivers, classified as all non-white drivers, but predominantly black or Hispanic drivers. Ansonia's resident population age 16 and older is 26% 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; however, the racial and ethnic makeup of different areas of Ansonia and the influence of out-of-town drivers varies by census tract.

Figure 2.1 shows the difference between the local black resident population and the black drivers stopped by census tract. The overall percentage of Ansonia traffic stops involving black drivers was 16.5%. The percentage of black drivers stopped exceeded the town average of 16.5% in only one census tract (1252). The percentage of black drivers stopped in tract 1252 exceeded the town average by approximately 4%. There was a positive disparity above the resident black driving age population in tracts 1251, 1252, and 1254. There was a negative disparity in tract 1253, meaning that a smaller percentage of black drivers were stopped than are represented as a percentage of the local driving population.

Figure 2.1: Black Population Compared to Black Drivers Stopped by Census Tract
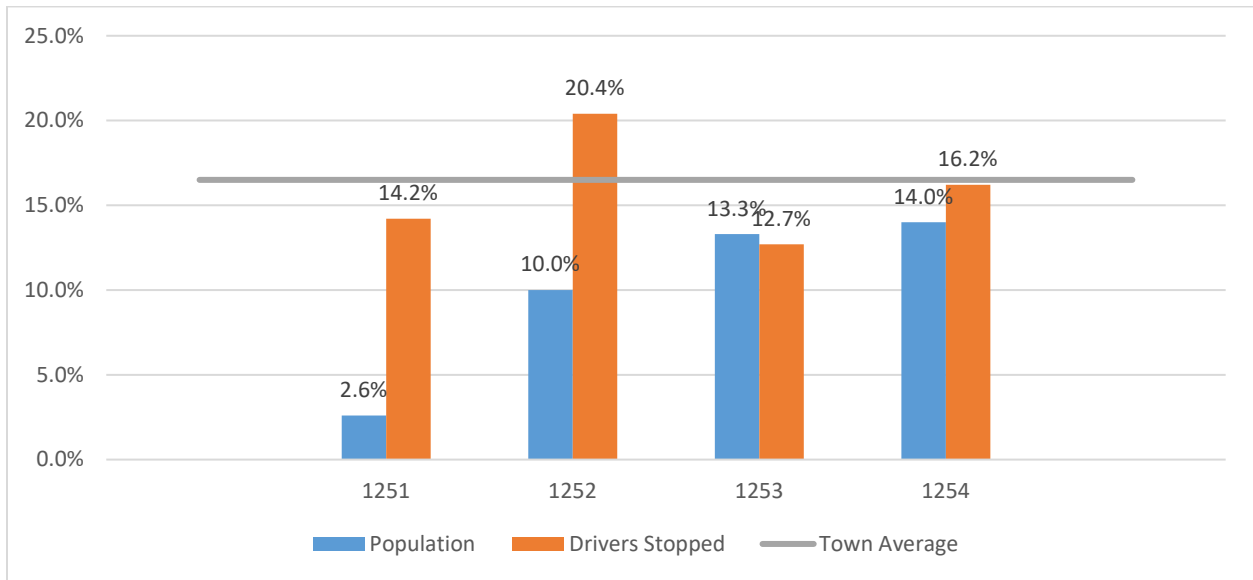
Figure 2.2 shows the difference between the local Hispanic resident population and the Hispanic drivers stopped by census tract. The overall percentage of traffic stops involving Hispanic drivers was 13.6%. The percentage of Hispanic drivers stopped exceeded the town average of 13.6% in three of the four census tracts (1252, 1253, and 1254). However, the percentage of Hispanic drivers stopped in tract 1252 was only slightly above the town average. There was a positive disparity above the resident Hispanic driving age population in two of the four census tracts (1251 and 1254), with the largest disparity in tract 1254.

Figure 2.2: Hispanic Population Compared to Hispanic Drivers Stopped by Census Tract
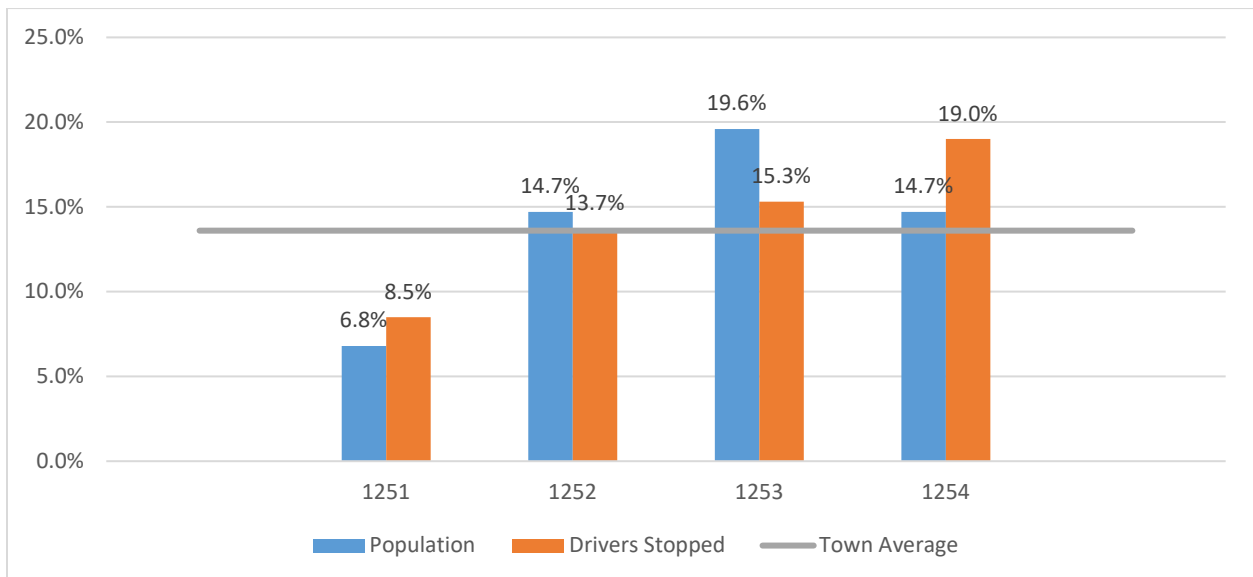
Highway Corridor Analysis

In addition to the census tract-based analysis, we also conducted separate analyses of the roadways with the greatest number of traffic stops. There were 14 roadways where 100 or more traffic stops occurred during the study period. These 14 roadways account for 78% of all traffic stops in town. Main Street and Pershing Drive were the two most active corridors for enforcement. These two roadways accounted for 32% of all traffic enforcement. Figure 3.1 illustrates the volume of traffic enforcement that occurred on the each of the fourteen roadways with more than 100 traffic stops.

Figure 3.1: Traffic Stops by Major Roadway
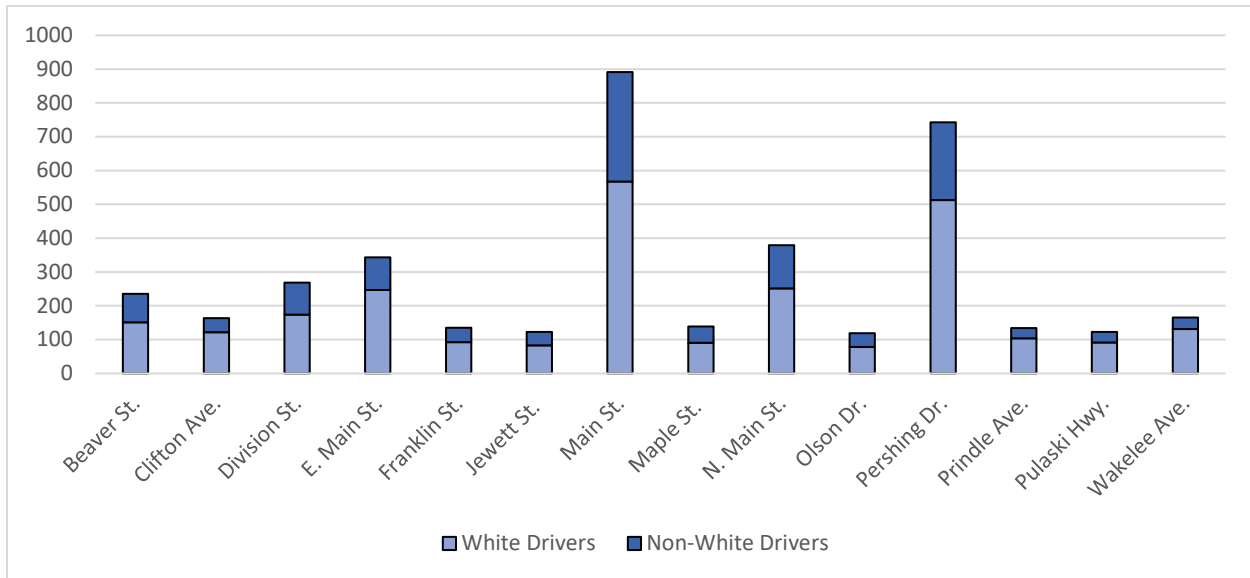
Main Street is 1.2 miles in length that begins at the border of Derby from Division Street and heads north to the intersection of East Main Street and North Main Street. It runs to the east of the Naugatuck River through the downtown section of Ansonia. Main Street is a two-lane roadway from Division Street north to the Ansonia Shopping Plaza where it becomes a four-lane roadway until Tremont Street. Main Street includes many retail establishments, restaurants, local businesses, and government buildings.

A total of 891 traffic stops were made along Main Street during the study year, which was 17% of the total for the town. The stops made on Main Street included more non-residents than in the town as a whole (70% compared to 61%), involved a higher proportion of black drivers, and a similar proportion of Hispanic drivers compared to the town-wide average. Black drivers accounted for 22% of the Main Street stops compared to the town average of 16.5%. Hispanic drivers accounted for 13.5% of the Main Street stops compared to the town average of 13.6%. Over 17% of Hispanic drivers and 23% of black drivers were stopped on Main Street compared to 16% of white drivers stopped there. Main Street runs almost entirely through census tract 1252, with a very small section acting as the border for tract 1252 and 1254. However, almost all stops occurred in tract 1252.

Pershing Drive is just over one-half of a mile in length within the boundaries of Ansonia. The roadway begins at the border of Derby from Division Street and heads north to where it crosses Bridge Street. Pershing Driving turns into Olson Drive once it crosses Bridge Street. It is also important to note that Pershing Drive accesses both an on-ramp and off-ramp to Route 8 at exit 16 in Derby. Pershing Drive

runs from Route 8 in Derby to the Ansonia border at Division Street (approximately only 1,200 feet from Route 8 to the Ansonia border). Pershing Drive is a four-lane roadway from Route 8 to the CVS just past Division Street in Ansonia. It becomes a two-lane roadway from the CVS to Bridge Street. Pershing Drive includes many retail establishments, fast food restaurants, and local businesses.

A total of 743 traffic stops were made on Pershing Drive during the study year, which was 15% of the total stops made in town. Of the drivers stopped on Pershing Drive, 68% were not residents of Ansonia, which was above the town average of 61%. Driver demographics for those stopped on Pershing Drive was slightly above the town-wide average for black and Hispanic drivers. Black drivers accounted for 15% of the Pershing Drive stops (compared to the town average of 16.5%). Hispanic drivers accounted for 15% of the Pershing Drive stops (compared to the town average of 13.6%). Over 16% of Hispanic drivers and 13% of black drivers were stopped on Pershing Drive compared to 15% of white drivers stopped there. Pershing Drive runs entirely through census tract 1253, but an unknown number of stops occurred over the border in Derby.

High Traffic Density and High Call Volume Sector Analysis

The Ansonia Police Department identified four sectors in town with high traffic density and a high volume of calls to the police station. The roadways within these four sectors greatly influence the deployment of police resources in town. The Hilltop sector is located near the border of Woodbridge and includes five roadways with high traffic density (Pulaski Highway, Benz Street, Ford Street, Prindle Avenue, and Hill Street). East sector covers six major roadways (Main Street, Jewett Street, East Main Street, Bridge Street, Beaver Street, and Woodbridge Avenue). The North sector includes nine high-density roadways (North Main Street, Third – Sixth Streets, Liberty Street, North State Street, North Cliff Street, and Hubbell Avenue). Finally, the West sector is located west of the Naugatuck River and includes eight high-density roadways (Pershing Drive, Clifton Avenue, Wakelee Avenue, Howard Avenue, High Street, Olson Drive, Franklin Street, and Crescent Street.) Figure 4.1 illustrates the volume of traffic enforcement that occurred in each of these sectors.

Figure 4.1: Traffic Stops by High Density/High Call Volume Sector
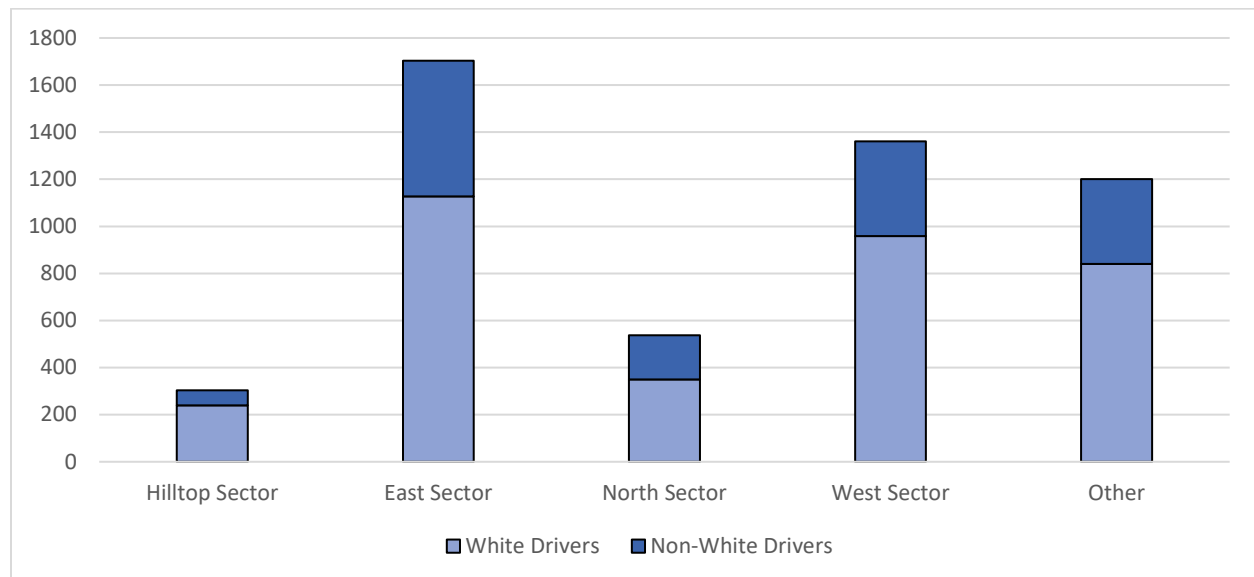
The East sector accounts for the largest portion of traffic enforcement in town. This is unsurprising given that this sector includes downtown Ansonia and Main Street, which is the highest enforcement roadway. A total of 1,704 traffic stops (33% of the total stops made in town) were made in the East sector during the study year. Of the drivers stopped in this sector, 63% were not residents of Ansonia, which was only slightly above the town average of 61%. Driver demographics for those stopped in this area was slightly above the town-wide average for black drivers and the same percentage as the town average for Hispanic drivers. Black drivers accounted for 19% of the stops (compared to the town average of 16.5%). Hispanic drivers accounted for 13.6% of the stops (compared to the town average of 13.6%). Over 33% of Hispanic drivers and 38% of black drivers were stopped in the East sector compared to 32% of white drivers stopped there.

The West sector also accounts for a considerable amount of traffic enforcement in town. The roadways that make-up the West sector are located to the west of the Naugatuck River and include the second highest enforcement roadway, Pershing Drive. A total of 1,361 stops (27% of the total stops made in town) were made in the West sector during the study year. Of the drivers stopped in this sector, 66% were note residents of Ansonia, which was above the town average of 61%. Driver demographics for those stopped in this area was below the town-wide average for black drivers and just above the town-wide average for Hispanic drivers. Black drivers accounted for 14.5% of the stops (compared to the town average of 16.5%). Hispanic drivers accounted for 14.3% of the stops (compared to the town average of 13.6%). Over 28% of Hispanic drivers and 23% of black drivers were stopped in the West sector compared to 32% of white drivers stopped there.

There is far less enforcement in the Hilltop and North sectors of town. The Hilltop sector accounts for only 6% of the total traffic stops and the North sector accounts for 10.5% of the total traffic stops in town. According to the police department, the North sector, especially North Main Street, is a high crime area with significant narcotics activity that attracts a high police presence. It is important to note that the North sector is close to the East sector, which has the largest enforcement activity.

Traffic Stop Distribution for Ansonia Officers

Ansonia's total of 5,110 traffic stops is comparable to those in other towns of its size. During the study period, traffic stop data was reported for 42 officers. The average number of stops made per officer was 122. Of the 42 officers reporting stops, 13 made fewer than 50 stops, 11 made between 50 and 150 stops, nine made between 150 and 200 stops, and nine made over 200 stops. The nine officers making over 200 stops each collectively accounted for 45% of the Ansonia stops. Only one officer made over 300 stops and accounted for 6% of all stops.

Post-Stop Outcome Review

Reason for Stops
The reasons police stop a motor vehicle can vary significantly from department to department. We reviewed the statutory authority that Ansonia officers reported as the reason for stopping motor vehicles. The three most common reasons cited for stopping a motorist in Ansonia cover 58% of the total stops. The three largest stop categories were for speeding violations (26%), stop sign violations (18%), and defective or improper lighting violations (14%). 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 data shows that, with respect to the racial and ethnic demographics of those stopped, equipment-related stops (defective, improper, or inoperative lighting; display of plates; or window tinting) are closely related to the frequency and location of where the stops are made. When these types of stops are 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 also shows that when these same types of stops are made in areas with a higher concentration of white drivers, the stop demographics shift toward white drivers, suggesting that the likelihood of finding violators may be more dependent on location than race. Figure 5.2 is a map of traffic enforcement for equipment-related motor vehicle stops. Stops for defective lights, window tints, or display of plate were labeled "equipment-related" violations.

Of all the black driving age residents living in Ansonia, 69% live in census tracts 1252 and 1253. These two tracts are also where 70% of all Hispanic driving age residents live. Just over 81% of equipment-related stops for lighting, plate display, and window tinting, which are fairly highly discretionary, were made in these two tracts. The demographics for these stops were 16.5% Hispanic drivers,

Figure 5.2: Equipment-Related Motor Vehicle Stops
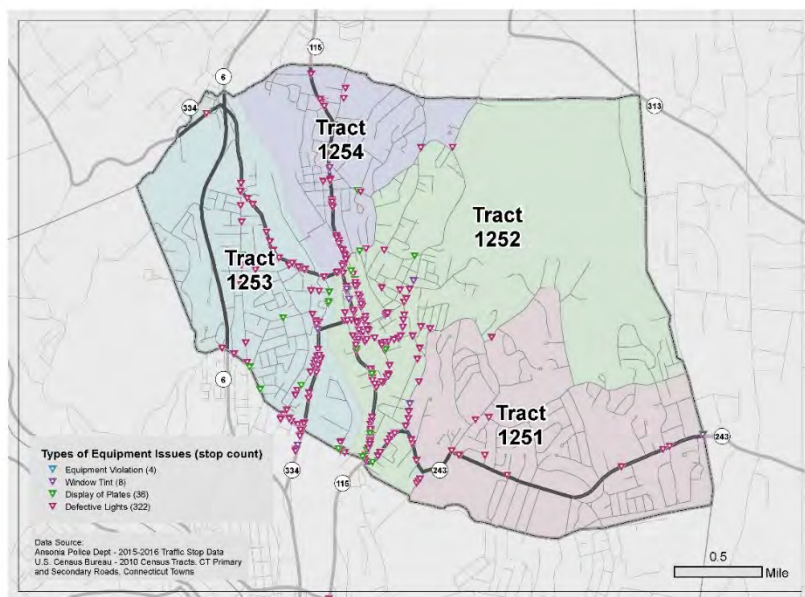
25% black drivers, and 57% white drivers. Only 6% of the equipment-related stops occurred in the census tract with the lowest percentage of minority residents (1251). For those stops, the demographics were 9.5% Hispanic drivers, 9.5% black drivers, 81% white drivers. These patterns seem to suggest that where these types of stops are made is a more important factor in the stop demographics than inherent differences in the frequency with which various races may violate these laws.

Speed-related motor vehicle enforcement in the East and West sectors appear to have had a significant impact on overall traffic stop trends in Ansonia with speed-related stops occurring there at a significantly higher rate than in other areas in town. Of the 1,304 speed-related traffic stops in town, 70% occurred in the East or West sector. More specifically, 27% of all speed enforcement occurred on Main Street and 12% occurred on Pershing Drive. Over 35% of the white drivers stopped for speeding were stopped on Main Street or Pershing Drive compared to 51% of black drivers and 42% of Hispanic drivers.

Officers reported 80% of speed-related stops as "blind." This means an officer reported using a blind enforcement technique like radar, laser, license plate recognition device, or other similar technology or method. The speed-related stops recorded as "blind" were likely the result of an officer using radar or laser technology. For these "blind stops," the racial breakdown was 63% white, 20% black, and 16% Hispanic. For all other speed-related stops, the racial demographics were 73% white, 13% black and 13% Hispanic. Figure 5.3 is

Figure 5.3: Safety-Related Motor Vehicle Stops
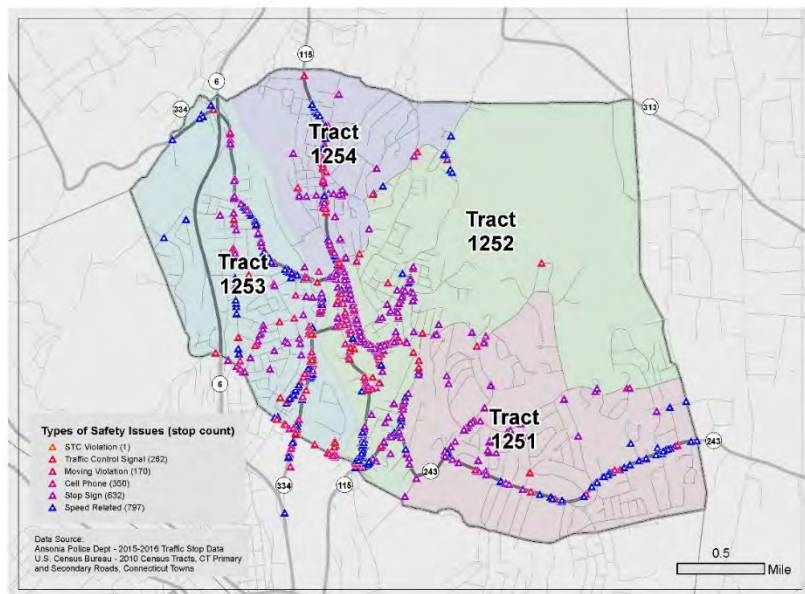
a map of traffic enforcement for safety-related motor vehicle stops. Stops made for speed, stop sign, traffic light, cell phone, or moving violations were labeled "safety-related" stops.

Outcome of Stops

The majority of motor vehicle stops in Ansonia resulted in the driver receiving a warning (69%). 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 be charged with an infraction and Hispanic drivers were more likely to receive an infraction compared to white drivers. Figure 5.4 shows the outcome of motor vehicle stops by race and ethnicity.

Figure 5.4: Outcome of Traffic Stop

*Uniform Arrest Report

Most violations of the motor vehicle laws are designated as infractions but some are not. The more serious violations can be reckless driving, operating under suspension, operating under the influence of alcohol or drugs, and operating an uninsured or underinsured vehicle. The system for collecting and reporting traffic stop data requires officers to record the statutory citation for the violation that was the basis for the stop as well as any subsequent charges that differed from and were more significant that the initial charge. This gives an analyst the data on the initial cause for making a stop as well as any subsequent, more serious charge. For example, if someone was initially stopped for a lesser reason such as not wearing a seat belt or rolling through a stop sign, the officer might subsequently determine that the driver was operating with a suspended license. If this information is properly recorded, it is possible to distinguish those stops from the ones that begin and end with the same charge.

In Ansonia, 160 of the stops made resulted in the issuance of a misdemeanor summons (3.1%). Of these stops, 120 were initiated for a reason that was not a misdemeanor violation (e.g. speeding, stop sign violation, defective or improper lighting, etc.) However, once the officer interacted with the operator of the vehicle a misdemeanor violation should have been identified. The vast majority of these stops (54%) were for a license or registration related issue. Unlike many infraction violations, officers do not have discretion in the issuance of a misdemeanor summons when a misdemeanor violation is identified. Officers did not report the misdemeanor violation in at least 40 of the stops where the data indicated a misdemeanor violation occurred.

Black and Hispanic drivers were almost twice as likely to be issued a misdemeanor summons following a stop than were white drivers (4.7% of black drivers stopped and 3.7% of Hispanic drivers stopped compared to 2.7% of all white drivers). However, due to the limited discretion officers have in issuing a misdemeanor summons, this difference does not appear to be the result of disparate treatment.

Search Information

A review of department search information shows that 3.4% (173) of the drivers stopped in Ansonia were subjected to a motor vehicle search. This rate of motor vehicle searches is slightly above the state's 3% average. Hispanic drivers were searched at a rate higher than white drivers were, but black drivers were searched at a lower rate. Of the 173 vehicles searched, 18.5% were subjected to an inventory search (compared to 21% statewide), 75% were subjected to a consent search (compared to 37% statewide), and 6.5% were subjected to a search for some other reason (compared to 40% statewide). Figure 5.5 illustrates the motor vehicle search rate and the rate at which contraband was found (the "hit rate").

Figure 5.5: Search and Hit Rate
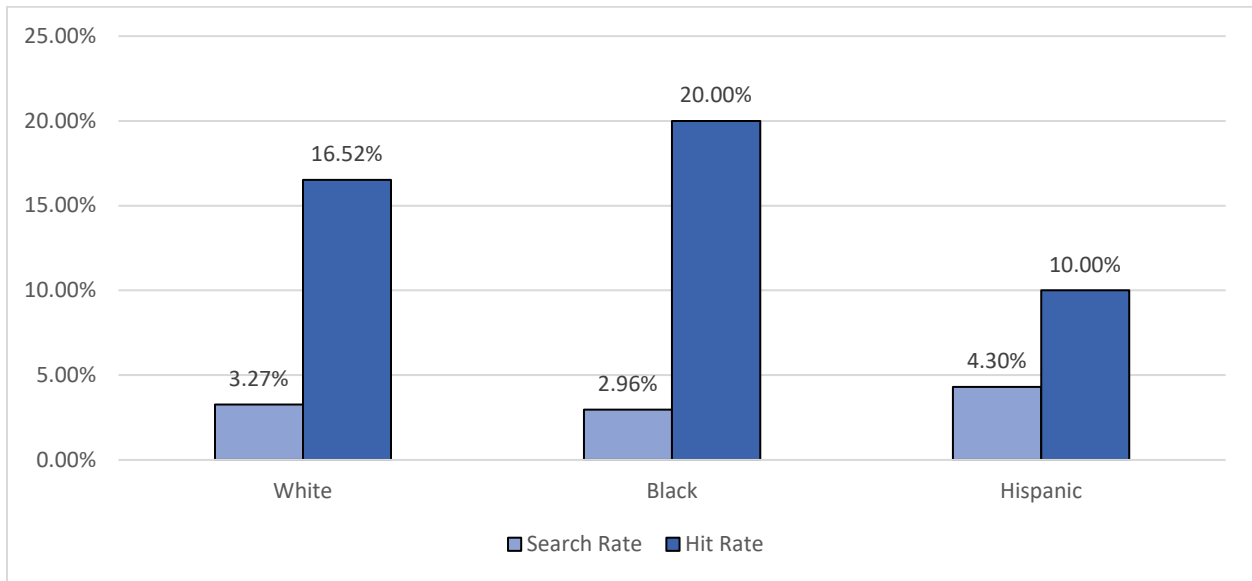
Calls for Service and Citizen Complaints

Law enforcement administrators choose to deploy police resources within a community based on a number of different factors, including where calls for service are more prevalent. The department provided researchers with the calls for service log, which included calls for service and officer initiated actions that were called in to police dispatch. The logs report approximately 13,670 entries from October 1, 2015 through September 30, 2016, exclusive of traffic stops. The top reasons for calling

Figure 5.6: Search Heat Map
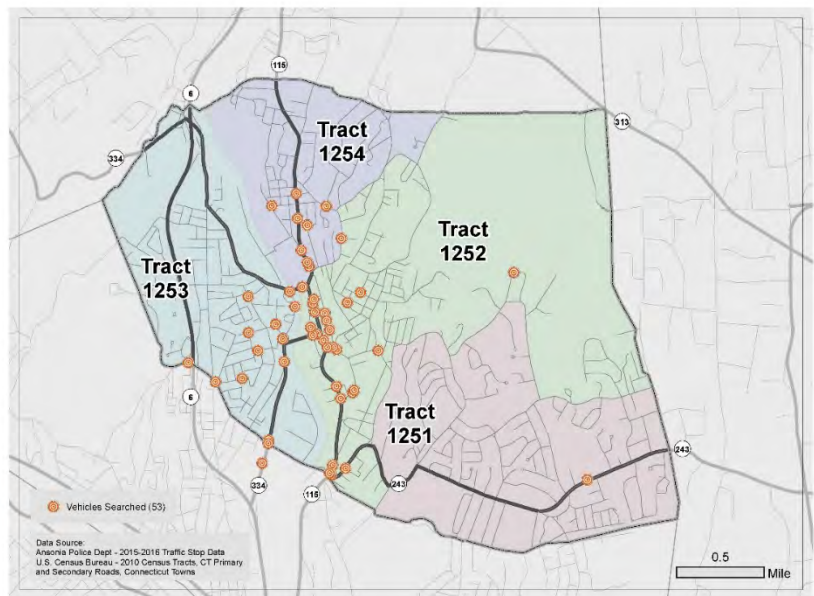
dispatch were for medical assistance (14.5%), disorderly conduct (8.6%), or suspicious activity (7.2%). These top three reasons account for about 30% of all calls.

The calls for service information identifies the location where the call originated. This identifies the level of demand for police resources in particular areas of town. As we stated earlier, the police department identified four sectors in town with high density and high call volume. We were able to identify approximately 42% of the calls originating from one of these four sectors. The East sector accounts for the largest volume of calls for service, followed by the West sector, the North sector and then the Hilltop sector. The East and West sectors make up the majority of the high traffic enforcement areas in town, which include Main Street and Pershing Drive. Figure 6.1 is a graph that illustrates the total number of service calls for each sector.

The call logs indicate that the Hilltop sector does not receive many calls for criminal activity. Calls for disorderly conduct is one of the top three reasons for calling the police. The East sector accounts for 36% of the calls, the North sector accounts for 30% of the calls, the West sector accounts for 26% of the calls and the Hilltop sector accounts for 8% of the calls. The third most common reason for calling police is to report a suspicious person. Almost 36% of the suspicious person calls come from the West sector and 35% come from the East sector. When reviewing most of the calls related to potential criminal activity the pattern follows these trends with the highest call volume coming from the East and West sectors. This correlates strongly with the high levels of traffic enforcement seen in these parts of town.

Figure 6.1: Calls for Service by Sector
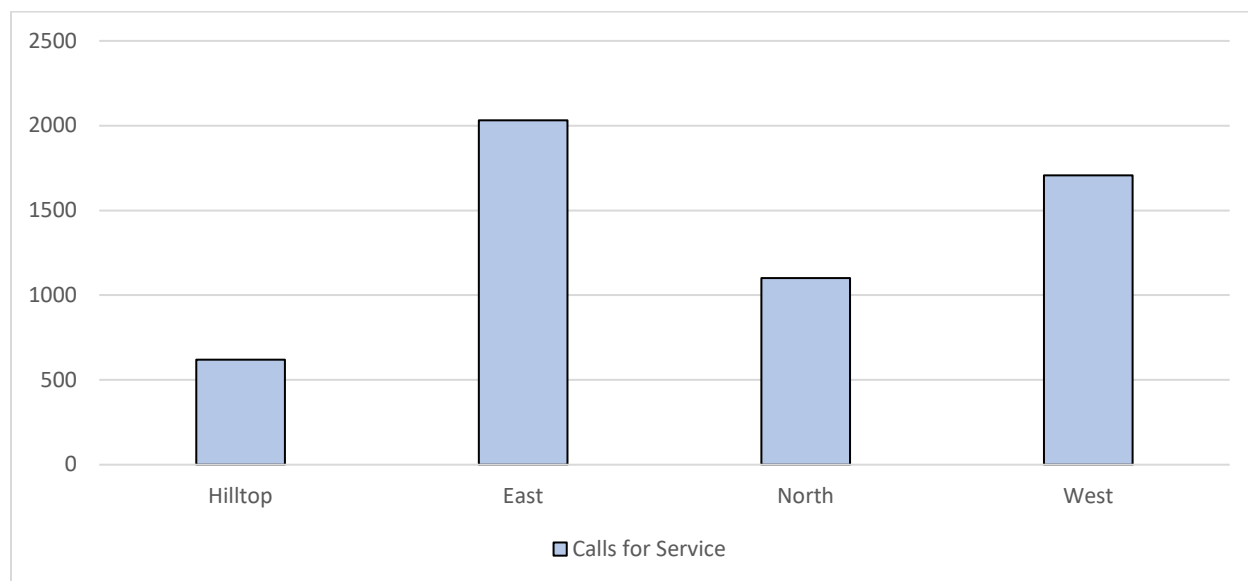
Additional Contributing Factors

In addition to calls for service, law enforcement administrators also distribute police resources within a community based on accident rates, and where crime rates are higher. In addition to these factors, police presence may be greater where traffic volume is higher as the result of common factors that draw people into a community such as employment and entertainment. Traffic enforcement actions are likely to be more prevalent in locations that attract greater police presence due to some of these factors. Basic information on crime, accidents, and other economic factors associated with

Ansonia provide a context to potentially explain the rational for police deployments that are important considerations.

According to the Connecticut Economic Resource Center (CERC) town profiles, approximately 3,399 people work in Ansonia and its major employers include the Farrel Corporation, Target, Yankee Gas, and Big Y. The vast majority of commuters traveling into Ansonia for employment are from Seymour, Bridgeport, and New Haven. The overall unemployment rate is 8.1%, which is above the unemployment rates for New Haven County and the state.

In 2016, the crime rate in Ansonia was reported to be 185 per 10,000 residents, compared to the state crime rate of 204 per 10,000 residents. According to the 2016 Connecticut Uniform Crime Report[1], there were 360 reported crimes in town, 68% of which were larcenies. The three most reported crimes were larceny (245), burglary (47), and motor vehicle theft (41).

During our study period, there were approximately 340 motor vehicle accidents on roads patrolled by the Ansonia Police Department. Accidents were reported as occurring on 81 roads. The roadways with the highest number of accidents were Division Street (54 accidents), Main Street (47 accidents), Pershing Drive (32 accidents), and Wakelee Avenue (31 accidents). There were only five roads with more than 10 accidents and those roads account for 52% of all accidents in Ansonia. The Division Street accidents accounted for 16% of all accidents in the town.

Figure 7.1 illustrates the time of day when traffic accidents were reported and the number of traffic stops that occurred during that same period. This shows how closely traffic enforcement is correlated with traffic accidents in Ansonia. While the vehicle crash rate tends to build steadily throughout the day in town, it peaks during the evening commute period from 4:00 p.m. to 6:00 p.m.

Figure 7.1: Accidents Compared to Traffic Stops by Time of Day
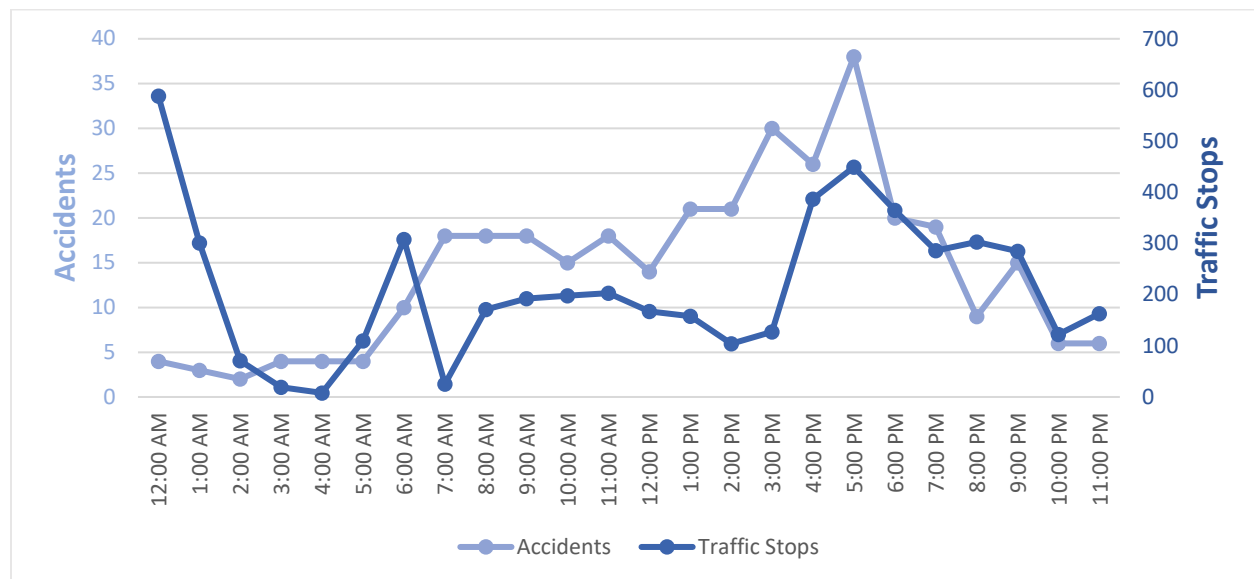
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[1] The Uniform Crime Report is an index for gauging fluctuations in the overall volume and rate of crime. The crime index includes seven offenses: the violent crimes of murder, rape, robbery, and aggravated assault and the property crimes of burglary, larceny-theft, and motor vehicle theft.

Summary of Findings

The Ansonia Police Department identified factors they believe contributed to the disparity identified in the initial analysis of traffic stops. 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 levels of motor vehicle enforcement. They also indicated the impact that reported incidents of crime and accidents in East and West sectors of town have had on the deployment of departmental resources. It is evident from the volume of traffic stops made in a relatively small geographic area that the department concentrates its resources in two sectors (East and West) and along two roadways (Main Street and Pershing Drive) that make up the high enforcement area in the town.

There are 14 roadways where 100 or more traffic stops occurred and account for 78% of all stops. However, there are two major roadways where significant traffic enforcement occurred (Main Street and Pershing Drive). Almost 32% of all traffic stops in Ansonia occurred on one of these two roadways, with 19% of the stops involving black drivers and 14% of the stops involving Hispanic drivers. It is also worth noting that 36% of black drivers and 33% of Hispanic drivers were stopped on these roadways compared to 31% of white drivers. Main Street is a major destination roadway for shopping, restaurants, and local business and government activities. Pershing Drive provides access to Route 8 in Derby and includes a large number of retail establishments, fast food restaurants, and local businesses.

The department also divides the town into patrol sectors. There were four patrol sectors highlighted by the department with high traffic density, high calls for service volume, or high crime. These sectors were Hilltop, East, West, and North. The Hilltop sector is located near the Woodbridge border, is primarily residential and sees the lowest level of traffic enforcement. The most active sectors are East and West. The East sector includes the majority of Main Street and the downtown area. The West sector includes Pershing Drive and provides the main access to Route 8. Although the East and West sectors see the largest volume of traffic stops, the department indicated that the North sector is a high crime area with significant narcotics activity that attracts high police presence. It is located just north of Main Street and the high police presence in the area influences the traffic enforcement activity in the East sector.

Although the majority (61%) of stops involved out-of-town drivers, the race and ethnicity of those stopped was similar regardless of residency in the town. In particular, the demographics of the Ansonia residents who were stopped during the study period closely mirrored the demographics of the town. The demographics for non-town residents had a slightly higher percentage of white drivers, but this difference was insignificant. The demographic make-up of Ansonia and the neighboring city of Derby are reflected in the overall stop demographics.

Ansonia has 42 officers who made at least one traffic stop during the study period. The average stops made per officer was 122, but nine officers (21% of the officer force) who made over 200 stops each 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 significant impact on overall stop demographics.

Traffic Stop Outcomes

In Ansonia, the three most common reasons used for stopping a motorist make up 58% of the total stops. The three largest stop categories were for speeding violations (26%), stop sign violations

(18%), and defective or improper lighting violations (14%). While white drivers were stopped more frequently than black or Hispanic drivers for cell phone violations, black and Hispanic drivers were stopped at a higher rate for speeding violations. Black and Hispanic drivers were also stopped at a higher rate for equipment-related violations than white drivers were.

Speed-related motor vehicle enforcement on Main Street and Pershing Drive appears to have had a significant impact on overall traffic stop disparities for black and Hispanic drivers in Ansonia. Over 35% of the white drivers stopped for speeding were stopped on Main Street or Pershing Drive, compared to 51% of black drivers and 42% of Hispanic drivers. Officers reported 80% of speed-related stops as "blind." This means officers report using a blind enforcement technique like radar, a laser, license plate recognition device, or other similar technology or method. The speed-related stops recorded as "blind" were likely the result of an officer using radar or laser technology. Of the speed-related stops recorded as "blind," the racial demographics were 63% white, 20% black, and 16% Hispanic. For all other speed-related stops the racial demographics were, 73% white, 13% black, and 13% Hispanic. The racial demographics of black and Hispanic drivers stopped for speeding using "blind" technology was above the town average for all stops.

In Ansonia, over 81% of the equipment-related stops were made in two census tracts (1252 and 1253). In these same two census tracts 70% of black and Hispanic residents live. When equipment-related 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 racial disparities to appear in the data even though violation rates for these offenses could be similar across racial categories. The demographics for equipment-related stops in the high minority census tracts were 16.5% Hispanic drivers, 25% black drivers, and 57% white drivers. However, in the census tract where the lowest percentage of minority residents live (1251), the stop demographics were 9.5% Hispanic and 9.5% black drivers respectively and 81% white drivers. This suggests that the frequency with which these enforcement choices occurred and, more importantly, where they occurred, had a greater impact on the overall stop demographics, particularly for black and Hispanic drivers, than racially inherent differences in the overall likelihood of violation.

Regarding stop outcomes, minority drivers were more likely to receive a misdemeanor summons and Hispanic drivers were more likely to be charged with an infraction compared to white drivers. Stops involving black drivers were less likely to result in an infraction citation than either white or Hispanic drivers but more likely to result in a warning. The majority of motor vehicle stops in Ansonia resulted in the driver cited for a warning (69%).

Ansonia police searched 3.4% of the drivers they stopped, which was only slightly above the state average of 3%. Hispanic drivers were searched at a higher rate than white or black drivers were. Contraband was found after a search at a higher rate for white and black drivers. Given the relatively small number of searches conducted, these differences are not significant.

Conclusion

Based on the overall analysis of the Ansonia data, we conclude that the general disparities in its stop data reflects the overall nature of its enforcement policies, but that the department would benefit by reviewing these practices to assure that the disparate impact these policies have on its minority residents are reasonable in terms of policy outcomes. When disparities result from policies and practices established to meet community and policing goals and objectives, even when profiling is

not a direct result, minority communities can feel disadvantaged unless they can clearly perceive the overall benefits of this approach. It is important that the department assure that its minority community fully understands what benefits come from this enforcement presence.

The relative disparities in Ansonia appear to be due to the relatively high levels of enforcement along Main Street and Pershing Drive. These roadways are also part of what the department defines at the East and West sectors that have the highest volume of calls for service and crime rates. These same areas also have both the highest resident minority driving age populations and are most likely to have relatively high proportions of non-resident minority drivers traversing them because of the proximity of relatively high minority populations in the bordering town of Derby.

In addition, both speed-related and equipment-related enforcement influenced the overall racial disparity in town. In most of the speed-related stops, officers made the determination to stop the driver using speed enforcement technology and this had a greater impact on minority drivers. Black and Hispanic drivers are more likely to be stopped for vehicle equipment violations. Our analysis indicates that this difference could be due more to the greater frequency with which these stops were made within the high enforcement areas of town where minority drivers are more likely to be present in the driving population in greater numbers, rather than an inherently greater likelihood that minority drivers violate these laws with greater frequency than white drivers.

After a full review, the disparities do not appear excessive in nature, but it is recommended that the department:

(1) review its traffic enforcement policies near Main Street and Pershing Drive to evaluate the extent to which they may have a disproportionate effect on minority drivers,

(2) take steps to assure that its minority community is fully engaged in the process of understanding why the allocation of enforcement resources are made and what outcomes are being achieved, and

(3) evaluate how the greater use of high discretion equipment-related stops in higher minority areas may be adding to disparities.

Department Response

Below on page 25 is a response provided by Ansonia Police Chief, Kevin Hale.

Ansonia
Police Department

2 Elm Street
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KEVIN J. HALE
Chief of Police

203/735-1885
FAX: 203/734-6398

October 16, 2018

Ken Barone, Project Manager

Institute for Municipal and Regional Policy

Central Connecticut State University

Dear Mr. Barone:

I want to begin by thanking you for the input that you provided to us during this process over the last year. The process and the data outlined in the latest draft provided us with information that we may not have acquired in any other measure. We are still reviewing the draft and await the final report to thoroughly review that as well.

We learned during our meetings with you that the Main Street and Pershing Drive areas "…appear to have had a significant impact on overall traffic stop disparities for black and Hispanic drivers in Ansonia…". As we discussed, those are also two of the busiest streets in our community, streets where a high volume of motor vehicle traffic often shares the road with a high volume of pedestrian traffic. We often see a considerable number of motor vehicle accidents on and around those two main arteries involving injuries; hence, that is why we spend a large amount of time enforcing motor vehicle laws, particularly speeding, in those two areas.

While we will continue to focus our attention in the Main Street and Pershing Drive zones, we will also make sure that our officers understand the impact that our traffic enforcement efforts have on all drivers.

Thank you again for your assistance and we look forward to working with you in the future.

Sincerely,

Kevin J. Hale
Chief of Police

I.B. (2): BERLIN FOLLOW-UP ANALYSIS SUMMARY

This analysis continues the work of the Racial Profiling Prohibition Project's study of traffic stops conducted since October 1, 2013. This follow-up report focuses on data reported for stops conducted from October 1, 2015 through September 30, 2016. Table 1.0 below compares summary racial data for reported traffic stops in Berlin over a three-year period.

Table 1.0: Berlin Traffic Stops – 2013 - 2016

	2013-2014 Stops		2014-2015 Stop		2015-2016 Stops	
White	5,126	77.2%	4,322	74.7%	3,914	74.4%
Black	551	8.3%	579	10.0%	496	9.4%
AsPac*	90	1.4%	95	1.6%	123	2.3%
AI/AN**	14	0.2%	15	0.3%	25	0.5%
Hispanic	863	13.0%	772	13.4%	699	13.3%
Total	**6,644**		**5,783**		**5,257**	

*Asian Pacific Non-Hispanic
** American Indian/Alaska Native Non-Hispanic

Overview of the November 2017 Traffic Stop Analysis

The November 2017 Traffic Stop Analysis report indicated that for the October 1, 2015 – September 30, 2016 study period the Berlin Police Department made 5,257 traffic stops. Of these, 25.5% were minority stops (13.3% Hispanic and 9.4% black). The annual VOD analysis indicated a statistically significant disparity in the rate that black and Hispanic motorists were stopped during daylight relative to darkness. Within the inter-twilight window, the odds that a black motorist was stopped during daylight was 3.4 times larger than the odds during darkness. The odds that a Hispanic motorist was stopped during daylight was 1.7 times larger than the odds during darkness. These results were statistically significant at the 99 and 95 percent level respectively and robust to the inclusion of a variety of controls, officer fixed-effects, and a restricted sample of moving violations. Similarly, the synthetic control revealed a disparity in the rate in which both black and Hispanic motorists were stopped that was statistically significant at the 95 and 99 percent level respectively. Although certain assumptions have been made in the design of each methodology, it is reasonable to conclude that departments with consistent data disparities separating them from the majority of other departments should be subject to further review and analysis with respect to the factors that may have caused these differences.

Descriptive Analysis of the 2015-2016 Traffic Stop Data

The racial and ethnic disparities in the Berlin Police Department data were studied using a more detailed review of traffic enforcement during the 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. Berlin provided latitude and longitude coordinates that allowed accurate mapping of 93% of their stops. According to the 2010 census, Berlin is a town with approximately 16,083 residents over the age of 16. Approximately 6% of the driving age population in Berlin is identified as a minority. Table 2.0 outlines the basic demographic information for Berlin residents over age 16.

Table 2.0: Berlin Population

Race/Ethnicity	16+ Population Total	% Population Total
White Non-Hispanic	15,156	94.2%
Black Non-Hispanic	105	0.7%
AsPac Non-Hispanic	392	2.4%
Hispanic	430	2.7%
Other	0	0.0%
Total	**16,083**	

Berlin is approximately 27 square miles in area. Berlin is considered the geographic center of the state of Connecticut. Route 9 runs through the northeast section of the town from the Cromwell border to New Britain. The Berlin Turnpike runs from north to south along the eastern portion of the town from Meriden to Newington. Approximately 2.7 miles of the 12-mile roadway is located in Berlin.

Seven other municipalities border Berlin, New Britain and Newington to its north, Rocky Hill and Cromwell to its east, Middletown and Meriden to its south, and Southington to its west. Four of the seven border towns are predominantly white demographically (Cromwell, Newington, Rocky Hill, and Southington), with an average driving age white population of 88% (compared to Berlin's white driving age population of 94%). Three of the seven border towns (Meriden, Middletown, and New Britain) are more diverse with an average white driving age population of 66%. Of the drivers stopped in Berlin, only 25% were Berlin residents and 75% lived elsewhere.

The U.S. Census Bureau divides Berlin into three census tracts. Figure 1.1 is a map that outlines the boundaries of Berlin census tracts, which will be referred to throughout this report. The resident driving age population in each census tract varies from about 4,500 to about 5,800 people, with the largest concentration of

Figure 1.1: Berlin Census Tract Map
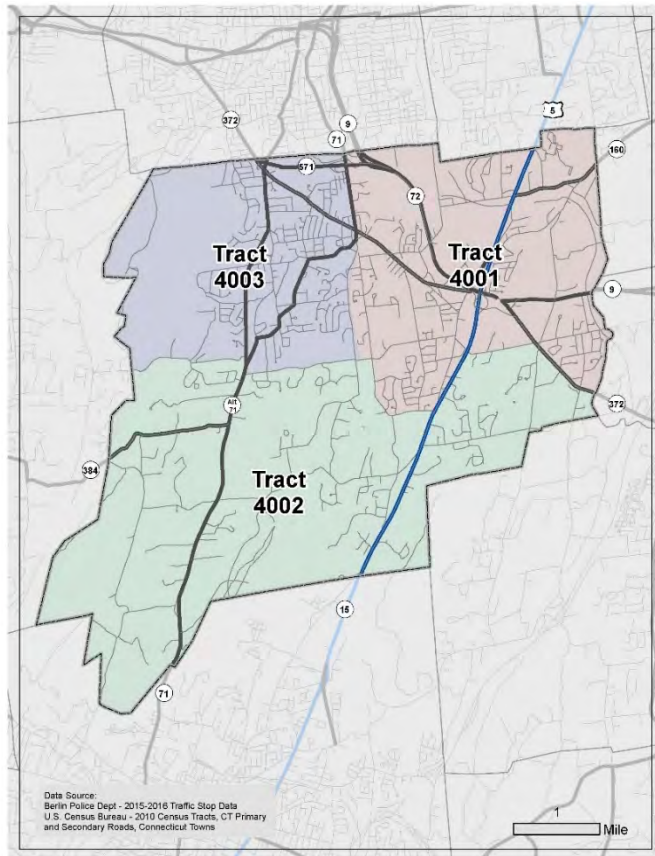
people (37% of the total population) in tract 4001. The racial breakdown in each census tract is similar in each area. Figure 1.2 shows the distribution for each census tract in terms of white and non-white driving age population.

Figure 1.2: Age 16 and Older Resident Population by Census Tract
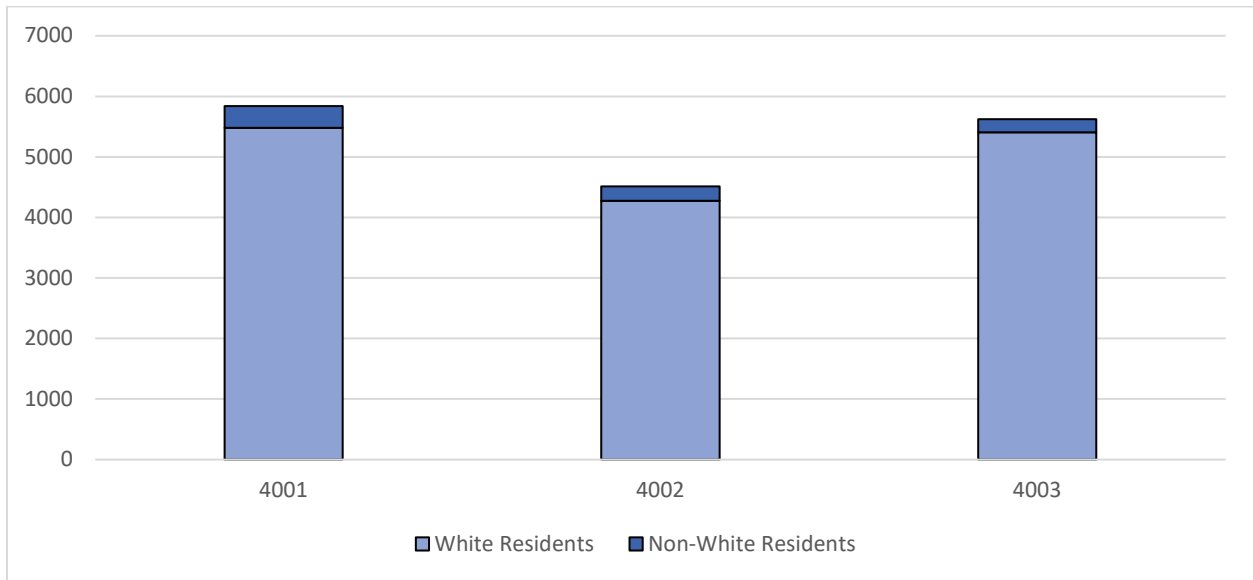
Figure 1.3 illustrates the volume of traffic enforcement that occurs in each census tract. Traffic enforcement activity in Berlin appears to be concentrated in one geographical area, census tract 4001, which accounts for 79% of the traffic enforcement activity. This census tract includes the largest section of the Berlin Turnpike, downtown Berlin, and the largest section of Route 9. Moving away from the northeastern section of town, traffic enforcement activity is less common.

Figure 1.3: Traffic Stops by Census Tract
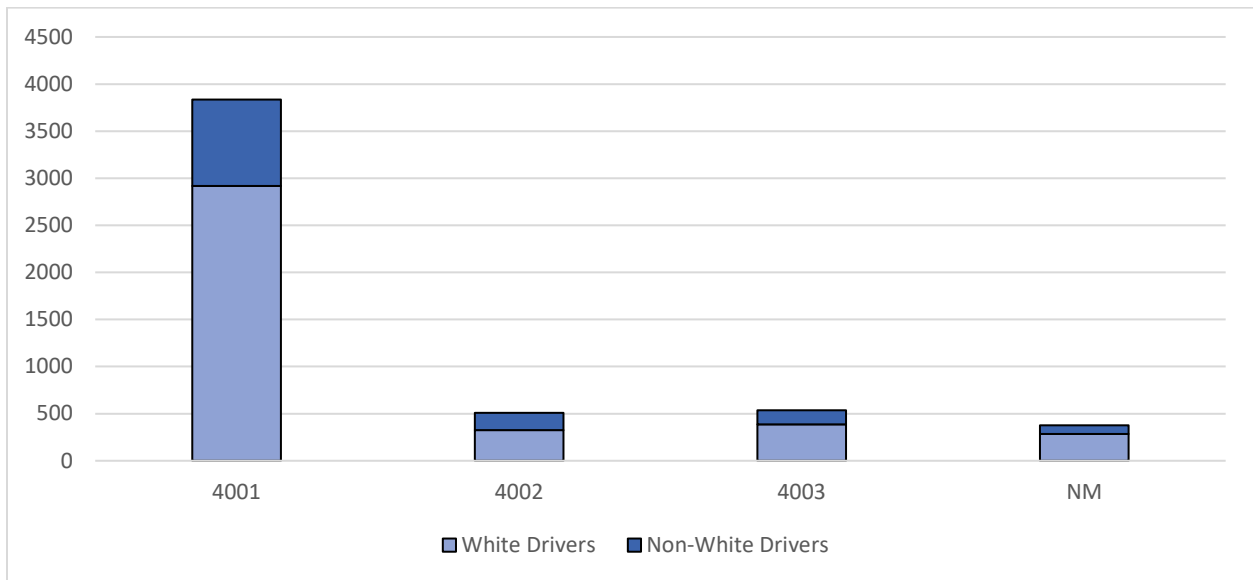
Figure 1.4 is a map of traffic stops made in Berlin. The census tract that accounts for 79% of the traffic enforcement activity (4001) comprises only 37% of the resident driving age population in the town. The other two census tracts account for 63% of the town population and 21% of the traffic enforcement activity. Residents of Berlin are somewhat evenly distributed through all of the census tracts in town. Berlin's overall resident driving age population is 6% minority and 9% of all Berlin

residents who were stopped were minority. Resident minority drivers were not stopped at a rate that significantly exceeded their overall representation in the town. However, in census tract 4002 over 11% of the drivers stopped were minority and the resident population in that tract was only 5% minority.

Traffic Stop Breakdown by Race/Ethnicity

In Berlin, 26% of all drivers stopped were minority drivers, classified as all non-white drivers but predominantly black or Hispanic drivers. Berlin's resident population age 16 and older is 6% 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, considering that about 6% of the population is minority but close to 26% of the drivers stopped were minority. However, the racial and ethnic makeup of different areas of Berlin varies by census tract, so the disparities were more pronounced in some areas compared to others.

Figure 1.4: Traffic Stop Map

The overall percentage of Berlin traffic stops involving black drivers was 9%. The percentage of black drivers stopped exceeded the town average of 9% in census tract 4002. There was a positive disparity above the resident black driving age population in all census tracts, with the largest disparity in tract 4002. Figure 2.1 shows the difference between the local black resident population and the black drivers stopped by census tract.
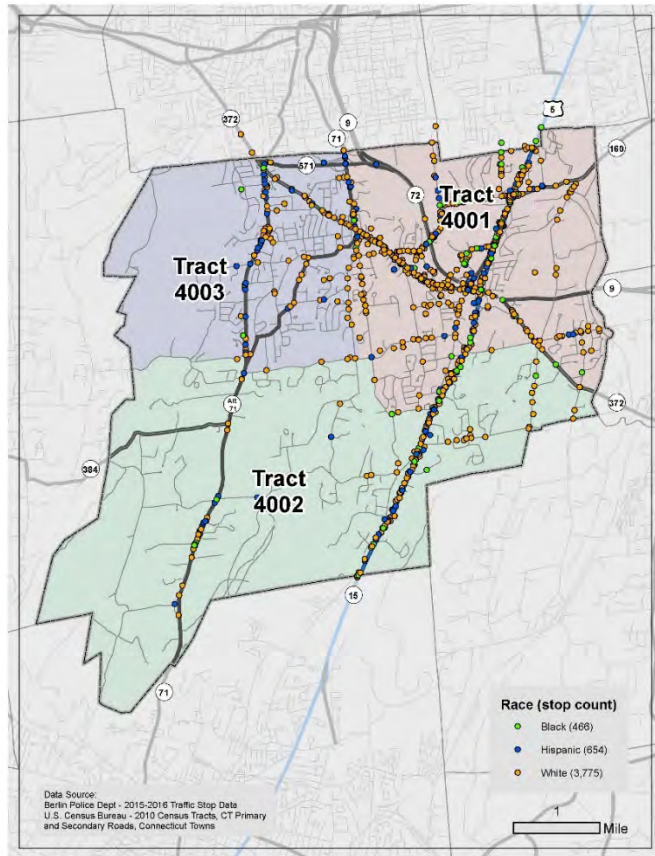
Figure 2.1: Black Population Compared to Black Drivers Stopped by Census Tract[2]
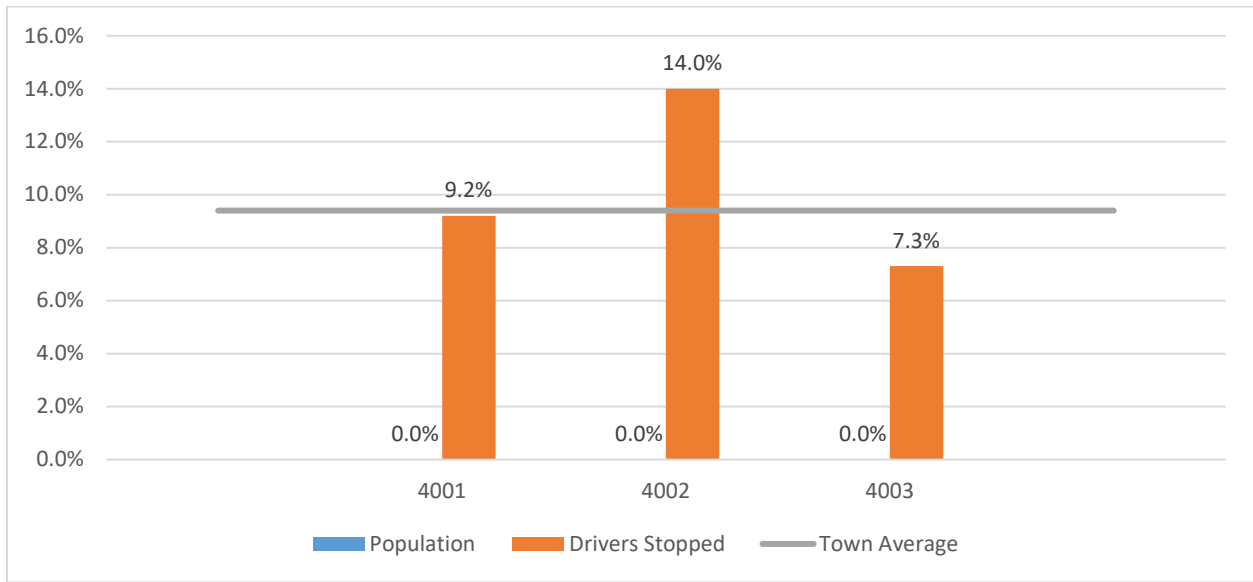
The overall percentage of traffic stops involving Hispanic drivers was 13%. The percentage of Hispanic drivers who were stopped exceeded the town average in census tracts 4002 and 4003. There was a positive disparity above the resident Hispanic driving age population in all census tracts, with the largest disparity in tract 4002. Figure 2.2 shows the difference between the local Hispanic resident population and the Hispanic drivers stopped by census tract.

Figure 2.2: Hispanic Population compared to Hispanic Drivers Stopped by Census Tract

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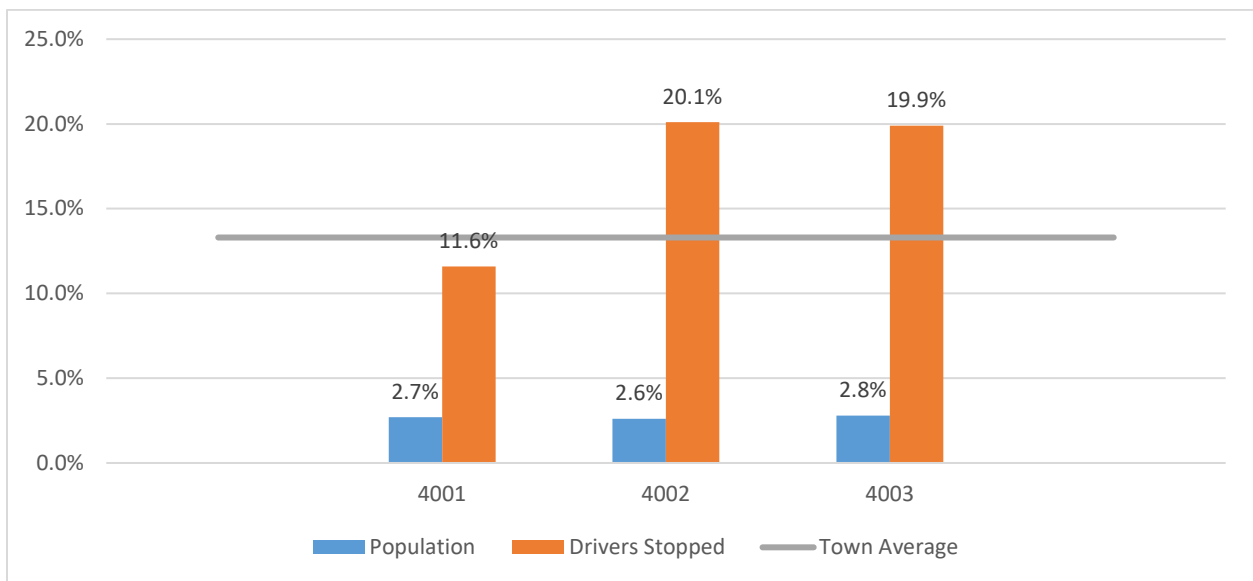
[2] Demographic information is only available for race/ethnic groups over 50 people reported as living in a census tract. According to the 2010 U.S. Census, there were not more than 50 black residents living in any one-census tract in Berlin.

Traffic Stop Breakdown on the Berlin Turnpike

Forty-one percent of all traffic stops in Berlin occur on the Berlin Turnpike. The Berlin Turnpike is a four to six lane-divided road that carries Route 5 and Route 15 from the Meriden border through Newington and Wethersfield. The entire roadway is approximately 12 miles long, with about 2.7 miles running through Berlin from the Meriden to Newington borders. The turnpike crosses into Berlin from Meriden at North Colony Road and crosses into Newington at Selden Street.

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 (DOT). DOT is responsible for collecting traffic volume information for state and local roads throughout the state by placing counting stations at different points along the roadway for a time period to count the cars driving through that point. According to the ADT information for the Berlin Turnpike, during the morning commute, a larger percentage of traffic flows north from Meriden to Route 9 and during the evening commute, the majority of traffic picks up the turnpike off Route 9 traveling south towards Meriden. Employment commutation impacts the traffic flow on the portion of the turnpike in Berlin. The traffic flow is steady between the morning and evening commute hours.

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 (6:00 a.m. to 8:00 a.m.) and evening (4:00 p.m. to 6:00 p.m.) commuting hours. Traffic enforcement peaks were offset somewhat from the commute peaks, with enforcement peaks at 10:00 a.m. to 12:00 p.m. and 4:00 p.m. to 6:00 p.m. However, there is also significant enforcement activity between 11:00 p.m. and 1:00 a.m.

Figure 3.1: Berlin Turnpike Traffic Flow Compared to Traffic Enforcement
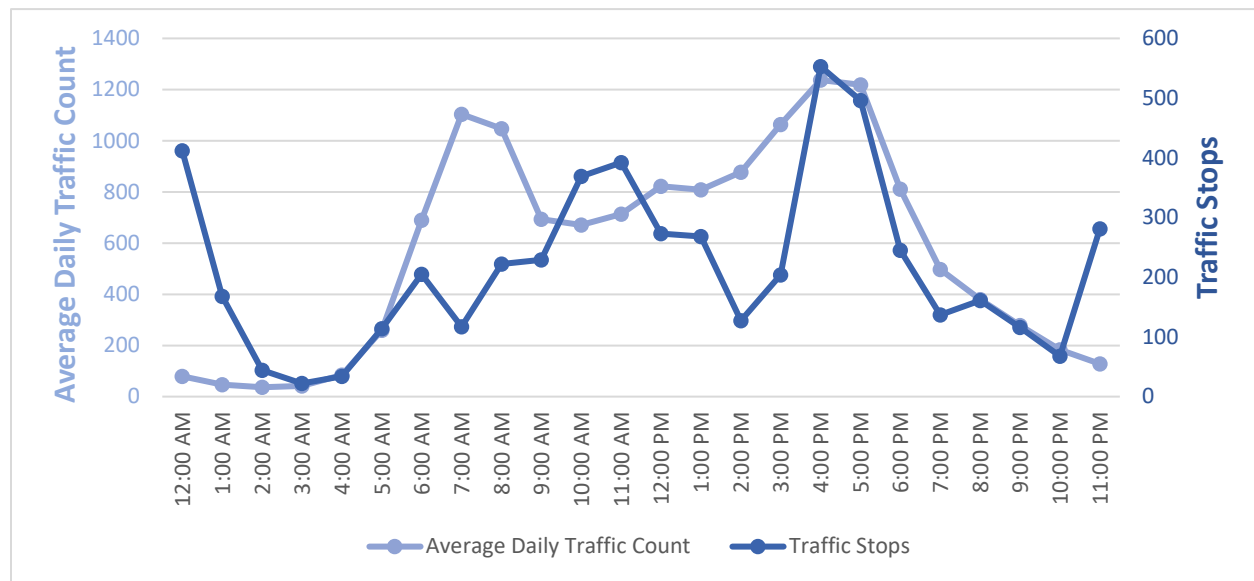
The overall percentage of traffic stops involving minority drivers on the Berlin Turnpike was 29%. Approximately 14% of drivers stopped were Hispanic and 12% were black. Of the more than 2,139 traffic stops on the turnpike, 90% of the drivers stopped were not Berlin residents. Hispanic drivers were 5% of all Berlin residents stopped on the turnpike and 15% of all non-residents. Black drivers were 5% of all Berlin residents stopped on the turnpike and just over 13% 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
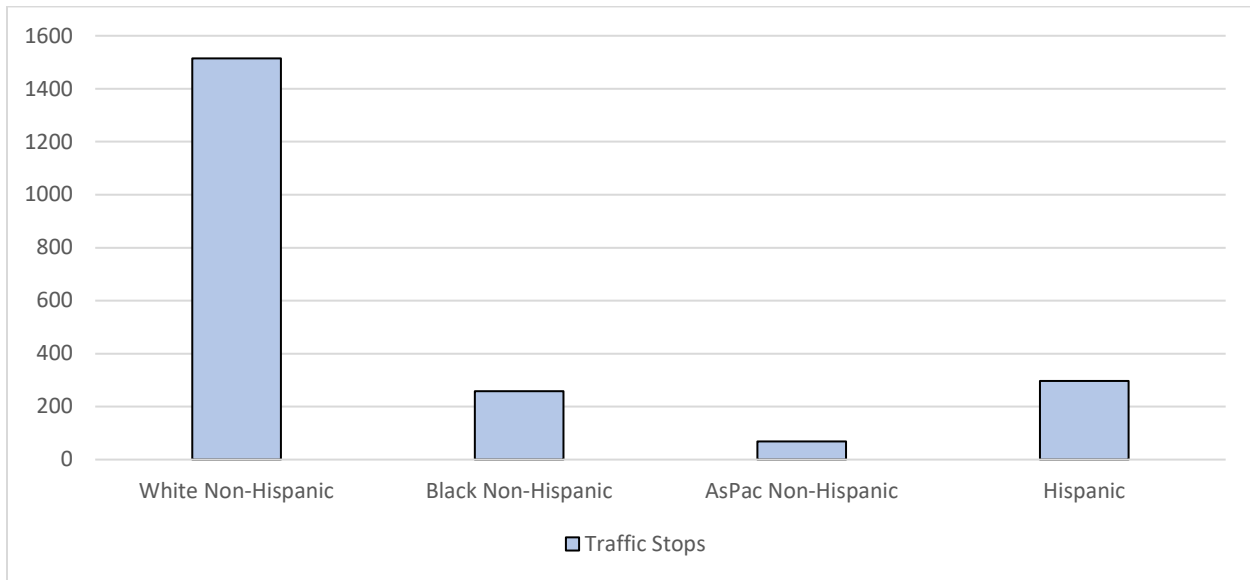
Non-Resident Component of Berlin Traffic Stops

Berlin'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-Berlin residents who make up the majority of people stopped in Berlin. Berlin's resident driving age population is estimated as 94% white, 2.7% Hispanic, 0.7% black, and 2.4% Asian/Pacific Islander. The demographics of the Berlin residents who were stopped during the study year showed only a small disparity for black and Hispanic drivers. The disparity was most significant for non-Berlin resident stops. Since 74% of all drivers stopped in Berlin were not residents, out-of-town drivers clearly had an impact on the stop data. The racial breakdown of drivers stopped who were not Berlin residents is as follows: 69% white, 17% Hispanic, 12% black, 2% Asian/Pacific Islander, and 0.4% Indian American. Approximately 93% of the black and Hispanic drivers stopped were not residents, compared to 68% of white drivers.

The Route 5 corridor appears to have the greatest influence on the non-Berlin resident component of the stop demographics, with 90% of the drivers stopped on Route 5 not living in Berlin. Non-resident drivers were significantly more likely to be stopped on Route 5 than they were on all other roadways in Berlin. Over 89% of the drivers stopped on this corridor were not residents of Berlin compared to 64% on other roadways.

Traffic Stop Distribution for Berlin Officers

Berlin's 5,257 traffic stops were reported for 35 officers. The average number of stops made per officer was 150. Of the 35 officers reporting stops, 10 made fewer than 50 stops, eight made between 50 and 150 stops, 12 made between 150 and 300 stops, and five made over 300 stops. The five most active officers making more than 300 stops collectively accounted for 36% of Berlin stops. While these five officers clearly had the greatest impact on Berlin's total stop numbers, the average number of stops per officer is relatively higher than the averages found in a number of other departments.

Post-Stop Outcome Review

Reason for Stops

The reasons police use to stop a motor vehicle can vary significantly from department to department. We reviewed the statutory authority that Berlin officers reported as the reason for stopping motor vehicles. The three most common reasons for stopping a motorist in Berlin made up 60% of the total stops. The three largest stop categories were for cell phone violations (25%), speeding violations (19%), and traffic signal violations (16%). 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 violations than white drivers as a percentage of their total stops. Figure 4.1 illustrates by race and ethnicity the reason officers cited to stop a motor vehicle.

Figure 4.1: Reasons for Traffic Stops

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

There were some subtle differences between the reasons for motor vehicle stops in the three census tracts in town. In the most active census tract (4001) the top three reasons for stopping a vehicle in were for cell phone violations (33%), traffic light violations (17%) and speed-related violations (13%). However, the top three reasons for stopping a vehicle in tracts 4002 and 4003 were speed-related violations (41%), defective lighting violations (14%), or traffic light violations (13%).

Cell phone-related violations had a significant influence on traffic enforcement in Berlin, especially in the high enforcement census tract 4001. These violations accounted for 33% of the stops in tract 4001 compared to less than 3% of the stops in the other two tracts. Almost all of the cell phone violation stops occurred in tract 4001. In addition, cell phone-related violations were greatest on the Berlin Turnpike. These stops accounted for almost 50% of all enforcement on the turnpike. Over 79% of all cell phone violation stops were conducted on the turnpike. White drivers were stopped at a higher rate for cell phone violations than black or Hispanic drivers were (27% of white drivers stopped compared to 20% of black drivers and 18% of Hispanic drivers).

Just over 13.5% of Berlin's stops were made for violations involving defective, missing, or inoperative vehicle lighting; improper display of license plates; and window tinting. This was almost equivalent to the state average of 12% during the study year. Almost 75% of all equipment-related stops were made in census tract 4001. The largest percentage of equipment-related stops were made on the Berlin Turnpike (37% of all equipment stops) and Farmington Avenue (16% of all equipment stops). Figure 4.2 is a map of traffic enforcement for equipment-related motor vehicle stops. Stops for defective lights, window tints, or display of plate were labeled "equipment-related" violations. For comparison, figure 4.3 is a map of traffic enforcement for safety-related motor vehicle stops. Stops made for speed, stop sign, traffic light, cell phone, or moving violations were labeled "safety-related" stops.
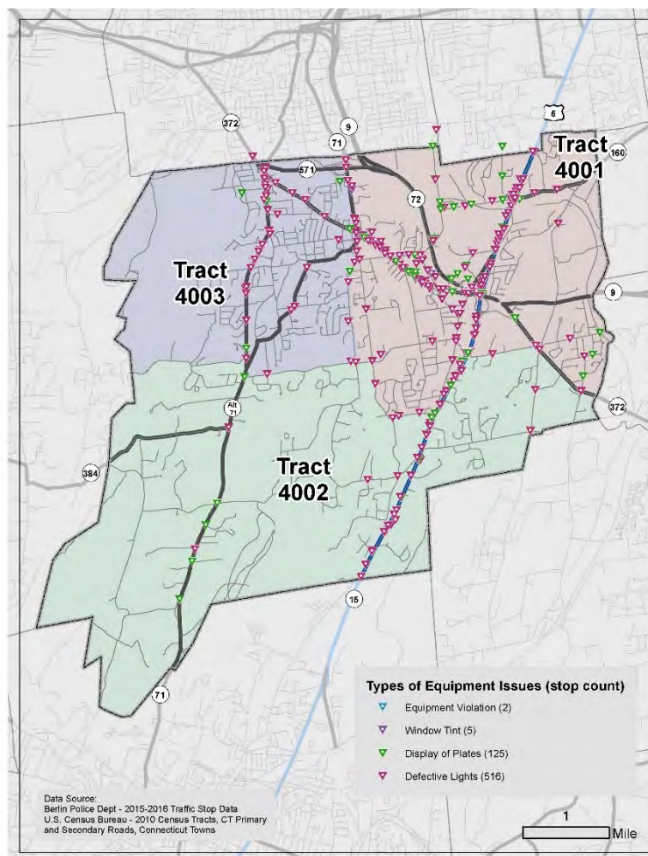
These stops appear to have had an impact on the overall disparity affecting both black and Hispanic drivers. Of all the

Figure 4.2: Equipment-Related Motor Vehicle Stops

Hispanic drivers stopped in Berlin, 18% of them were stopped for equipment-related violations. In addition, 19% of all the black drivers stopped in the town were pulled over for equipment-related reasons. This compared to 12% of all white drivers. Conversely, 75% of all the white drivers stopped in Berlin were stopped for hazardous driving behaviors compared to 66% of black drivers and 63% of Hispanic drivers. Black drivers were 13% of those stopped for equipment-related reasons but only 8.8% of those stopped for all other reasons. Hispanic drivers were 18% of those stopped for equipment –related reasons but only 12.5% of those stopped for all other reasons. Conversely, white drivers were 65% of those stopped for equipment-related reasons and 76% of those stopped for all other reasons. Based on this, we believe that these stops were an important factor in the Berlin disparity involving black and Hispanic drivers.

Police often use equipment-related motor vehicle enforcement as a technique that is part of a proactive policing strategy. In particular, these violations are often used during roving DUI patrols. A roving patrol refers to an officer on patrol conducting motor vehicle enforcement with the purpose of identifying a specific violation, in this case, drinking and driving. Of the 717 stops made for equipment-related reasons, 35 of them (5%) ultimately resulted in the issuance of a misdemeanor summons and four of them (0.6%) resulted in an arrest. This was almost equivalent to the stop outcomes for all other stops where 4.2% resulted in a misdemeanor and 0.4% resulted in an arrest.

The more serious charges resulting from the use of equipment-related stops most frequently involved vehicle operation while either the vehicle's registration or the driver's license was under suspension (21 of the 35 misdemeanor charges were for this reason—60% of all the misdemeanor outcomes). For the 14 other equipment-related stops that resulted in misdemeanor outcomes, nine were charged for misuse of license plates or registration (typically using the registration and/or license plates issued for one vehicle on a different vehicle), and three were charged for violation of minimum motor vehicle insurance requirements. In the other three cases, the officer made an equipment-related stop, subsequently issued a misdemeanor summons, but failed to indicate what the misdemeanor was in the stop record. It is worth noting that none of the drivers charged with DUI in Berlin were initially stopped for equipment-related reasons. There were 23 drivers charged with alcohol-related offenses. Of the 23 drivers,

Figure 4.3: Safety-Related Motor Vehicle Stops

six were stopped for hazardous moving violations, two were stopped for registration violations and the stop reason was not reported in the remaining 15 cases.
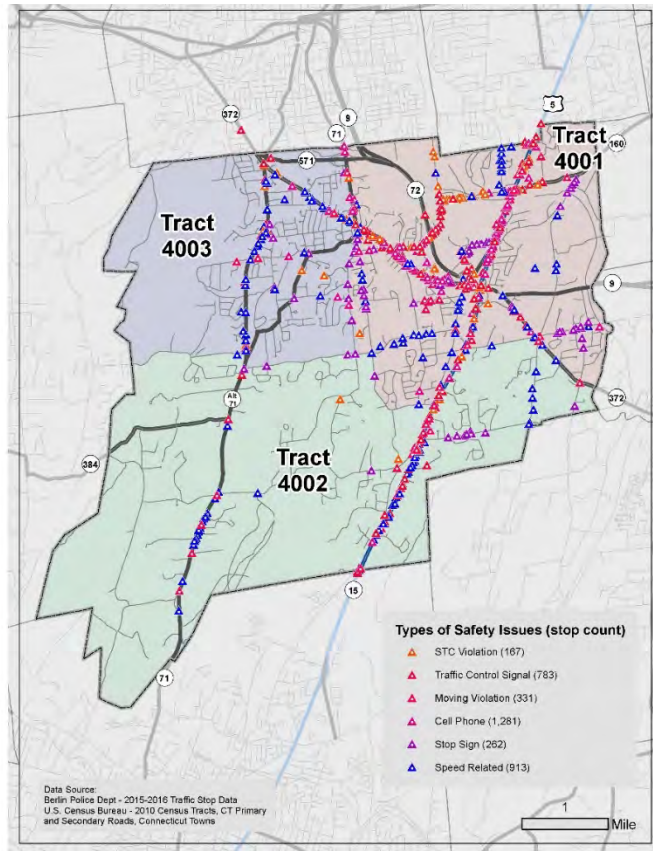
Outcome of Stops

The majority of motor vehicle stops in Berlin resulted in the driver receiving a warning (58%). Black and Hispanic drivers were more likely to receive a misdemeanor summons as a percentage of their total stops. Black and Hispanic drivers were slightly less likely to be charged with an infraction compared to white drivers. Figure 4.4 shows the outcome of motor vehicle stops by race and ethnicity.

Figure 4.4: Outcome of Traffic Stop

*Uniform Arrest Report

Most violations of the motor vehicle laws are designated as infractions but some are not. The more serious violations can be reckless driving, operating under a license suspension, operating under the influence of alcohol or drugs, and operating an uninsured or underinsured vehicle. The system for collecting and reporting traffic stop data requires officers to record the statutory citation for the violation that was the basis for the stop as well as any subsequent charges that differed from and were more significant than the initial charge. This gives an analyst the data on the initial cause for making a stop as well as any subsequent, more serious charge. For example, if someone was initially stopped for a lesser reason such as not wearing a seat belt or rolling through a stop sign, the officer might subsequently determine that the driver was operating with a suspended license. If this information is properly recorded, it is possible to distinguish those stops from the ones that begin and end with the same charge.

In Berlin, 224 of the stops made resulted in the issuance of a misdemeanor summons (4%). This was below the statewide average of 4.8% for stops resulting in misdemeanor charges. When considered as a proportion of their total stops, black and Hispanic drivers were more than three times as likely to be issued a misdemeanor summons as a result of the stop as were white drivers (9% of all black drivers stopped and 10% of all Hispanic drivers stopped compared to 3% of all white drivers stopped). Of these stops, 170 were initiated for a reason that was not a misdemeanor violation (e.g. speeding, stop sign violation, defective or improper lighting, etc.) However, once the officer interacted with the operator of the vehicle a misdemeanor violation was identified. The misdemeanor violation identified was typically for a license or registration related issue. In particular, 35% of the misdemeanor stops were for operating with a suspended license or registration. Berlin did not report the secondary statutory citation in 87 of the cases that resulted in a misdemeanor. Additionally, in some cases, the secondary citation was not a misdemeanor and we could not determine the final misdemeanor charge. Unlike many infraction violations, officers do not have discretion in the issuance of a misdemeanor summons when a misdemeanor violation is identified.

Search Information

A review of department search information shows that 2.1% (110) of the drivers stopped in Berlin were subjected to a motor vehicle search. This rate of motor vehicle searches is below the state's 3% average. Black and Hispanic drivers were searched at a rate higher than white drivers were. Of the 110 vehicles searched, 65% were subjected to an inventory search (compared to 21% statewide), 12% were subjected to a consent search (compared to 37% statewide), and 24% were subjected to a search for some other reason (compared to 40% statewide). Further analysis of the Berlin search data has revealed that the department's inventory search policy may have an 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. Of the 5,257 traffic stops made in the study year, 159 (3%) vehicles were towed. However, the department only reported searching 75 towed vehicles and of which, only 67 were reported as inventory searches.

Almost 65% of car searches were reported as inventory searches and contraband was found 4% of the time. Consent and other searches made up 35% of the searches and contraband was found 44% of the time. Over 62% of the searches involving black and Hispanic drivers were the result of an inventory search compared to 67% of searches involving white drivers. Since inventory searches tend to produce contraband hits less frequently than other types of searches, the greater prevalence of inventory searches for white drivers influences the overall distribution demographics of the search hit rate for Berlin to some degree. Contraband was found at a higher rate for black and Hispanic drivers. However, given the relatively small number of searches conducted, these differences are not significant.

Motor vehicle searches were concentrated in the high enforcement census tract (4001) including the Berlin Turnpike. Figure 4.5 illustrates the motor vehicle search rate and the rate at which contraband was found (the "hit rate").

Figure 4.5: Search and Hit Rate
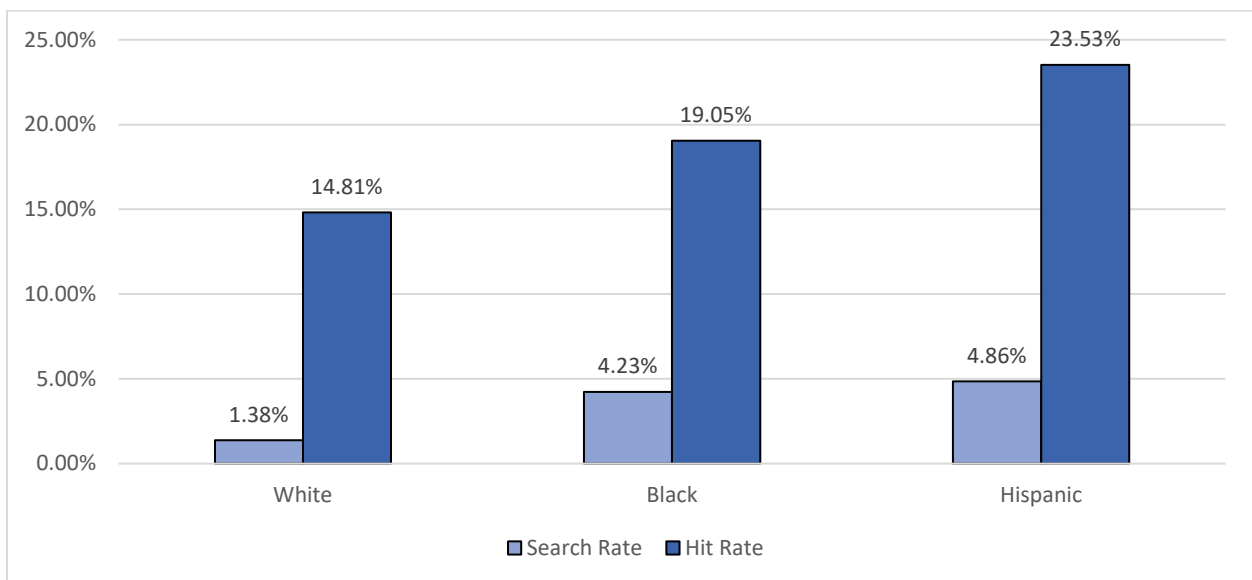
Calls for Service

Law enforcement administrators choose to deploy police resources within a community based on a number of different factors, including where calls for service are more prevalent. The department provided us with the calls for service log, including calls for service and officer initiated actions that required a case report. Calls for service that did not require a report were not included in the data submitted. The logs report approximately 3,553 entries from October 1, 2015 through September 30, 2016. The top three reasons reported in the dispatch logs were for an ambulance, a general police assist, or larceny; and these account for about 37% of all calls.

We looked at the calls for service that constitute the majority of calls related to criminal activity. In particular, larceny, burglary, breach of peace, criminal mischief, and suspicious conditions account for 25% of all reported calls for service. Larceny-related calls were the third highest reason for all calls and over 25% were reported on the Berlin Turnpike. This was the largest percentage of any roadway in town. This pattern was true for all of the calls related to criminal activity with almost a quarter of them occurring on the Berlin Turnpike. The higher level of calls for service on the Berlin Turnpike for criminal activity and in census tract 4001 supports the rationale for the additional resources deployed to patrol that busier section of the town.

Figure 4.6: Vehicle Search Map

Additional Contributing Factors

In addition to calls for service, law enforcement administrators also distribute police resources within a community based on accident rates, or where crime rates are higher. In addition to these factors, police presence may be greater where traffic volume is higher as the result of common factors that draw people into a community such as employment and entertainment. Traffic enforcement actions are likely to be more prevalent in locations that attract greater police presence due to some of these factors. Basic information on crime, accidents, and other economic factors associated with Berlin provide a context to help explain the rational for police deployments that are important considerations.

According to the Connecticut Economic Resource Center (CERC) town profiles, approximately 11,692 people work in Berlin and its major employers include Hartford Direct, Residential Management Svc Inc., Corbin Russwin Inc., and Northeast Utilities. The vast majority of commuters traveling into Berlin for employment are from New Britain, Meriden, Bristol, and Newington. The overall

unemployment rate is 4.7%, which is below the unemployment rates for Hartford County and the state.

In 2016, the crime rate in Berlin was reported to be 180 per 10,000 residents, compared to the state crime rate of 204 per 10,000 residents. According to the 2016 Connecticut Uniform Crime Report[3], there were 345 reported crimes in Berlin in 2016, 75% of which were larcenies. The three most reported crimes were larceny (259), burglary (38), and motor vehicle theft (28).

During our study period, there were approximately 580 motor vehicle accidents on roads patrolled by the Berlin Police Department. Accidents were reported as occurring on 70 roads. The roadways with the highest number of accidents were the Berlin Turnpike (213 accidents), Deming Road (41 accidents), the Chamberlain Highway (36 accidents), and Farmington Avenue (35 accidents). There were only nine roads with 10 or more accidents and those roads account for 72% of all accidents in Berlin.

Figure 5.1 illustrates the time of day when traffic accidents were reported and the number of traffic stops that occurred during that same period. This illustrates how closely traffic enforcement is correlated with traffic accidents in Berlin. While the vehicle crash rate tends to build steadily throughout the day in town, it peaks during the evening commute period from 4:00 p.m. to 6:00 p.m.

Figure 5.1: Accidents Compared to Traffic Stops by Time of Day
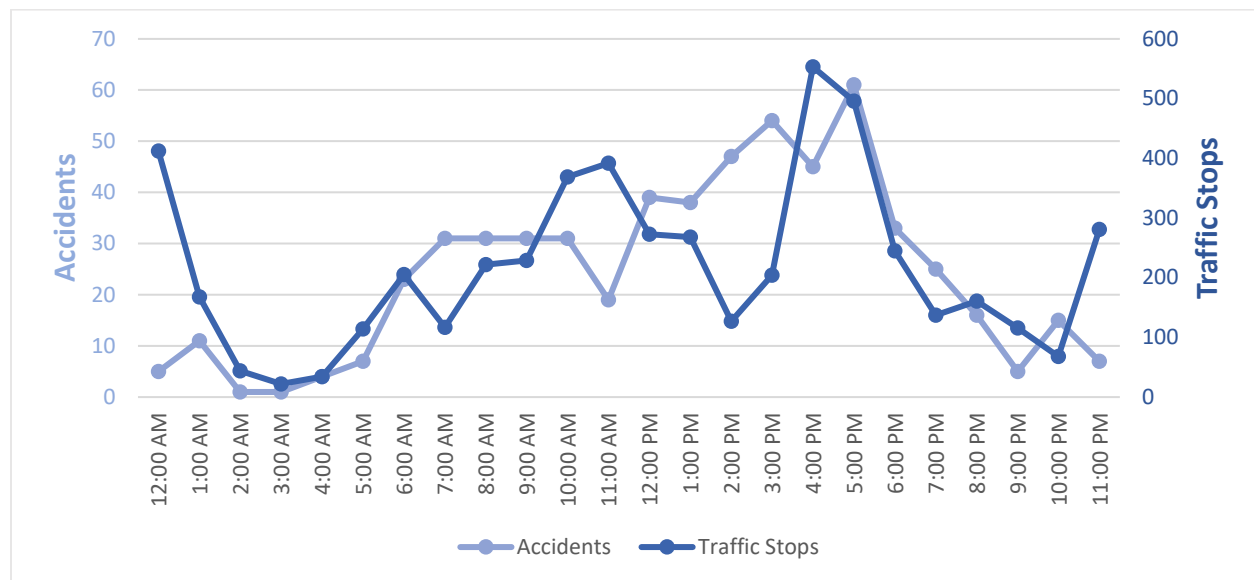
Summary of Findings

Berlin Police Department officials identified factors that they believe contribute to the minority disparity identified in the initial analysis of traffic stops. 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. The department stated that they believe their roadways are heavily impacted by residents from surrounding communities including

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[3] 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.

New Britain and Meriden. Berlin highlighted the impact that retail businesses on the Berlin Turnpike have on traffic volume. It was evident from the data that departmental resources were concentrated in certain parts of town, primarily along the Berlin Turnpike, the downtown area and the Chamberlain Highway.

Traffic enforcement in Berlin is largely influenced by the activity in one census tract (4001.) This tract accounts for almost 80% of the total traffic stop activity town wide and includes about half of the Berlin Turnpike in Berlin. The Berlin Turnpike accounts for 41% of all traffic stops in town. This is one of the busiest roadways in the area with close to 40,000 cars traveling in each direction on a daily basis. The overall traffic stops involving minority drivers on the Berlin Turnpike was 29% compared to 25% town wide. In addition, 90% of the drivers stopped here were non-resident drivers. Non-resident minority drivers were more likely than non-resident white drivers to be stopped on the turnpike.

Census tract 4001 has the largest volume of traffic enforcement with 79% of all stops. Census tract 4001 is also the most populous tract in town with almost 37% of the resident population. This high enforcement area contains the largest stretch of the Berlin Turnpike in town (approximately three miles). However, Berlin'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. The two remaining census tracts (4002 and 4003) account for 63% of the resident population, but only 21% of the traffic enforcement.

Berlin has a low non-white driving age resident population and a relatively large proportion of non-Berlin residents who make up the majority of people (74%) stopped in town. The demographics of the Berlin residents who were stopped during the study period closely mirrored the demographics for the town. However, the racial demographics for drivers stopped who were not town residents was significantly more diverse. It is clear from the data that out-of-town minority drivers had the largest impact on the racial disparity. Approximately 93% of Hispanic and black drivers stopped were not town residents compared to 68% of white drivers. The Berlin Turnpike appears to have the greatest influence on the out-of-town resident component of the stop demographics, with 90% of the drivers not living in town. It is clear that motor vehicle enforcement concentrated on the Berlin Turnpike combined with the high rate of non-resident drivers stopped on that corridor contributed significantly to the overall racial and ethnic disparity in Berlin's data.

In addition, Berlin has 35 officers who made at least one traffic stop during the study period. The average stops made per officer was 150, but five officers (14% of the officer force) accounted for 36% of all the traffic stops. The most active officer conducted 10% of all motor vehicle stops in town. There were 17 officers who conducted more than 150 stops and together accounted for 80% of all traffic enforcement. 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

In Berlin, the three most common reasons used for stopping a motorist make up 60% of the total stops. The three largest stop categories were for cell phone violations (25%), speeding violations (19%), and traffic signal violations (16%). White non-Hispanic drivers were more likely than were either black or Hispanic drivers 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. 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.

Cell phone violations had the greatest influence on traffic enforcement in Berlin, especially along the Berlin Turnpike. Over 79% of all cell phone violation stops occurred on the turnpike. Cell phone violation stops accounted for half of all stops on the turnpike. White drivers were 40% more likely than black drivers and 55% more likely than Hispanic drivers to be stopped for cell phone violations. However, equipment-related motor vehicle enforcement appeared to have an impact on the overall racial and ethnic disparity in traffic enforcement. These stops were most highly concentrated in census tract 4001, with 66% of all equipment-related stops. This census tract covers a large section of the Berlin Turnpike and the downtown area. Black drivers were 60% more likely and Hispanic drivers were 53% more likely than white drivers to be stopped for equipment-related violations.

Overall, almost 59% of all drivers stopped received a warning. Black and Hispanic drivers were more than three times as likely as white drivers to receive a misdemeanor summons as the result of a stop. White drivers were more likely to receive an infraction ticket and warning. The majority of the stops that resulted in a misdemeanor charge were initiated for a reason that was not initially a misdemeanor violation. However, once the officer interacted with the operator a misdemeanor violation was identified. Most of the misdemeanor charges were for a license or registration related issue. Unlike many infraction violations, officers do not have discretion in the issuance of a misdemeanor summons when such a violation is identified.

Berlin police searched the vehicles of 2.1% of drivers they stopped, which was below the state average of 2.9%. Black and Hispanic drivers were searched at higher rate than white drivers were. Contraband was found after a search at a higher rate for both black and Hispanic drivers searched compared to white drivers. Since inventory searches tend to produce contraband at a lower rate, the greater prevalence of inventory searches for white drivers influenced the overall demographics of the search-hit rate. However, given the relatively small number of searches conducted and the influence of the inventory search policy, these differences are not significant.

Conclusion

Taken as a whole, the Berlin traffic stop data reflects the influence of the Berlin Turnpike corridor and downtown area that appears to be somewhat more diverse than the predominantly white local driving age population. The Berlin Turnpike appears to have a relatively high level of enforcement and a relatively higher proportion of non-resident minority drivers travelling it. The corridor is a significant traffic magnet in town for business, shopping and entertainment and is a major thoroughfare for surrounding communities. The relative disparities in Berlin appear to be due to three basic factors:

(1) the relatively high levels of enforcement in one census tract (4001), with significant traffic volume, calls for service, accidents and crime, and which coincide with both the largest local resident minority driving age populations and the highest likelihood that relatively high proportions of non-resident minority drivers are traversing them because of the proximity of New Britain and Meriden;

(2) the presence of significant traffic magnets along the Berlin Turnpike that generate a considerable number of calls for service, vehicle crashes, and traffic from surrounding communities; and

(3) the use of equipment-related motor vehicle stops that disproportionately affected minority drivers.

While white drivers are more likely to be stopped in Berlin 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-related violations. Our analysis indicates that this difference could be due more to the greater frequency with which these stops were made on high enforcement roadways, where minority drivers are likely to be present in the driving population in greater numbers, rather than to an inherently greater likelihood that minority drivers violate these laws with greater frequency than white drivers.

Based on the overall follow-up analysis of the Berlin data, it is recommended that the Berlin Police Department:

(1) review its traffic enforcement policies in tract 4001 with particular attention to the stop activity on the Berlin Turnpike, to evaluate the extent to which they may have a disproportionate effect on black and Hispanic drivers and

(2) evaluate both the location and frequency of stops for high discretion equipment-related motor vehicle enforcement, with particular attention to stops for defective or improper lighting, to better understand the impact they may be having on minority drivers.

It is also recommended that department administrators remind Berlin officers that the statutory reason why a misdemeanor summons issued for stops that were made for infraction violations must always be entered as part of the data submission so that these outcomes may be tracked more accurately.

I.B. (3): DARIEN FOLLOW-UP ANALYSIS SUMMARY

This analysis continues the work of the Racial Profiling Prohibition Project's study of traffic stops conducted since October 1, 2013. This follow-up report focuses on data reported for stops conducted from October 1, 2015 through September 30, 2016. Table 1.0 below compares summary racial data for reported traffic stops in Darien over a three-year period.

Table 1.0: Darien Traffic Stops – 2013 - 2016

	2013-2014 Stops		2014-2015 Stops		2015-2016 Stops	
White	2,590	70.4%	1,803	70.2%	2,104	67.7%
Black	406	11.0%	295	11.5%	355	11.4%
AsPac*	74	2.0%	46	1.8%	54	1.7%
AI/AN**	30	0.8%	15	0.6%	21	0.7%
Hispanic	581	15.8%	409	15.9%	572	18.4%
Total	**3,681**		**2,568**		**3,106**	

*Asian Pacific, ** American Indian/Alaska Native

Overview of the November 2017 Traffic Stop Analysis

The November 2017 Traffic Stop Analysis report indicated that for the October 1, 2015 – September 30, 2016 study period the Darien Police Department made 3,106 traffic stops. Of these, 32.3% were minority stops (18.4% Hispanic and 11.4% black). The Darien Police Department was identified as having a racial and ethnic disparity using the three descriptive tests. Darien exceeded the threshold in two of the three descriptive benchmarks used and five of the nine possible measures. Darien received a disparity score of 4.5 out of a possible nine points. Although certain assumptions have been made in the design of each methodology, it is reasonable to conclude that departments with consistent data disparities separating them from the majority of other departments should be subject to further review and analysis with respect to the factors that may have caused these differences.

Descriptive Analysis of the 2015-2016 Traffic Stop Data

The racial and ethnic disparities in the Darien Police Department data were studied using a more detailed review of traffic enforcement during the 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. Darien provided detailed location descriptions that allowed accurate mapping of 96% of their stops. According to the 2010 census, Darien is a town with approximately 14,004 residents over the age of 16. Approximately 7% of the driving age population in Darien is identified as a minority. Table 2.0 outlines the basic demographic information for Darien residents over age 16.

Table 2.0: Darien Population

Race/Ethnicity	16+ Population Total	% Population Total
White Non-Hispanic	13,000	92.8%
Black Non-Hispanic	0	0.0%
AsPac Non-Hispanic	515	3.7%
Hispanic	489	3.5%
Other	0	0.0%
Total	**14,004**	

Darien is approximately 13 square miles in area and on the south it faces the Long Island Sound with 16.5 miles of coastline. Darien is situated off Interstate 95 (I-95) and is a coastline community. The town has four exits on the northbound side of I-95 and three exits on the southbound side. The northern border of town is just south of Route 15, where two exits are close to the town border. US Route 1 or the Boston Post Road runs east-west through the southern portion of town.

Three other municipalities border Darien: New Canaan to its north, Norwalk to its east, and Stamford to its west. New Canaan is predominantly white demographically, with an average white driving age population of 92% (compared to Darien's white driving age population of 93%). Norwalk has a white driving age population of 59% and Stamford has a white driving age population of 56%. Of the drivers stopped in Darien overall, only 23% were Darien residents and 77% lived elsewhere.

Figure 1.1 Darien Census Tract Map
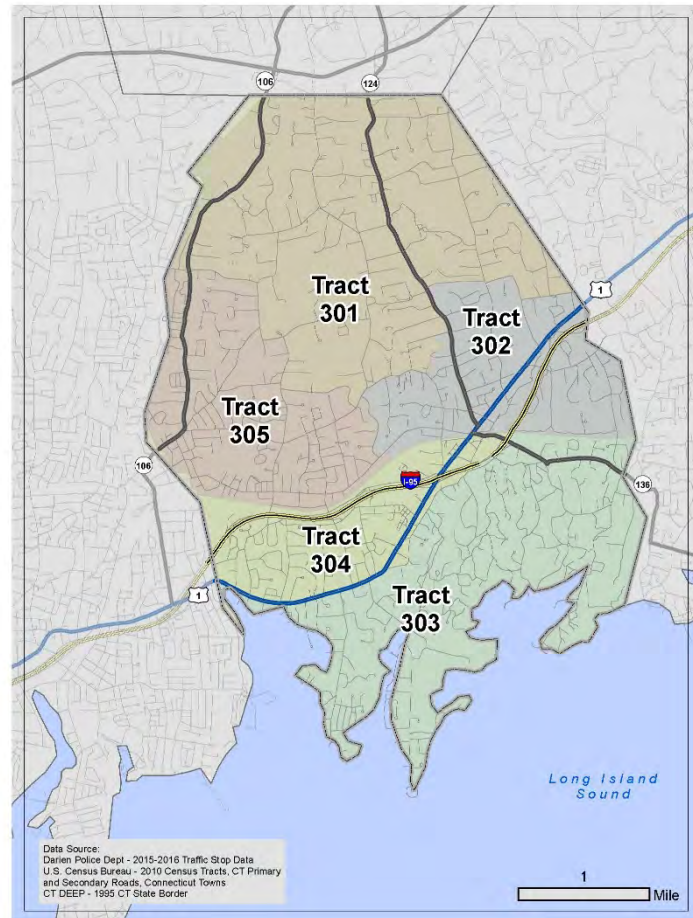
Darien is divided into four or five patrol districts depending on the number of officers assigned to any given shift. The officer schedule fluctuates based on department needs and resources. There is always at least one supervisor working each shift as well as at least one officer for each patrol district. The four-patrol district map divides the town into almost equal geographic quarters. The town is split vertically down the center along Mansfield Avenue and horizontally just north of I95. The five-patrol district map simply adds a fifth patrol officer to cover a small geographic area in the downtown area.

The U.S. Census Bureau divides Darien into five census tracts. Figure 1.1 is a map that outlines the boundaries of Darien census tracts, which will be referred to throughout this report. The resident driving age population in each census tract varies from about 2,000 to about 3,800 people, with the largest concentration of people (27% of the total population) in tract 305. The racial breakdown in each census tract varies, from a high of over 11% minority driving age residents in census tract 304 to a low of only 3.3% in tract 302. Figure 1.2 shows the distribution for each census tract in terms of white and non-white driving age population.

Figure 1.2: Age 16 and Older Resident Population by Census Tract
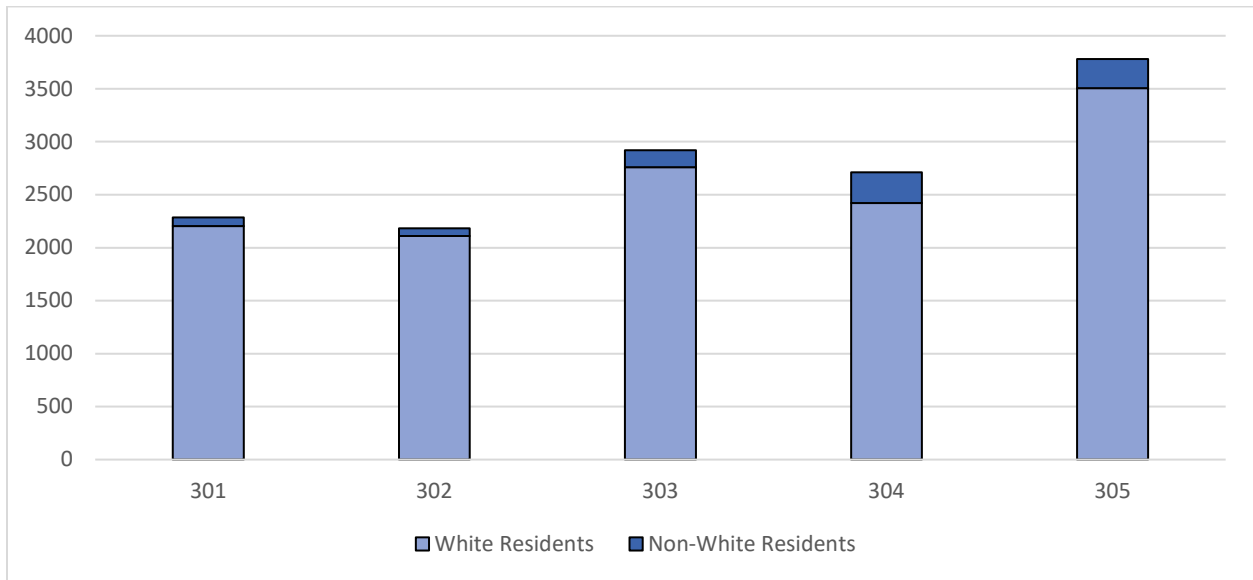
Figure 1.3 illustrates the volume of traffic enforcement that occurred in each Darien census tract. A large percentage of traffic enforcement activity (59%) occurred in a relatively small geographical area encompassing two census tracts (302 and 304) in the southern portions of town along the I-95 and Route 1 corridors. Census tract 304 has the largest percentage of traffic enforcement with 33% of the town's traffic stops. This tract borders Stamford to the west and includes five of the seven entrances and exits to I-95. Census tract 302, which is the second most active traffic enforcement area, includes the remaining two of seven entrances and exits to I-95 and almost half of the Boston Post Road runs through this census tract. There were 118 stops that could not be mapped. These are not considered in our analysis, for purposes of discussing traffic stops by census tract.

Figure 1.3: Traffic Stops by Census Tract
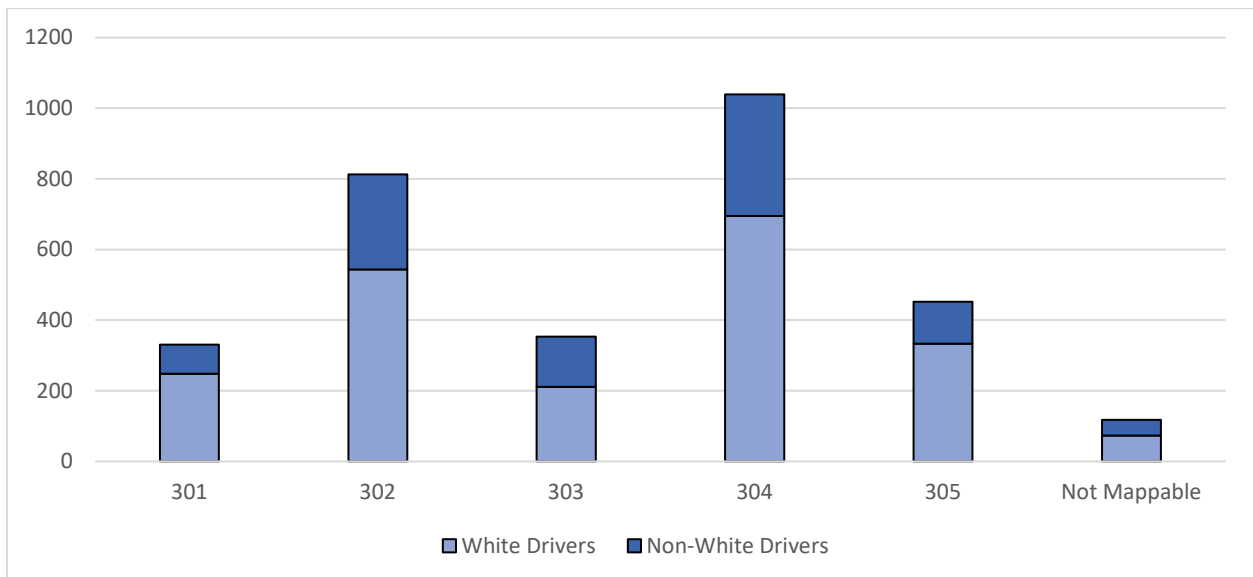
Figure 1.4 is a map of traffic stops made in Darien. Darien's overall resident population is 7% minority and 6.9% of all Darien residents who were stopped were minority. Resident minority drivers were stopped at a similar rate as the proportion of their town population. Approximately 40% of non-resident drivers stopped in Darien were minority. The two census tracts with the highest enforcement account for 61% of all stops of non-residents in Darien. This is most likely because I-95 and Route 1 are major traffic routes for surrounding communities. It is clear that non-residents contribute to the overall racial disparity in Darien stop data.

Traffic Stop Breakdown by Race/Ethnicity

In Darien, 32% of all drivers stopped were minority drivers, classified as all non-white drivers, but predominantly black or Hispanic drivers. Darien's resident population age 16 and older is 7% minority. On its face, this might

Figure 1.4: Traffic Stop Map

suggest a wide disparity in the proportion of minority drivers stopped during the study period. In one sense, this is true, considering that about 7% of the population is minority but close to 32% of the drivers stopped were minority. However, the racial and ethnic makeup of different areas of Darien varies by census tract, so the disparities were more pronounced in some areas compared to others.

Figure 2.1 shows the difference between the local black resident population and the black drivers stopped by census tract. The overall percentage of Darien traffic stops involving black drivers was 11.4%. The percentage of black drivers stopped exceeded the town average of 11.4% in three census tracts (302, 303, and 304). However, the percentage of black drivers stopped in tracts 302 and 304 was only slightly above the town average. There was a positive disparity above the resident black driving age population in all census tracts, with the largest disparity in tract 303. Over 96% of all black drivers stopped were not Darien residents.
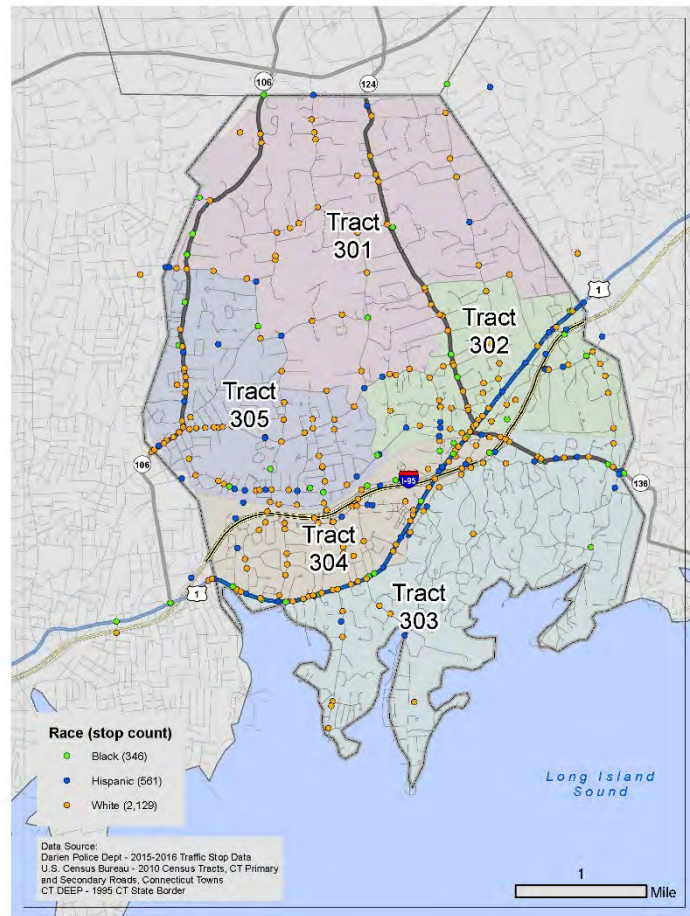
Figure 2.1: Black Population compared to Black Drivers Stopped by Census Tract[4]
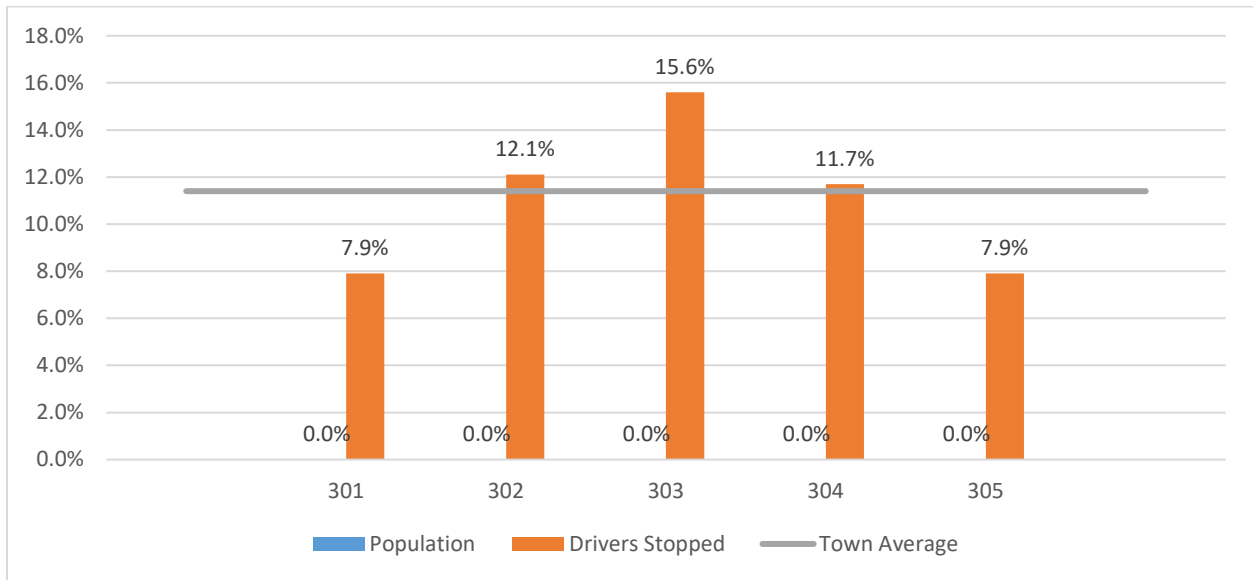
Figure 2.2 shows the difference between the local Hispanic resident population and the Hispanic drivers stopped by census tract. The overall percentage of traffic stops involving Hispanic drivers was 18.4%. The percentage of Hispanic drivers stopped exceeded the town average of 18.4% in three census tracts (302, 303, and 304). However, the percentage of Hispanic drivers stopped in tracts 302 and 304 was only slightly above the town average. There was a positive disparity above the resident Hispanic driving age population in all census tracts, with the largest disparity in tract 303. Over 97% of all Hispanic drivers stopped were not Darien residents.

Figure 2.2: Hispanic Population compared to Hispanic Drivers Stopped by Census Tract

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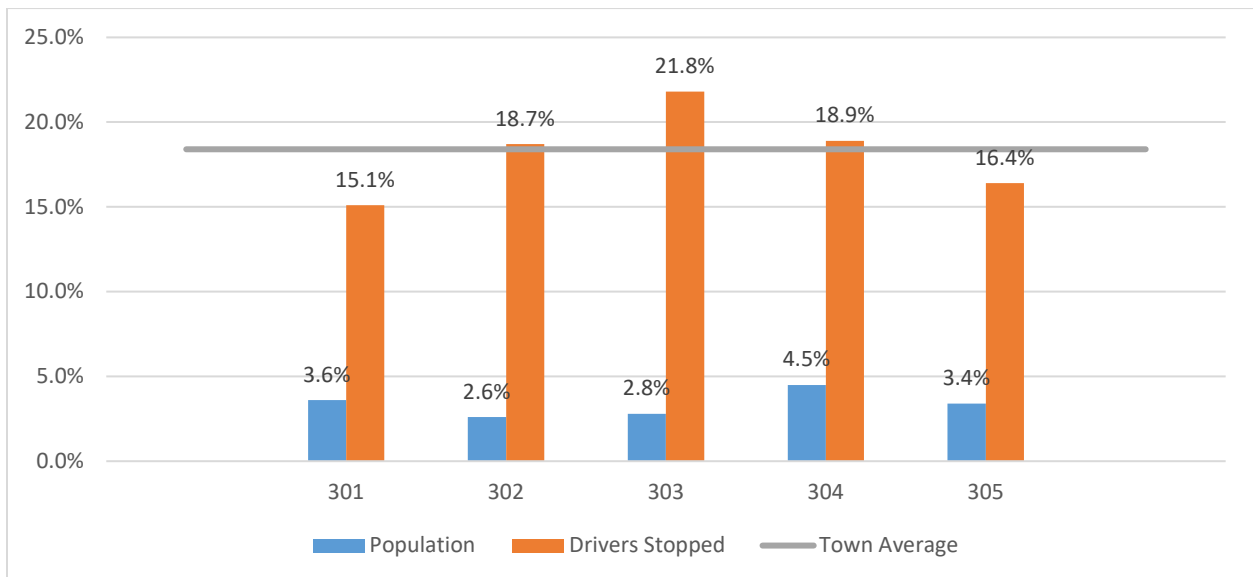
[4] Demographic information is only available for race/ethnic groups over 50 people reported as living in a census tract. According to the 2010 U.S. Census, there were not more than 50 black residents living in any one-census tract in Darien.

Traffic Stop Breakdown on the Boston Post Road (Route 1)

Forty-one percent of all traffic stops in Darien occurred on the Boston Post Road. U.S. Route 1 is locally known as the Boston Post Road or the Post Road and runs approximately four miles from east to west through the southern portion of town. The Post Road is a four lane-divided road that carries Route 1 from the Stamford border to the Norwalk border. With the exception of the Norton Heights business district, commercial zoning is limited outside of the strip along the Post Road. Therefore, this is Darien's main thoroughfare where most businesses as well as where one of the two Metro North train stations is located. The second Metro North Station is located in Norton Heights, near exit 10 North on I-95. The Post Road runs through three census tracts (302, 303, and 304) and serves as the border between tracts 303 and 304. Approximately 39% of traffic stops on the Post Road occurred in tract 302, 13% occurred in tract 303, and 47% occurred in tract 304.

To help understand traffic flow on the Post Road, the analysis looked at the average daily traffic (ADT) records that are reported by the Connecticut Department of Transportation (DOT). DOT is responsible for collecting traffic volume information for state and local roads throughout the state by placing counting stations at different points along the roadway for a period to count the cars that drive through that point. According to the ADT information for the Post Road, the traffic volume begins to build starting at 6:00 a.m. It peaks in the morning around 8:00 a.m. and traffic volume remains high through the afternoon and evening commuting hours. Traffic volume starts to decrease around 6:00 p.m. and is at its lowest levels during the overnight hours. Traffic enforcement peaks were offset somewhat from the commute peaks, with enforcement peaks at 5:00 a.m. to 7:00 p.m. and 4:00 p.m. to 6:00 p.m. Figure 3.1 is a graph of traffic flow compared to traffic enforcement on the Post Road.

Figure 3.1: Post Road Traffic Flow Compared to Traffic Enforcement
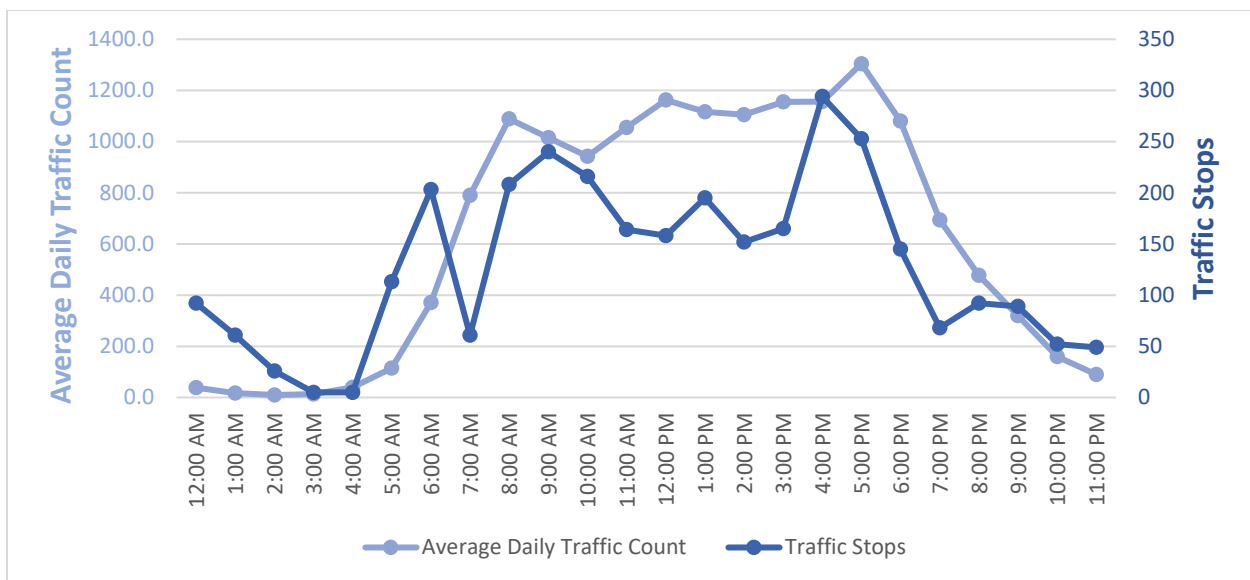
The overall percentage of traffic stops involving minority drivers on the Post Road was 37%. Approximately 19% of drivers stopped were Hispanic and 15% were black. Of the more than 1,280 traffic stops on the Post Road, 82% of the drivers stopped were not residents of Darien. Hispanic drivers were 4% of all Darien residents stopped on the Post Road and 23% of all non-residents. Black

drivers were 3% of all Darien residents stopped on the Post Road and just over 17% of all non-residents. Figure 4.2 shows the proportion of traffic stops on the Post Road by race and ethnicity.

Figure 3.2: Post Road Traffic Stops by Race/Ethnicity
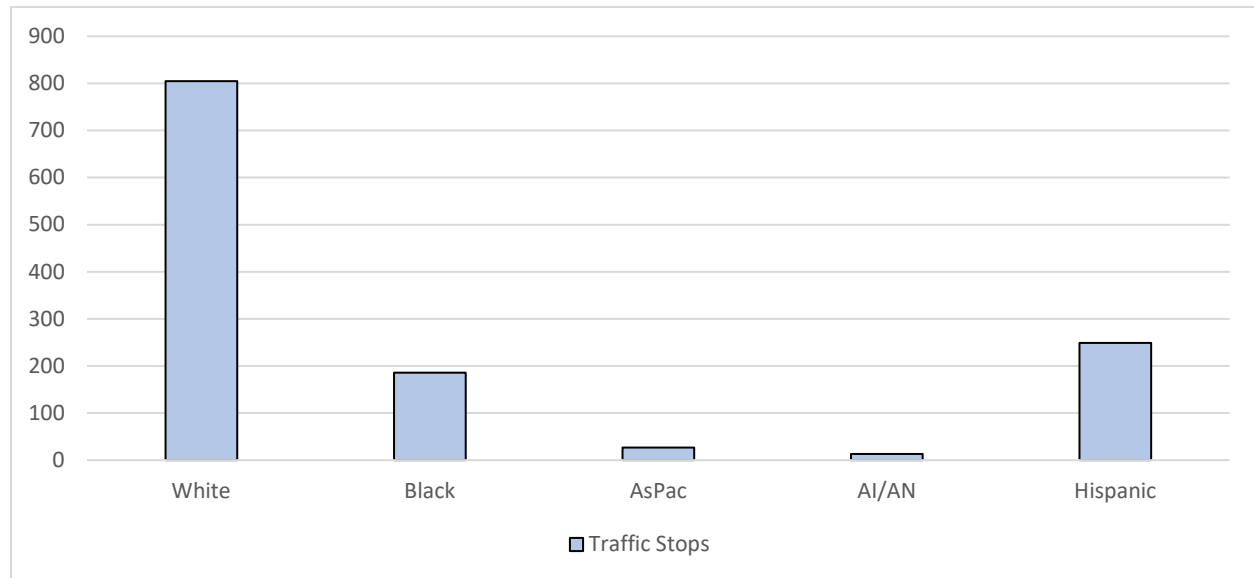
Non-Resident Component of Darien Traffic Stops

Darien'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) a relatively large proportion of non-Darien residents who make up the majority of people who were stopped in town. Darien's resident driving age population is estimated as 93% white, 3.5% Hispanic, and 3.5% Asian/Pacific Islander. The demographics of the Darien residents who were stopped during the study year showed only a small disparity for black drivers. The disparity was most significant for non-Darien resident stops. Since 77% of all drivers stopped in Darien were not residents, out-of-town drivers clearly had an impact on the stop data. The non-resident component of three of the five Darien census tracts (301, 303, and 304) were all fairly close to the town wide average of 77%. However, the other two census tracts varied considerably from the town wide average in opposite directions. Drivers stopped in census tract 302 were 83.5% non-residents while those stopped in census tract 305 were just under 70% non-residents.

The racial breakdown of drivers stopped who were not Darien residents were as follows: 60% white, 23% Hispanic, 14% black, 2% Asian/Pacific Islander, and 0.8% Indian American. Approximately 97% of the black and Hispanic drivers stopped were not residents, compared to 69% of white drivers.

The Post Road corridor appears to have had the greatest influence on the non-Darien resident component of the stop demographics, with 82% of the drivers stopped on the Post Road not living in Darien. Non-resident drivers were more likely to be stopped on the Post Road than they were on any other roadways in town (82% compared to 73%).

Traffic Stop Distribution for Darien Officers

Darien's 3,106 traffic stops were reported for 43 officers. The average number of stops made per officer was 72. Of the 43 officers reporting stops, 20 made fewer than 50 stops, 15 made between 50

and 100 stops, three made between 100 and 200 stops, and five made over 200 stops. The five most active officers making more than 200 stops collectively accounted for 43% of Darien stops. While these five officers clearly had the greatest impact on Darien's total stop numbers, the overall average number of stops per officer is higher than the averages found in a number of similar departments.

Post-Stop Outcome Review

Reason for Stops

The reasons police use to stop a motor vehicle can vary significantly from department to department. We reviewed the statutory authority that Darien officers reported as the reason for stopping motor vehicles. The three most common reasons for stopping a motorist in Darien made up 48% of the total stops. The three largest stop categories were for speed-related violations (26%); defective or improper lighting violations (12%); and seatbelt violations (10%). 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 violations than white drivers as a percentage of their total stops. Figure 4.1 illustrates by race and ethnicity the reason officers cited to stop a motor vehicle.

Figure 4.1: Reasons for Traffic Stops

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

There were some subtle differences between the reasons for motor vehicle stops in the three census tracts in the center of town (302, 303, and 304) and the two census tracts to the north (301 and 305). In census tracts 302, 303, and 304, the top three reasons for stopping a vehicle were for a speeding violation (20%), defective or improper lighting violation (12%), and a generic violation of a state traffic regulation (11%). In practice, this last type of charge is sometimes used by officers as a way of being more lenient with someone for a speeding violation by subjecting them to the lesser fine for a general violation of a state traffic regulation instead of for speeding. Use of this alternate charging technique was more common in census tracts 302, 303, and 304 than it was in tracts 301 and 305. The top three reasons for stopping a vehicle in tracts 301 and 305 were for a speed related violation (44%), a seatbelt violation (11%), and defective or improper lighting violations (10.5%).

Just over 22% of Darien's stops were made for violations involving defective, missing, or inoperative vehicle lighting; improper display of license plates; and window tinting. This was significantly higher than the state average of 12% during the study year. Almost half of all equipment-related stops were made on the Post Road. Although the majority of these stops were made on the high enforcement roadways in Darien, they were also extensively used throughout the town. These stops represented 20% or more of the traffic stops made in every census tract, except tract 301, which has the lowest level of enforcement. Figures 4.2 is a map of traffic enforcement for equipment-related motor vehicle stops. Stops for defective lights, window tints, or display of plate were labeled "equipment-related" violations. For comparison, figures 4.3 is a map of traffic enforcement for safety-related motor vehicle stops. Stops made for speed, stop sign, traffic light, cell phone, or moving violations were labeled "safety-related" stops.

Figure 4.2: Safety-Related Motor Vehicle Stops
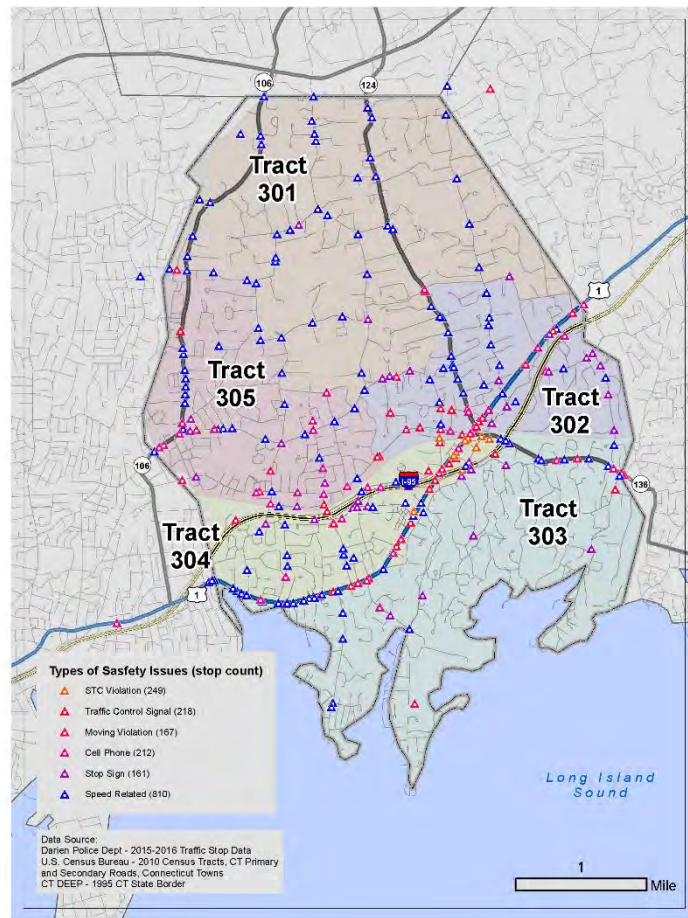
These stops appear to have had an effect on the overall disparity affecting both black and Hispanic drivers. Of all the Hispanic drivers stopped in Darien, 34% of them were stopped for equipment-related violations. In addition, 37% of all the black drivers stopped in the town were pulled over for equipment-related reasons. This compared to 17% of all white drivers. Conversely, 57% of all the white drivers stopped in Darien were stopped for hazardous driving behaviors compared to 42% of black drivers and 38% of Hispanic drivers. Black drivers were 19% of those stopped for equipment-related reasons but only 9.2% of those stopped for all other reasons. Hispanic drivers were 28% of those stopped for equipment –related reasons but only 15.6% of those stopped for all other reasons. Conversely, white drivers were 50.6% of those stopped for equipment-related reasons and 73% of those stopped for all other reasons. Based on this, we believe that these stops were an important factor in the Darien disparity involving black and Hispanic drivers.

In our discussions with the department, officials indicated that the high percentage of equipment-related motor vehicle enforcement was a technique used as part of a proactive policing strategy. In particular, these violations are often used during roving DUI patrols. A roving patrol refers to an officer on patrol conducting motor vehicle enforcement with the purpose of identifying a specific violation, in this case, drinking and driving. Of the 694 stops made for equipment-related reasons, 89 of them (12.8%) ultimately resulted in the issuance of a misdemeanor summons and seven of

them (1.0%) resulted in an arrest. Fewer than 4% of stops made for all other reasons ultimately resulted in issuance of a misdemeanor summons. (Arrests resulted from about the same percentage of these stops as did from equipment-related stops.)

The more serious charges resulting from the use of equipment-related stops most frequently involved vehicle operation while either the vehicle's registration or the driver's license was under suspension (39 of the 89 misdemeanor charges were for this reason—44% of all the misdemeanor outcomes). The same held true for the stops made for all other reasons that did not involve equipment-related violations (48 of 88 of the misdemeanor outcomes—54.5%). For the 50 other equipment-related stops that resulted in misdemeanor outcomes, 29 were charged for misuse of license plates or registration (typically using the registration and/or license plates issued for one vehicle on a different vehicle, 12 were charged for

Figure 4.3: Equipment-Related Motor Vehicle Stops

violation of minimum motor vehicle insurance requirements, and six were charged for licensing violations such as vehicle operation by an unlicensed driver. In the other three cases, the officer made an equipment-related stop, subsequently issued a misdemeanor summons, but failed to indicate what the misdemeanor was in the stop record.

Although equipment-related stops were used in Darien as a component of roving DUI patrols, it is worth noting that none of the drivers charged with DUI in Darien were initially stopped for equipment-related reasons. All 10 of the drivers charged with alcohol-related offenses were stopped for hazardous moving violations rather than equipment-related reasons. However, five equipment-related stops did result in an infraction charge for possession of less than one-half an ounce of a cannabis substance, and four resulted in arrests for interfering with an officer, criminal impersonation, failure to appear in court following commission of a felony, and possession with intent to sell a controlled substance that is neither narcotic nor hallucinogenic.

It is worth noting that the equipment-related traffic stops appear to be driven by a small portion of the officer force. The average number of equipment-related traffic stops per officer was 16. Eleven officers exceeded the town average of 16 such stops and accounted for 78% of all equipment-related stops. One officer made almost 20% of all equipment-related traffic stops (the highest percentage of

any officer in town). This same officer conducted 54% of all window tint violation stops, 26% of all display of plate violation stops, and 10% of all defective or improper lighting stops.

Outcome of Stops

The majority of motor vehicle stops in Darien resulted in the driver receiving a warning (54%). Black and Hispanic drivers were more likely to receive a misdemeanor summons as a percentage of their total stops. Black and Hispanic drivers were slightly less likely to be charged with an infraction compared to white drivers. Figure 4.4 shows the outcome of motor vehicle stops by race and ethnicity.

Figure 4.4: Outcome of Traffic Stop

*Uniform Arrest Report

Most violations of the motor vehicle laws are designated as infractions but some are not. The more serious violations can be reckless driving, operating under a license suspension, operating under the influence of alcohol or drugs, and operating an uninsured or underinsured vehicle. The system for collecting and reporting traffic stop data requires officers to record the statutory citation for the violation that was the basis for the stop as well as any subsequent charges that differed from and were more significant that the initial charge. This gives an analyst the data on the initial cause for making a stop as well as any subsequent, more serious charge. For example, if someone was initially stopped for a lesser reason such as not wearing a seat belt or rolling through a stop sign, the officer might subsequently determine that the driver was operating with a suspended license. If this information is properly recorded, it is possible to distinguish those stops from the ones that begin and end with the same charge.

In Darien, 177 of the stops made resulted in the issuance of a misdemeanor summons (5.7%). This was slightly above the statewide average of 4.8% for stops resulting in misdemeanor charges. When considered as a proportion of their total stops, black and Hispanic drivers were more than three times as likely to be issued a misdemeanor summons as a result of the stop as were white drivers (10% of all black drivers stopped and 14% of all Hispanic drivers stopped compared to 3% of all white drivers stopped). Of these stops, 166 were initiated for a reason that was not initially a misdemeanor

violation (e.g. speeding infraction, stop sign and traffic signal violations, defective or improper lighting, etc.) However, once the officer interacted with the operator of the vehicle a misdemeanor violation was identified. The vast majority of these stops were for a license or registration related issues. In particular, 55% of the misdemeanor stops were for operating with a suspended or revoked license or registration, and 20% were for the improper use of an operator's registration. Unlike many infraction violations, officers do not have discretion in the issuance of a misdemeanor summons when such a violation is identified.

Search Information

A review of department search information shows that 3% (95) of the drivers stopped in Darien were subjected to a motor vehicle search. This rate of motor vehicle searches is equivalent to the state's 3% average. Black and Hispanic drivers were searched at a rate higher than white drivers were. Of the 95 vehicles searched, 35% were subjected to an inventory search (compared to 21% statewide), 40% were subjected to a consent search (compared to 37% statewide), and 25% were subjected to a search for some other reason (compared to 40% statewide). Further analysis of the Darien search data has revealed that the department's inventory search policy may have an 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. Of the 3,106 traffic stops it made in the study year, 73 (2.4%) vehicles were towed. However, the department only reported searching 45 towed vehicles and of which, only 30 were reported as inventory searches.

The Darien Police Department motor vehicle inventory policy states,

> "*The purpose of an inventory search is to protect an arrestee's property and protect officers from claims that they have stolen, lost, or damaged the property. It shall be the policy of the Darien Police Department to conduct vehicle inventories whenever the vehicle owner and/or operator is separated from the vehicle (e.g. arrest, vehicle tow, transport to hospital, granted permission to legally park vehicle, etc.) The search of the vehicle extends to all open and closed containers within the vehicle. Police may search any property within their exclusive control and anywhere personal property can reasonably be found. Police can search any container or article in an arrestee's possession in accordance with routine inventory procedures. Inventory of an arrestee's property will only be lawful if the arrestee is incarcerated. Vehicles impounded by the police shall be inventoried pursuant to standard police procedures where the process is aimed at securing or protecting the car and its contents.*"

Almost 35% of car searches were reported as inventory searches and contraband was found 12% of the time. Consent and other searches made up 65% of the searches and contraband was found 53% of the time. Over 40% of the searches involving black and Hispanic drivers were the result of an inventory search compared to 25% of searches involving white drivers. Since inventory searches tend to produce contraband hits less frequently than other types of searches, the greater prevalence of inventory searches for minority drivers influences the overall distribution demographics of the search hit rate for Darien to some degree. Contraband was found at a higher rate for white and Hispanic drivers. However, given the relatively small number of searches conducted, these differences are not significant.

Motor vehicle searches were concentrated in the high enforcement census tracts (302 and 304) including the Post Road. Figure 4.5 illustrates the motor vehicle search rate and the rate at which contraband was found (the "hit rate").

Figure 4.5: 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, including where calls for service are more prevalent. The department provided researchers with the calls for service log, which included calls for service and officer initiated actions that were called into police dispatch. The logs report approximately 12,151 entries from October 1, 2015 through September 30, 2016, exclusive of traffic stops and calls identified as miscellaneous. The top reasons for calling dispatch were for a response to a burglar alarm (11%), a medical response call (9%), or a response to fire call (5). These top three reasons account for about 24% of all calls. The information provided in the call logs was in summary form and did identify the location of the incident or call. The largest number of calls were generated for the Boston Post Road with almost 16% of all calls for service.

In addition to calls for service, law enforcement administrators also distribute police resources within a community based on accident rates, or where crime rates are higher. In addition to these factors, police presence may be greater where traffic volume is higher as the result of common factors that draw people into a community such as employment and entertainment. Traffic enforcement actions are likely to be more prevalent in locations that attract greater police presence due to some of these factors. Basic information on crime, accidents, and other economic factors associated with Darien provide a context to potentially explain the rational for police deployments that are important considerations.

According to the Connecticut Economic Resource Center (CERC) town profiles, approximately 8,152 people work in Darien and its major employers include Darien Office Ctr., Middlesex Middle School, Woodway Country Club, and the YMCA. The vast majority of commuters traveling into Darien for

employment are from Stamford and Norwalk. The overall unemployment rate is 4.3%, which is below the unemployment rate for Fairfield County and the state.

In 2016, the crime rate in Darien was reported to be 118 per 10,000 residents, compared to the state crime rate of 204 per 10,000 residents. According to the 2016 Connecticut Uniform Crime Report[5], there were 244 reported crimes in Darien in 2016, 77% of which were larcenies. The three most reported crimes were larceny (188), burglary (39), and motor vehicle theft (16).

During our study period, there were approximately 405 motor vehicle accidents on roads patrolled by the Darien Police Department. Accidents were reported as occurring on 57 roads. The roadways with the highest number of accidents were the Post Road (147 accidents), Mansfield Ave. (30 accidents), West Ave. (28 accidents), and Hoyt St. (23 accidents). There were only 11 roads with 10 or more accidents and those roads account for 80% of all accidents in Darien. The Post Road accounted for 36% of all accidents in the town.

Figure 5.1 illustrates the time of day when traffic accidents were reported and the number of traffic stops that occurred during that same period. This shows how closely traffic enforcement is correlated with traffic accidents in Darien. While the vehicle crash rate tends to build steadily throughout the day in town, it peaks during the evening commute period from 4:00 p.m. to 6:00 p.m.

Figure 5.1: Accidents Compared to Traffic Stops by Time of Day
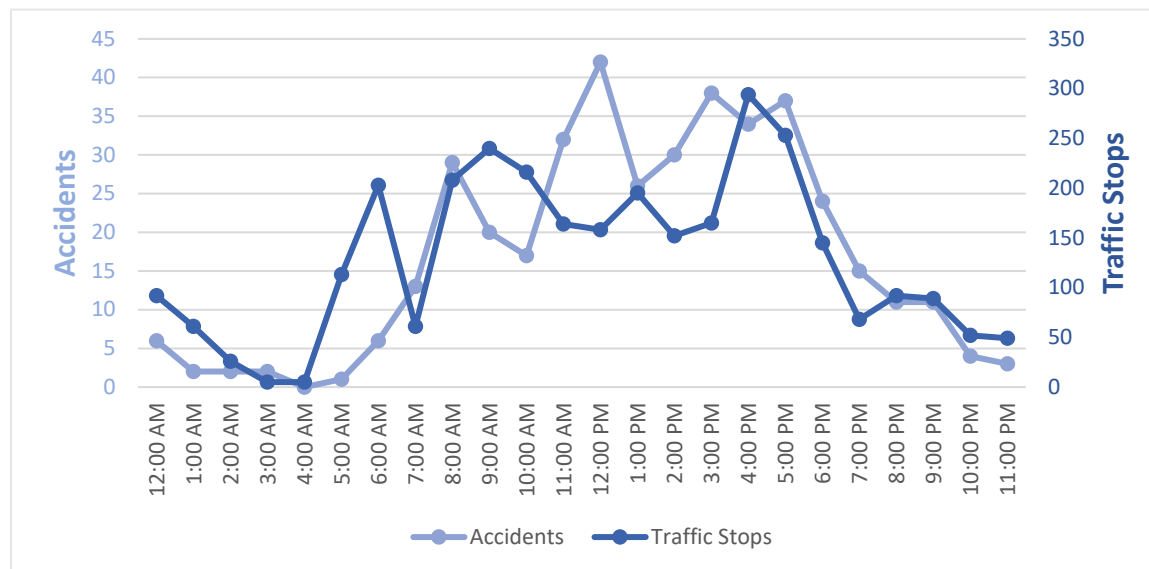
Summary of Findings

The Darien Police Department identified factors they believe contributed to the disparity identified in the initial analysis of traffic stops. In particular, the department identified the Post Road as a major traffic generator for the town. The Post Road is a four lane-divided road that carries Route 1 from the Stamford border to the Norwalk border. There are a number of on-ramps and off-ramps from I-95 onto the Post Road that significantly increases the out-of-town drivers travelling in the area. Due to zoning rules in Darien, the Post Road is where the majority of shopping, dining and entertainment is

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[5] 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.

located. In addition to having high traffic volume, the Post Road also had the highest number of both calls for service and accidents of any roadway in town. Over 41% of all traffic stops occurred on the Post Road, with 15% of the stops involving black drivers and 19% of the stops involving Hispanic drivers. It is evident by the number of traffic stops made on the Post Road that more departmental resources are concentrated there. It makes sense that the highest levels of motor vehicle enforcement would be in the same area that has the highest levels of traffic volume, calls for service, and motor vehicle accidents.

Darien's traffic stop data also reflects an extremely low non-white driving age resident population and the relatively large proportion of non-Darien residents who make up the majority of people who were stopped in Darien. Since 77% of all drivers stopped in Darien were non-residents, the overall impact out-of-town drivers had on the stop data is fairly clear. Approximately 97% of black and Hispanic drivers stopped were not residents of Darien, compared to 69% of white drivers who were non-residents. The non-resident component of the stop demographics appeared to have its greatest impact in the Post Road corridor, with 82% of the drivers stopped on the Post Road not living in Darien. The Post Road was responsible for 43% of the non-resident Hispanic drivers stopped in Darien and 53% of the non-resident black drivers stopped compared to only 41% of the non-resident white drivers stopped. Non-resident drivers were more likely to be stopped on the Post Road than they were on all other roadways in town. The driving populations in the border towns of Stamford and Norwalk, which the Post Road connects, is significantly more diverse than the driving population in Darien.

Darien has 43 officers who made at least one traffic stop during the study period. The average stops made per officer was 72. Five officers (12% of the officer force) made over 200 stops each and accounted for 43% 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

Speeding violations were the largest category of stops made in Darien (26%). The next largest category of stops was for defective, improper, or inoperative lighting (12%), and the third stop category was for seatbelt violations (10%). Black and Hispanic drivers were more likely than white drivers to be stopped for an equipment-related violation. In contrast, white drivers were more likely to be stopped for a moving or speeding violation.

Just over 22% of Darien's stops were made for violations involving defective, missing, or inoperative vehicle lighting; improper display of license plates; and window tinting. This was significantly higher than the statewide average of 12%. Hispanic drivers were stopped 34% of the time for equipment-related violations, and black drivers were stopped 37% of the time compared to 17% of the time for white drivers. Conversely, 57% of all the white drivers stopped in Darien were stopped for hazardous driving behaviors compared to 42% of black drivers and 38% of Hispanic drivers. Just over 79% of these equipment-related violations resulted in a warning. This was a significantly higher warning rate than for all other types of violations, which was only 46%. These stops occurred more frequently on the Post Road, with almost half of all equipment-related stops occurring on this roadway. The frequency and location of these stops along the Post Road appears to have been an important factor in the Darien disparity involving black and Hispanic drivers.

In our discussion with the department, officials indicated that the high percentage of equipment-related motor vehicle enforcement was a technique used as part of a proactive policing strategy. In particular, these violations are often used during roving DUI patrols. Of the equipment-related stops, 12.8% resulted in a misdemeanor summons and 1% resulted in an arrest. Only about 4% of stops made for all other reasons resulted in a misdemeanor summons and the arrest rate was the same. Most of the misdemeanor charges resulting from equipment-relates stops were for operation while the vehicle's registration or the driver's license was under suspension, misuse of license plates or registration, or a violation for not having the minimum motor vehicle insurance. It is worth noting that none of the drivers charged with DUI were initially stopped for equipment-related reasons. However, five of the equipment related stops did result in a charge for possession of less than one-half an ounce of cannabis substance, and four resulted in other more serious criminal charges.

Overall, almost 54% of all drivers stopped received a warning, although as noted above, stops for equipment-related violations were significantly more likely to result in a warning than any other type of violation. The proportion of Darien's traffic stops that resulted in a misdemeanor summons (5.7%) exceeds the state average of 4.8%. Black and Hispanic drivers were more than three times as likely as white drivers to receive a misdemeanor summons as the result of a stop. White drivers were more likely to receive an infraction ticket. The majority of the stops that resulted in a misdemeanor charge were initiated for a reason that was not initially a misdemeanor violation. However, once the officer interacted with the operator a misdemeanor violation was identified. Most of the misdemeanor charges were for a license or registration related issue. Unlike many infraction violations, officers do not have discretion in the issuance of a misdemeanor summons when such a violation is identified.

Darien police searched the vehicles of 3% of drivers they stopped, which is almost equivalent to the state average of 2.9%. Black drivers were searched 3.5 times more often than white drivers were and Hispanic drivers were searched twice as often as white drivers were. The Darien inventory search policy appeared to effect its overall search numbers. Over 35% of all searches were the result of an inventory search and black and Hispanic drivers were searched more frequently because of this policy. Since inventory searches tend to produce contraband at a lower rate, the greater prevalence of inventory searches for minority drivers influences the overall demographics of the search-hit rate. Compared to white drivers, the rate of contraband found was slightly higher for Hispanic drivers and slightly lower for black drivers. However, given the relatively small number of searches conducted and the influence of the inventory search policy, these differences are not significant.

Conclusion

Taken as a whole, the Darien traffic stop data reflects the influence of the Post Road corridor where drivers are somewhat more diverse than the predominantly white local driving age population. The Post Road appears to have a relatively high level of enforcement and a relatively higher proportion of non-resident minority drivers travelling it. The Post Road is a significant traffic magnet in town for business, shopping and entertainment and is a major thoroughfare between the cities of Norwalk and Stamford. I-95 runs parallel to the roadway and has a significant impact on traffic volume along the Post Road, as there are a total of seven on-ramps and off-ramps along I-95 in Darien.

While white drivers are more likely to be stopped in Darien 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 that this difference could be due more to the greater frequency with which these stops were made on high enforcement roadways,

where minority drivers are more likely to be among the driving population, rather than to an inherently greater likelihood that minority drivers violate these laws with greater frequency than white drivers.

Based on the overall follow-up analysis of the Darien data, it is recommended that the Darien Police Department:

(1) review its traffic enforcement policies along the Post Road in order to evaluate the extent to which they may have a disproportionate effect on black and Hispanic drivers and

(2) evaluate both the location and frequency of stops that involve equipment-related motor vehicle violations, to better understand the impact they may be having on minority drivers.

Department Response

Below on page 60 is a response provided by Darien Police Chief, Ray Osborne.

RAYMOND K. OSBORNE
CHIEF OF POLICE

25 HECKER AVENUE
DARIEN, CT 06820-5308
203-662-5300

DARIEN, CONNECTICUT

September 21, 2018

On behalf of the Darien Police Department I would like every person who travels on our roadways to know that we are committed to treating all motorists that we encounter fairly and with respect and dignity. *Our administrative staff has reviewed this report very carefully. While we don't agree with some of the conclusions reached and we disagree with certain methodologies used, we support the overall goal of researching and eliminating any form of racial profiling in the State of Connecticut.*

The members of the Darien Police Department take pride in the fact that all of our officers are highly trained professionals. I believe that we go above and beyond what is necessary when it comes to training our personnel. We have two supervisory level officers who are instructors on the topic of Fair and Impartial Policing and they regularly train and educate our officers on matters concerning racial profiling. We also receive yearly training on Bias Free Policing.

Darien PD is a State of Connecticut Tier II accredited agency. That designation mandates that we document and demonstrate compliance with Police Officer Standards and Training Council policies pertaining to racial profiling complaints and investigations.

As Chief of Police at Darien PD, I can attest that all of our officers are committed to the fair and impartial treatment of all people that we come into contact with on a daily basis. It's the only way to do business.

Raymond K. Osborne
Chief of Police

RO/jl

I.B. (4): MADISON FOLLOW-UP ANALYSIS SUMMARY

This analysis continues the work of the Racial Profiling Prohibition Project's study of traffic stops conducted since October 1, 2013. This follow-up report focuses on data reported for stops conducted from October 1, 2015 through September 30, 2016. Table 1.0 below compares summary racial data for reported traffic stops in Madison over a three-year period.

Table 1.0: Madison Traffic Stops – 2013 - 2016

	2013-2014 Stops		2014-2015 Stops		2015-2016 Stops	
White	2,528	92.5%	3,418	92.2%	3,740	91.1%
Black	79	2.9%	92	2.5%	121	3.0%
AsPac*	36	1.3%	37	1.0%	63	1.5%
AI/AN**	0	0.0%	1	0.0%	1	0.0%
Hispanic	90	3.3%	160	4.3%	181	4.4%
Total	**2,733**		**3,708**		**4,106**	

*Asian Pacific Non-Hispanic
** American Indian/Alaska Native Non-Hispanic

Overview of the November 2017 Traffic Stop Analysis

The November 2017 Traffic Stop Analysis report indicated that for the October 1, 2013 – September 30, 2016 study period the Madison Police Department made 10,547 traffic stops. Of these, 8.2% were minority stops (4.1% Hispanic and 2.8% black). The aggregate three-year VOD analysis indicated a statistically significant disparity in the rate that Hispanic motorists were stopped during daylight relative to darkness. Within the inter-twilight window, the odds that a Hispanic motorist was stopped during daylight was 2.5 times larger than the odds during darkness. These results were statistically significant at the 95% level and robust to the inclusion of a variety of controls, officer fixed-effects, and a restricted sample of moving violations. Although certain assumptions have been made in the design of each methodology, it is reasonable to conclude that departments with consistent data disparities separating them from the majority of other departments should be subject to further review and analysis with respect to the factors that may have caused these differences.

Descriptive Analysis of the 2015-2016 Traffic Stop Data

The racial and ethnic disparities in the Madison Police Department data were studied using a more detailed review of traffic enforcement during the most recent data collection year (October 1, 2015 through September 30, 2016). Although the disparity was identified as part of the three-year aggregate analysis, detailed stop location information was provided only for the third year of data collection. There is a sufficient number of traffic stops in the third-year dataset to complete a thorough follow-up analysis. 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. Madison provided latitude and longitude coordinates that allowed accurate mapping of 92% of their stops.

According to the 2010 census, Madison is a town with approximately 14,073 residents over the age of 16. Approximately 4% of the driving age population in Madison is identified as a minority. Table 2.0 outlines the basic demographic information for Madison residents over age 16.

Table 2.0: Madison Population

Race/Ethnicity	16+ Population Total	% Population Total
White Non-Hispanic	13,474	95.7%
Black Non-Hispanic	69	0.5%
AsPac Non-Hispanic	287	2.0%
Hispanic	243	1.7%
Other	0	0.0%
Total	**14,073**	

Madison is approximately 36 square miles in area and the south portion of town borders the Long Island Sound. Madison is situated off Interstate 95 (I-95) and is a coastline community. The town has three exits on the northbound side of I-95 and three exits on the southbound side. US Route 1 or the Boston Post Road runs east-west through the southern portion of town. Other major roadways include state highway Routes 79 and 80. Route 79 runs north-south down the center of the town to Route 1. Route 80 runs east-west from the Guilford border to the Killingworth border.

Madison is also the location of the Hammonasset Beach State Park. This public recreation area occupies two miles of beachfront on the Long Island Sound. It is the state's largest shoreline park and one of the most popular attractions in the state. An estimated one million people visit this park annually. The park is located in the south eastern portion of town is approximately 1.5 miles from exit 62 off Interstate 95.

Four other municipalities border Madison; Durham to its north, Killingworth and Clinton to its east, and Guilford to its west. All four of the border communities are predominantly white demographically, with an average white driving age population of 96% (compared to Madison's white driving age population of 96%). Of the drivers stopped in Madison overall, only 39% were Madison residents and 61% lived elsewhere.

The U.S. Census Bureau divides Madison into three census tracts. Figure 1.1 is a map that outlines the boundaries of Madison census tracts, which will be referred to throughout this report. The resident driving age population in each census tract varies from about 4,000 to about 6,000 people, with the largest concentration of people (42% of the total population) in

Figure 1.1: Madison Census Tract Map
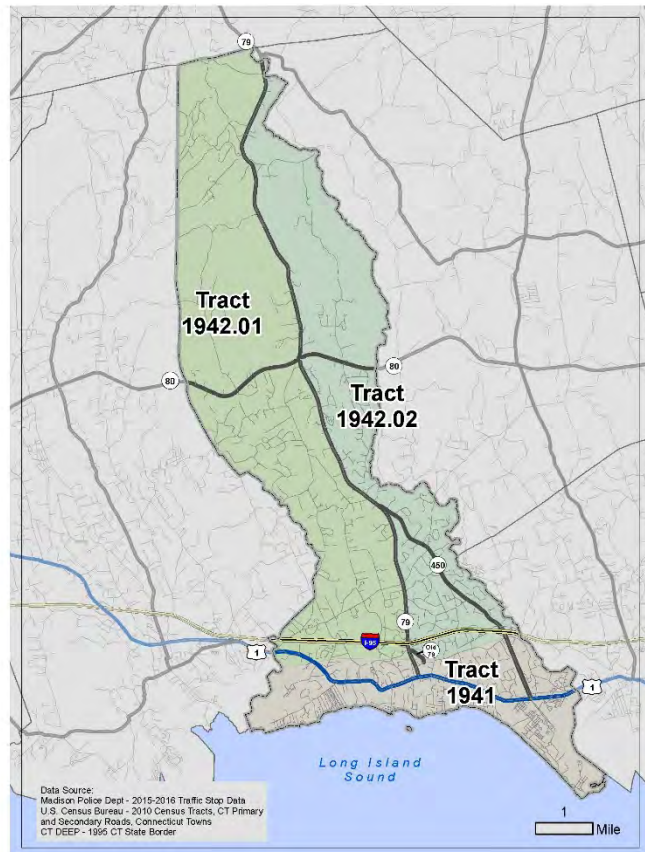
tract 1942.01. Census tract 1941 is predominately a white non-Hispanic tract, while the other two census tracts are approximately 4.6% minority. Figure 1.2 shows the distribution for each census tract in terms of white and non-white driving age population.

Figure 1.2: Madison Population by Census Tract
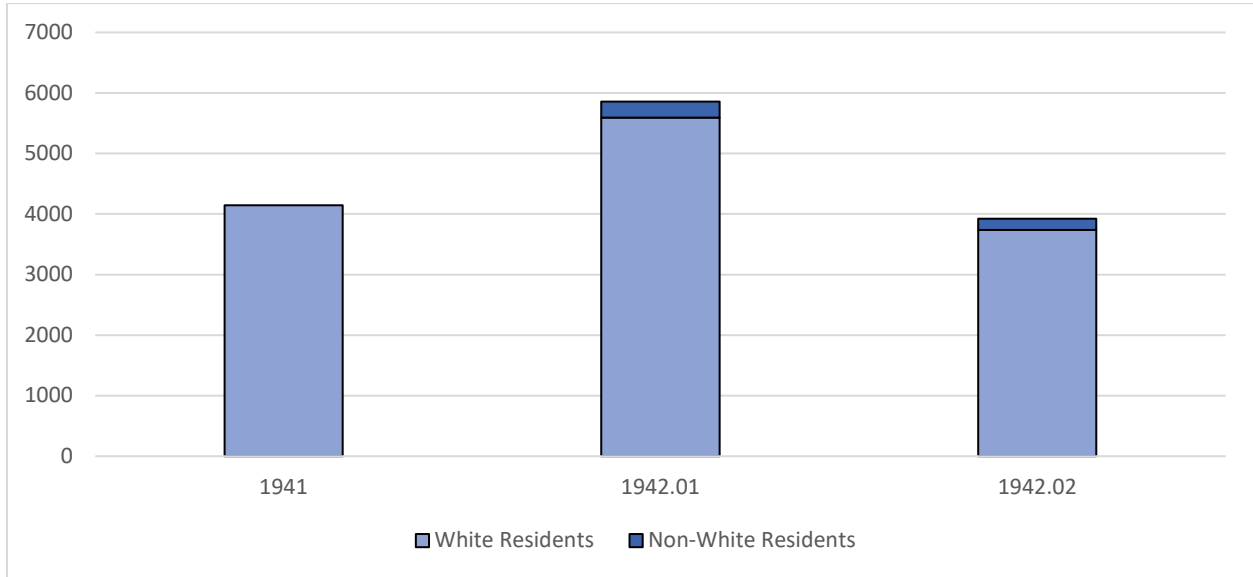
Figure 1.3 illustrates the volume of traffic enforcement that occurred in each Madison census tract. A large percentage of traffic enforcement activity (34%) occurred in the smallest geographical census tract (1941) in the southern portion of town, which includes most of the Route 1 corridor and Hammonasset Beach State Park. There were 320 stops that could not be mapped. These are not considered in our analysis, for purposes of discussing traffic stops by census tract.

Figure 1.3: Traffic Stops by Census Tract
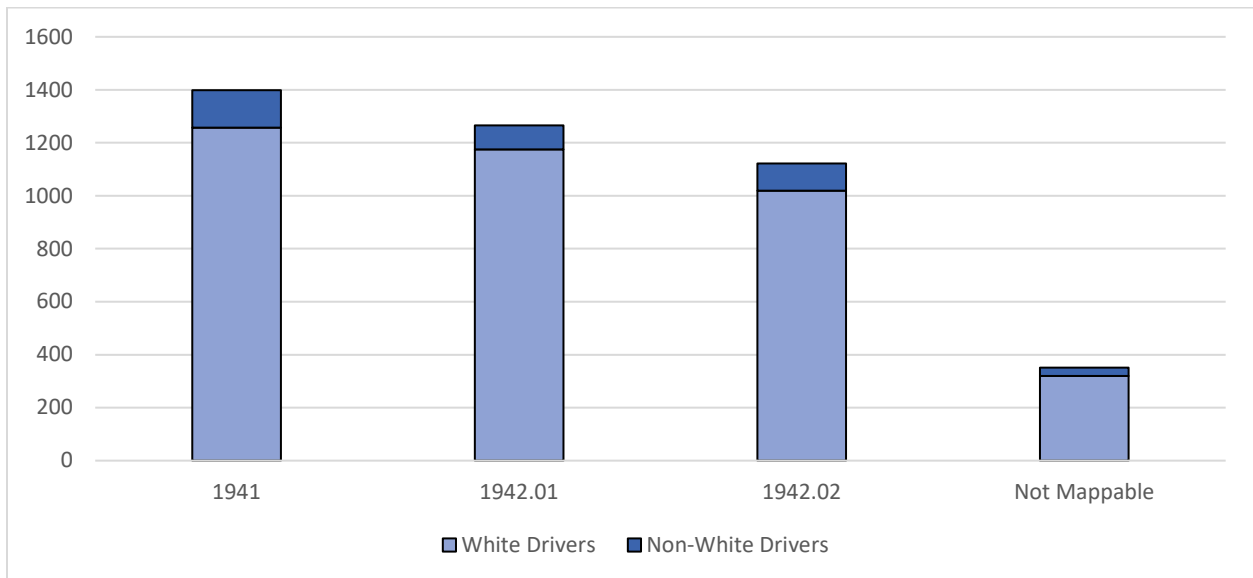
Figure 1.4 is a map of traffic stops made in Madison. Madison's overall resident population is 4% minority and 4% of all Madison residents who were stopped were minority. Resident minority drivers were stopped at a similar rate as the proportion of their town population. Approximately 12% of non-resident drivers stopped in Madison were minority. The census tract with the highest enforcement (1941) accounts for 38% of all stops of non-residents in Madison. This is most likely because Route 1 and Hammonasset Beach State Park are major traffic generators in the town. It is clear that non-residents contribute to the overall racial disparity in Madison stop data.

Traffic Stop Breakdown by Race/Ethnicity

In Madison, 9% of all drivers stopped were minority drivers, classified as all non-white drivers, but predominantly black or Hispanic drivers. Madison's resident population age 16 and older is 4% minority. On its face, this might suggest a

Figure 1.4: Traffic Stop Map

disparity in the proportion of minority drivers stopped during the study period. However, the racial and ethnic makeup of different areas of Madison and the influence of out-of-town drivers varies by census tract.

Figure 2.1 shows the difference between the local black resident population and the black drivers stopped by census tract. The overall percentage of Madison traffic stops involving black drivers was 3%. The percentage of black drivers stopped exceeded the town average of 3% in only one census tract (1942.02). However, the percentage of black drivers stopped in tract 1942.02 was only slightly above the town average. There was a positive disparity above the resident black driving age population in all census tracts, with the largest disparity in tract 1942.02. Over 88% of all black drivers stopped were not Madison residents.
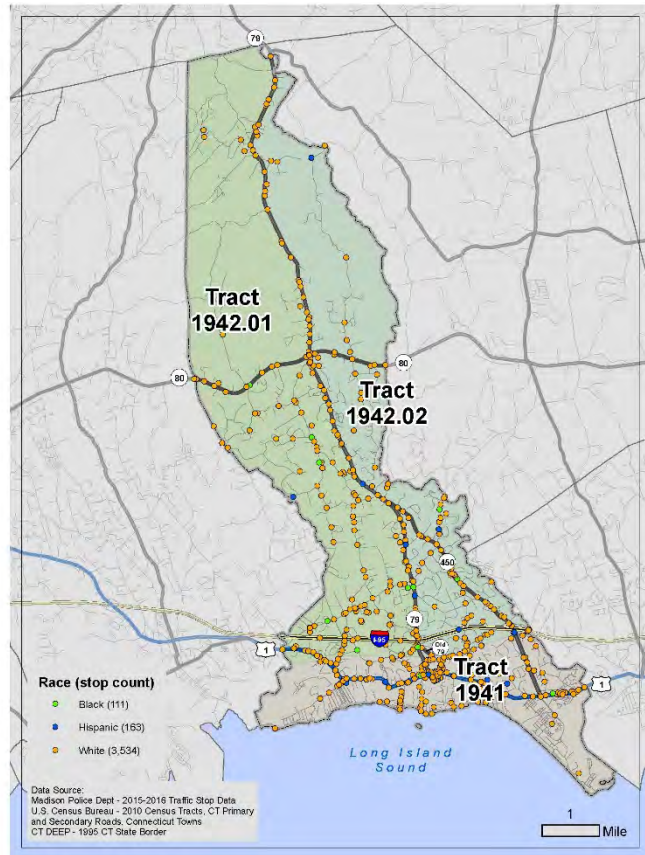
Figure 2.1: Black Population Compared to Black Drivers Stopped by Census Tract
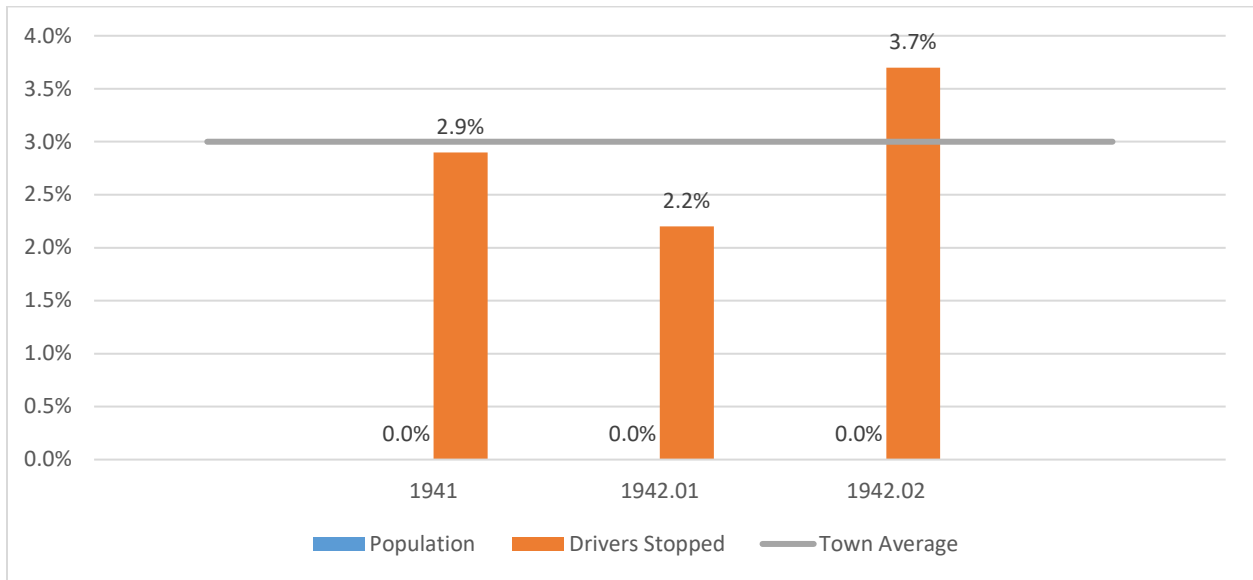
Figure 2.3 shows the difference between the local Hispanic resident population and the Hispanic drivers stopped by census tract. The overall percentage of traffic stops involving Hispanic drivers was 4.4%. The percentage of Hispanic drivers stopped exceeded the town average of 4.4% in only one census tract (1941). However, the percentage of Hispanic drivers stopped in tract 1941 was only slightly above the town average. There was a positive disparity above the resident Hispanic driving age population in all census tracts, with the largest disparity in tract 1941. Over 86% of all Hispanic drivers stopped were not Madison residents.

Figure 2.3: Hispanic Population Compared to Hispanic Drivers Stopped by Census Tract
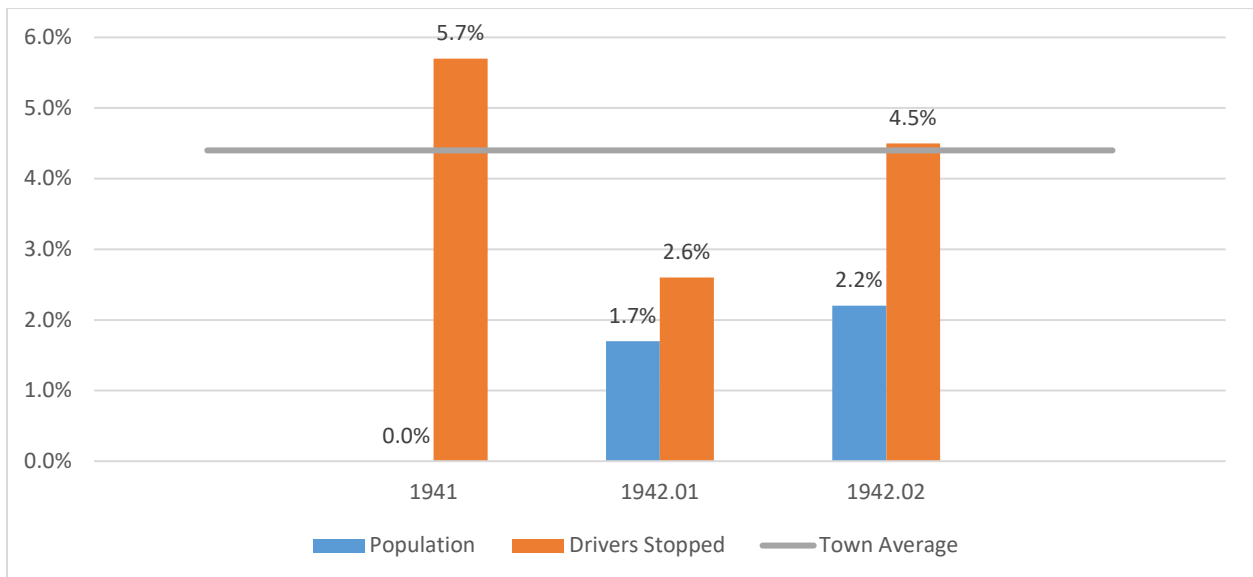
Highway Corridor Analysis

In addition to the census tract-based analysis, we also conducted separate analyses of the highway corridors with the greatest number of traffic stops. These three corridors were Route 79, Route 1, and Route 450. The three major corridors account for over 66% of all stops made in town. Although Route 80 is another major corridor in town, only 190 stops were made on this roadway. Figure 3.1 illustrates the volume of traffic enforcement that occurs on the each of the three high enforcement corridors.

Figure 3.1: Traffic Stops by Major Roadway
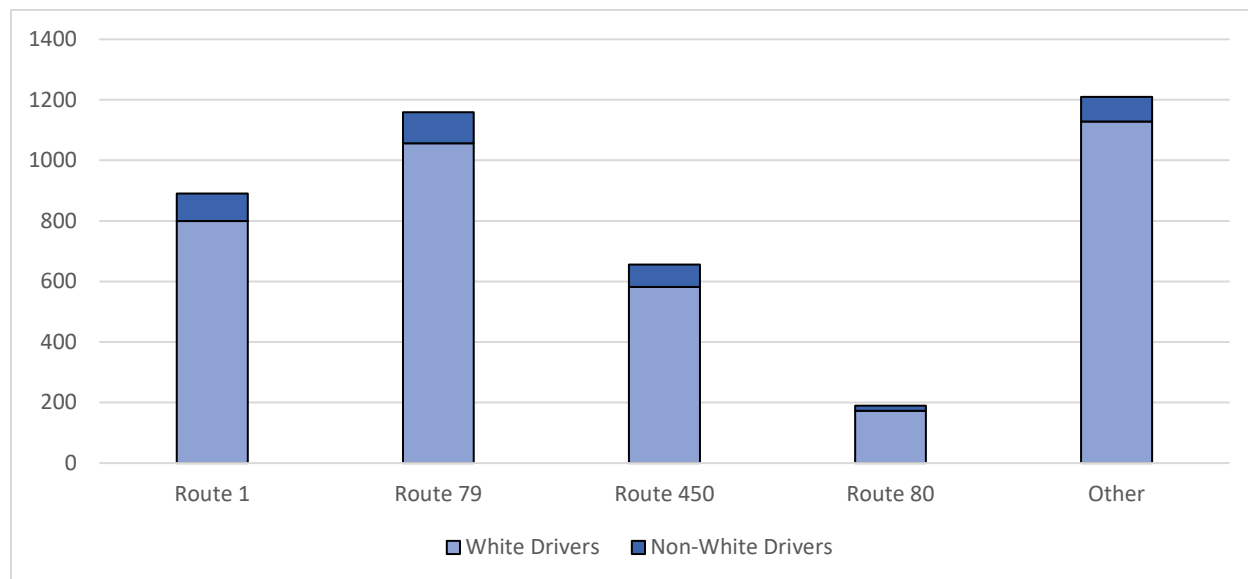
Route 79 is a 14-mile state highway that begins at Route 1 in Madison center and heads north to Durham. The corridor crosses I-95 at exit 61, intersects with Route 450 and continues north where it also intersects with Route 80. It is also known as Durham Road within Madison. A total of 1,159 traffic stops were made along the Route 79 corridor during the study year, which was 28% of the total for the town. The stops made on Route 79 included slightly fewer non-residents than in the town as a whole (58% compared to 62%), involved a slightly higher proportion of black drivers, and slightly lower proportion of Hispanic drivers than the town-wide average. Black drivers accounted for 3.5% of the Route 79 stops compared to the town average of 3%. Hispanic drivers accounted for 3.5% of the Route 79 stops compared to the town average of 4.4%. Over 22% of Hispanic drivers and 34% of black drivers were stopped on Route 79 compared to 28% of white drivers stopped there. Approximately half of the stops made on Route 79 were made in census tract 1942.01 and the other half were made in tract 1942.02. This is likely because Route 79 acts as the border between both census tracts. There were 105 stops reported on Route 79 that could not be mapped because of vague location descriptions.

Route 1 (also known as the Boston Post Road) runs east-west for approximately four miles from the border of Guilford to the border of Clinton in the southern section of Madison. Where Route 1 intersects with Route 79 is considered the town center and is the main area for businesses, the town green, many boutiques and restaurants. A total of 891 traffic stops were made along Route 1 during the study year, which was 22% of the total stops made in town. Of the drivers stopped on Route 1, 69% were not residents of Madison, which was above the town average of 62%. Driver demographics

for those stopped in the Route 1 corridor was below the town-wide average for black drivers and above the town-wide average for Hispanic drivers. Black drivers accounted for 2.6% of the Route 1 stops (compared to the town average of 3%). Hispanic drivers accounted for 5.7% of the Route 1 stops (compared to the town average of 4.4%). The majority of Route 1 runs through census tract 1941 and accounts for 78% of all stops on Route 1. A small section of Route 1 runs along the lower corner of tract 1942.01 and accounts for 12% of all stops on this roadway. There were 86 stops reported on Route 1 that could not be mapped because of vague location descriptions.

Lastly, Route 450 is a combination of three roadways, the Hammonasset Connector, Duck Hole Road, and Horse Pond Road. The Hammonasset Connector is a short freeway from I-95 to Route 1 where the road continues into Hammonasset State Park as a local road. Route 450 becomes Duck Hole Road north of I-95 until it crosses Horse Pond Road to the intersection of Route 79. A total of 656 traffic stops were made along the Route 450 corridor during the study year, which was 16% of total stops made. Of the drivers stopped in the Route 450 corridor, 79% were not residents of Madison, which was above the town average of 62% non-resident stops. Driver demographics for those stopped in the Route 450 corridor were above the town-wide average for black and Hispanic drivers. Black drivers accounted for 4.3% of the Route 450 stops (compared to the town average of 3%). Hispanic drivers accounted for 5.5% of the Route 450 stops (compared to the town average of 4.4%). About half of the drivers were stopped south of I-95 in census tract 1941 and the other half were stopped north of I-95 in census tract 1942.02.

Traffic Stop Distribution for Madison Officers

Madison's 4,106 traffic stops is comparable to those in other towns of its size. During the study period, traffic stop data was reported for 27 officers. The average number of stops made per officer was 152. Of the 27 officers reporting stops, nine made fewer than 50 stops, nine made between 50 and 150 stops, three made between 150 and 300 stops, and six made over 300 stops. The six officers making over 300 stops each collectively accounted for 58% of the Madison stops. Two officers made over 400 stops each and accounted for 23% of all stops. Thus, a relatively small portion of its officer force influences Madison's stop data.

Post-Stop Outcome Review

Reason for Stops
The reasons police stop a motor vehicle can vary significantly from department to department. We reviewed the statutory authority that Madison officers reported as the reason for stopping motor vehicles. The three most common reasons cited for stopping a motorist in Madison cover 63% of the total stops. The three largest stop categories were for speeding violations (44%), stop sign violations (11%), and registration violations (8%). Although there appears to be a higher percentage of black and Hispanic drivers stopped for equipment violations, the total percentage of equipment-related stops is below the state average and too small to draw any conclusions. Figure 4.1 illustrates by race and ethnicity the reason officers cited to stop a motor vehicle.

Figure 4.1: Reason for Traffic Stop
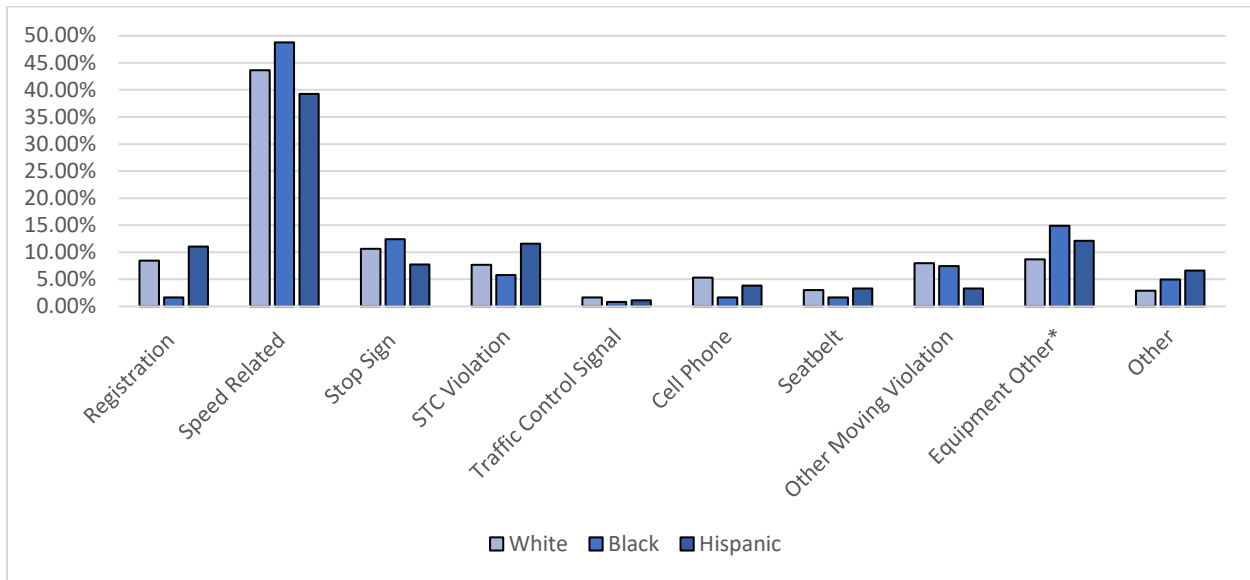
*Equipment Other includes violations for defective lights, excessive window tint, or display of plate violations.

Speed-related motor vehicle enforcement appears to have had the greatest impact on overall traffic enforcement in Madison. Over 62% of all speed-related stops occurred on Route 79, Route 80, Route 450, or Route 1. The largest percentage of speed enforcement occurred on Route 79 with 28% of all speed stops. Another important factor is that officers reported 70% of speed-related stops as "blind." This means officers report using a blind enforcement technique like radar, a laser, license plate recognition device, or other similar technology or method. The speed-related stops recorded as "blind" were likely the result of an officer using radar or laser technology. Of the speed-related stops recorded as "blind," the racial demographics were 90% white, 3.3% black, and 4.3% Hispanic, which almost mirrored the racial demographics for all stops. The demographics of "blind" speeding stops is an indication that the racial demographics of drivers on Madison roadways was reflected in its stop activity.

Outcome of Stops

The majority of motor vehicle stops in Madison resulted in the driver receiving a warning (74%). 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 be charged with an infraction and Hispanic drivers were more likely to be charged with an infraction compared to white drivers. Figure 4.2 shows the outcome of motor vehicle stops by race and ethnicity.

Figure 4.2: Outcome of Traffic Stop

*Uniform Arrest Report

Most violations of the motor vehicle laws are designated as infractions but some are not. The more serious violations can be reckless driving, operating under a license suspension, operating under the influence of alcohol or drugs, and operating an uninsured or underinsured vehicle. The system for collecting and reporting traffic stop data requires officers to record the statutory citation for the violation that was the basis for the stop as well as any subsequent charges that differed from and were more significant that the initial charge. This gives an analyst the data on the initial cause for making a stop as well as any subsequent, more serious charge. For example, if someone was initially stopped for a lesser reason such as not wearing a seat belt or rolling through a stop sign, the officer might subsequently determine that the driver was operating with a suspended license. If this information is properly recorded, it is possible to distinguish those stops from the ones that begin and end with the same charge.

In Madison, 60 of the stops made resulted in the issuance of a misdemeanor summons (1.5%). Black and Hispanic drivers were more than four times as likely to be issued a misdemeanor summons following a stop than were white drivers (5% of black and Hispanic drivers stopped compared to 1% of all white drivers). Of these stops, 46 were initiated for a reason that was not initially a misdemeanor violation (e.g. speeding infraction, stop sign and traffic signal violations, defective or improper lighting, etc.) However, once the officer interacted with the operator of the vehicle a misdemeanor violation was identified. The vast majority of these stops were for a license or registration related issues. In particular, 43% of the misdemeanor stops were for operating with a suspended or revoked license or registration, and 17% were for operating when insurance coverage fails to meet minimum requirements. Madison did not report the secondary statutory citation in 18 of the cases that resulted in a misdemeanor. Additionally, in some cases, the secondary citation was not a misdemeanor and we could not determine the final misdemeanor charge. However, these problems appear to be small in number and did not impact the overall racial disparity in town. It is also important to note that unlike many infraction violations, officers do not have discretion in the issuance of a misdemeanor summons when such a violation is identified.

Search Information

A review of department search information shows that 1% (43) of the drivers stopped in Madison were subjected to a motor vehicle search. This rate of motor vehicle searches is below the state's 3% average. Black and Hispanic drivers were searched at a rate higher than white drivers were. Of the 43 vehicles searched, 15 were subjected to a consent search and 25% were subjected to search for some other reason. There was no authorization recorded for three of the vehicle searches. Given the relatively small number of searches conducted, any differences are insignificant. Figure 4.3 illustrates the motor vehicle search rate and the rate at which contraband was found (the "hit rate").

Figure 4.3: Search and Hit Rate
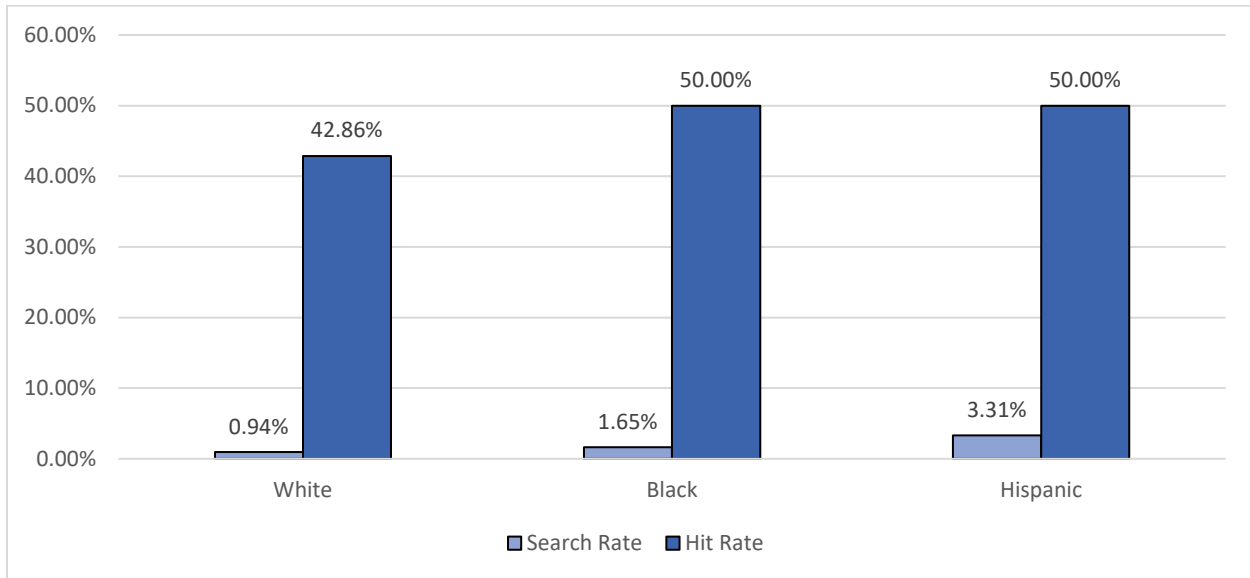
Additional Contributing Factors

Law enforcement administrators choose to deploy police resources within a community based on a number of different factors, including where calls for service are more prevalent. The department provided researchers with the calls for service log, which included calls for service and officer initiated actions that were called into police dispatch. The logs report approximately 3,499 entries from October 1, 2015 through September 30, 2016, exclusive of traffic stops. The top reasons for calling dispatch were for a response to motor vehicle accidents (25%), a report of a suspicious person or vehicle (13%), or an assist of a resident (10). These top three reasons account for about 48% of all calls. Based on the information provided in the call log, the location for calls appeared highest in the same areas with the highest traffic enforcement (Route 79, Route 1, and Route 450).

In addition to calls for service, law enforcement administrators also distribute police resources within a community based on accident rates, and where crime rates are higher. In addition to these factors, police presence may be greater where traffic volume is higher as the result of common factors that draw people into a community such as employment and entertainment. Traffic enforcement actions are likely to be more prevalent in locations that attract greater police presence due to some of these factors. Basic information on crime, accidents, and other economic factors associated with Madison provide a context to potentially explain the rational for police deployments that are important considerations.

According to the Connecticut Economic Resource Center (CERC) town profiles, approximately 4,953 people work in Madison and its major employers include the Madison Beach Hotel, Camp Laurelwood, and Stop and Shop. The vast majority of commuters traveling into Madison for employment are from Guilford, Clinton, and Branford. The overall unemployment rate is 4.1%, which is below the unemployment rates for New Haven County and the state.

In 2016, the crime rate in Madison was reported to be 45 per 10,000 residents, compared to the state crime rate of 204 per 10,000 residents. According to the 2016 Connecticut Uniform Crime Report[6], there were 84 reported crimes in town in 2016, 68% of which were larcenies. The three most reported crimes were larceny (57), burglary (17), and motor vehicle theft (9).

During our study period, there were approximately 190 motor vehicle accidents on roads patrolled by the Madison Police Department. Accidents were reported as occurring on 38 roads. The roadways with the highest number of accidents were Route 79 (54 accidents), Route 1 (32 accidents), Route 450 (19 accidents), and Route 80 (11 accidents). There were only seven roads with five or more accidents and those roads account for 74% of all accidents in Madison. The Route 79 accidents accounted for 30% of all accidents in the town.

Figure 5.1 illustrates the time of day when traffic accidents were reported and the number of traffic stops that occurred during that same period. This illustrates how closely traffic enforcement is correlated with traffic accidents in Madison. While the vehicle crash rate tends to build steadily throughout the day in town, it peaks during the evening commute period from 3:00 p.m. to 6:00 p.m.

Figure 5.1: Accidents Compared to Traffic Stops by Time of Day

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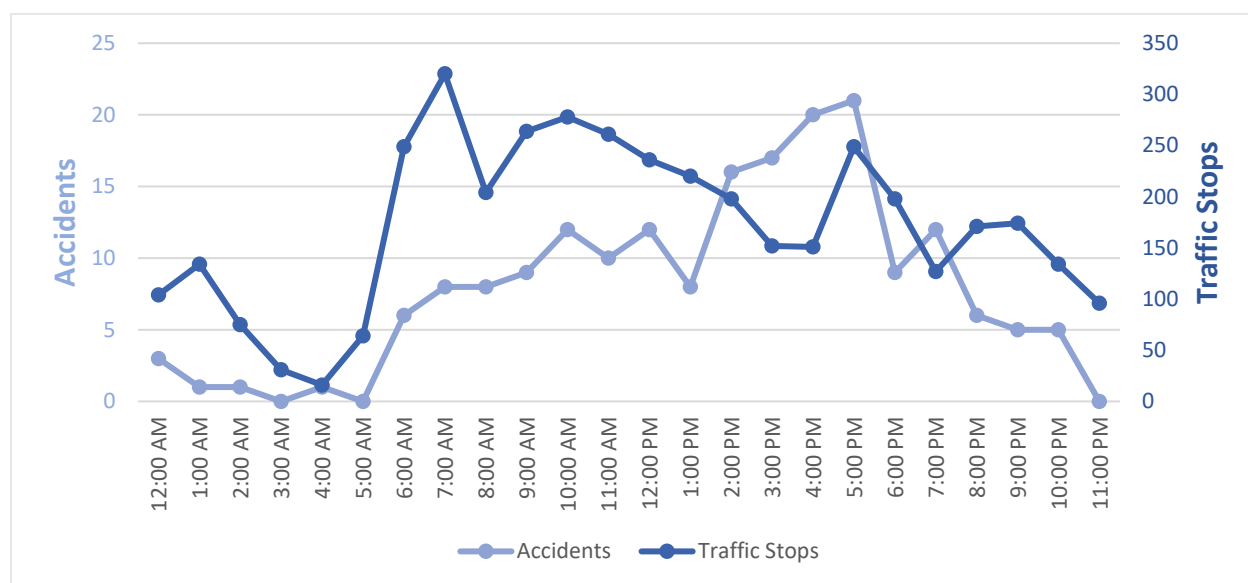
[6] The Uniform Crime Report is an index for gauging fluctuations in the overall volume and rate of crime. The crime index includes seven offenses: the violent crimes of murder, rape, robbery, and aggravated assault and the property crimes of burglary, larceny-theft, and motor vehicle theft.

Summary of Findings

The Madison Police Department identified factors they believe contributed to the disparity identified in the initial analysis of traffic stops. In particular, the department identified the impact that seasonal traffic had on the community because of Hammonasset Beach State Park and other traffic generators along the Long Island Sound. The department also indicated that they have a large presence of out-of-town residents travelling through town for coastline attractions like beaches and state parks located in either Madison or surrounding communities. Areas with the highest levels of traffic appear to be some of the same areas with the highest levels of motor vehicle enforcement. The department also indicated the impact that reported incidents of crime and accidents in the southern section of town have had on the deployment of departmental resources, especially during the busier summer months. It is evident by the number of traffic stops made in a relatively small geographic area that departmental resources are concentrated in a smaller geographic area.

There are three major roadways where significant amounts of traffic enforcement occurred (Route 79, the Boston Post Road, and Route 450). Almost 66% of all traffic stops in Madison occurred on one of these three roadways. It is also worth noting that 70% of black drivers and 69% of Hispanic drivers were stopped on these roadways compared to 60% of white drivers. Route 79 and the Boston Post Road are the major travel routes for traffic to and from surrounding communities. Route 450 is a major travel route to the Hammonasset Beach State Park from I-95. Non-resident minority drivers made up at least 67% of those stopped on these roads.

Route 79 is a state highway that runs from the Boston Post Road through the center of town to the Durham border. It is the busiest roadway in town and accounts for the largest percentage of traffic stops (28%). This route had a slightly higher percentage of town-residents stopped than the town average. Additionally, black drivers were more likely to be stopped on Route 79 than the town average. The second busiest roadway is the Boston Post Road, which runs through the southern part of town from Guilford to Clinton. The Boston Post Road includes the town center and is the main area for business, the town green, boutiques and restaurants. A higher percentage of out-of-town residents were stopped on the Boston Post Road than the town average. Additionally, Hispanic drivers were more likely to be stopped on this roadway than the town average. Finally, Route 450 is made up of three roadways and is the main route to Hammonasset Beach State Park. A significantly higher percentage of drivers stopped were not residents of Madison compared to the town average. Black and Hispanic drivers were both more likely to be stopped on Route 450 than other roadways in town. Traffic enforcement on Route 79 influenced the stop disparity for black drivers, while enforcement on the Boston Post Road influenced the stop disparity for Hispanic traffic stops and enforcement on Route 450 had the greatest influence on the stop disparity for both black and Hispanic drivers.

On average, 62% of the drivers stopped in Madison were not residents. Non-resident black and Hispanic drivers were more likely to be stopped than non-resident white drivers were. Approximately 59% of the white drivers stopped were not town residents compared to 88% of black drivers and 86% of Hispanic drivers. The influence non-resident drivers had on stop demographics affected roadways to varying degrees. Non-resident drivers most heavily affected the southern portion of town along the Boston Post Road and the Hammonasset Connector. Over 69% of all drivers stopped on the Boston Post Road and 79% of the drivers stopped on the Hammonasset Connector were not residents of the town. About 55% of drivers stopped on all roadways other than the Boston Post Road and Hammonasset Connector were not town residents.

Madison has 27 officers who made at least one traffic stop during the study period. The average stops made per officer was 152, but six officers (22% of the officer force) accounted for 58% 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

In Madison, the three most common reasons used for stopping a motorist make up 63% of the total stops. The three largest stop categories were for speeding violations (44%), stop sign violations (11%), and registration violations (8%). Black and Hispanic drivers were stopped at a slightly higher rate for equipment-related violations than white drivers were. However, the total percentage of equipment-related stops is below the state average and too small to draw any conclusions.

Speed-related motor vehicle enforcement appears to have had the greatest impact on overall traffic enforcement in Madison. Officers reported 70% of speed-related stops as "blind." This means officers report using a blind enforcement technique like radar, a laser, license plate recognition device, or other similar technology or method. The speed-related stops recorded as "blind" were likely the result of an officer using radar or laser technology. Of the speed-related stops recorded as "blind," the racial demographics were 90% white, 3.3% black, and 4.3% Hispanic, which almost mirrored the racial demographics for all stops.

Regarding stop outcomes, minority drivers were more likely to receive a misdemeanor summons and Hispanic drivers were more likely to be charged with an infraction compared to white drivers. Stops involving black drivers were less likely to result in an infraction citation than either white or Hispanic drivers but more likely to result in a warning. The majority of motor vehicle stops in Madison resulted in the driver cited for a warning (74%).

Madison police searched fewer than 1% of the drivers they stopped, which was below the state average of 3%. Black and Hispanic drivers were searched at a higher rate than white or Hispanic drivers were. Contraband was found after a search at a higher rate for black and Hispanic drivers. Given the relatively small number of searches conducted, these differences are not significant.

Conclusion

Taken as a whole, the Madison traffic stop data reflects the influence of the Route 79, Route 1, and Route 450 corridors that appears to be somewhat more diverse than the predominantly white local driving age population. These roads appear to have a relatively high level of enforcement and a relatively higher proportion of non-resident minority drivers travelling them. The nature of traffic enforcement in Madison is focused on more serious safety-related violations, particularly speed and stop sign violations. In most of the speed-related stops, officers made the determination to stop the driver using speed enforcement technology. After a full review, the disparities do not appear excessive in nature, but the department would benefit from a periodic review of traffic enforcement policies as they relate to enforcement activity on Route 79, Route 1, and Route 450 in order to evaluate the extent to which they may have a disproportionate impact on minority drivers.

I.B. (5): MONROE FOLLOW-UP ANALYSIS SUMMARY

This analysis continues the work of the Racial Profiling Prohibition Project's study of traffic stops conducted since October 1, 2013. This follow-up report focuses on data reported for stops conducted from October 1, 2015 through September 30, 2016. Table 1.0 below compares summary racial data for reported traffic stops in Monroe over a three-year period.

Table 1.0 Monroe Traffic Stops – 2013 - 2016

	2013-2014 Stops		**2014-2015 Stops**		**2015-2016 Stops**	
White	3,771	87.3%	5,041	86.9%	3,887	84.0%
Black	248	5.7%	302	5.2%	322	7.0%
AsPac*	33	0.8%	57	1.0%	59	1.3%
AI/AN**	14	0.3%	17	0.3%	9	0.2%
Hispanic	253	5.9%	383	6.6%	348	7.5%
Total	**4,319**		**5,800**		**4,625**	

*Asian Pacific Non-Hispanic
** American Indian/Alaska Native Non-Hispanic

Overview of the November 2017 Traffic Stop Analysis

The November 2017 Traffic Stop Analysis report indicated that for the October 1, 2015 – September 30, 2016 study period the Monroe Police Department made 4,625 traffic stops. Of these, 16% were minority stops (7.5% Hispanic and 7.0% black). The annual VOD analysis indicated a statistically significant disparity in the rate that Hispanic motorists were stopped during daylight relative to darkness. Within the inter-twilight window, the odds that a Hispanic motorist was stopped during daylight was 1.7 times larger than the odds during darkness. These results were statistically significant at the 95 percent level and robust to the inclusion of a variety of controls, officer fixed-effects, and a restricted sample of moving violations. The hit-rate for white non-Hispanic motorists was 42.9% while that for black motorists was 8.3% and that difference was statistically significant at the 95% level. Although certain assumptions have been made in the design of each methodology, it is reasonable to conclude that departments with consistent data disparities separating them from the majority of other departments should be subject to further review and analysis with respect to the factors that may have caused these differences.

Descriptive Analysis of the 2015-2016 Traffic Stop Data

The racial and ethnic disparities in the Monroe Police Department data were studied using a more detailed review of traffic enforcement during the 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. Monroe provided latitude and longitude coordinates that allowed accurate mapping of 85% of their stops. According to the 2010 census, Monroe had 14,802 residents over the age of 16. Approximately 7% of this driving age population was identified as a minority. Table 2.0 outlines the basic demographic information for Monroe residents over age 16.

Table 2.0: Monroe Population

| Race/Ethnicity	16+ Population Total	% Population Total
White Non-Hispanic	13,790	93.2%
Black Non-Hispanic	81	0.6%
AsPac Non-Hispanic	289	1.9%
Hispanic	642	4.3%
Other	0	0.0%
Total	**14,802**	

Monroe is approximately 26 square miles in area. Route 25 runs across Monroe from the Newtown border to the Trumbull town line. Route 25 is a highway that starts in Bridgeport and runs north to Danbury. From Brookfield through Monroe, Route 25 is a two-lane road that turns into a six-lane freeway in Trumbull. It connects to Interstate 84 (I-84) in Newtown and Interstate 95 (I-95) in Bridgeport. Route 34 runs through the northern section of Monroe, from Newtown to New Haven where it connects with Interstate 91 (I-91) and I-95. The other two main roadways in Monroe are Routes 110 and 111. Route 111 is the Monroe Turnpike; it begins at the intersection with Route 34 and runs south into Trumbull. Route 110 begins at the intersection of Route 111 (less than 1,000 feet from the town hall) and continues south to the Shelton border.

Five other municipalities border Monroe, Newtown to its north, Oxford to its east, Shelton and Trumbull to its south, and Easton to its west. The five border towns are predominantly white demographically, with an average white driving age population of 91.8% (compared to Monroe's white driving age population of 93.2%). Of the drivers stopped in Monroe overall, 31% were Monroe residents and 69% lived elsewhere.

Monroe has four patrol districts and typically has at least one officer patrolling each district at any given time. The Patrol Division consist of 22 patrol officers, six sergeants and one lieutenant. The Patrol Division is responsible for responding to calls for service, apprehending criminals, enforcing motor vehicle laws, and working with the public to prevent crime. This unit is responsible for all traffic complaints, enforcement, and accident response.

Figure 1.1 Monroe Census Tract Map

The U.S. Census Bureau divides Monroe into three census tracts. Figure 1.1 is a map that outlines the boundaries of Monroe census tracts, which will be referred to throughout this report. The resident driving age population in each census tract varies from about 4,000 to about 5,400 people, with the largest concentration
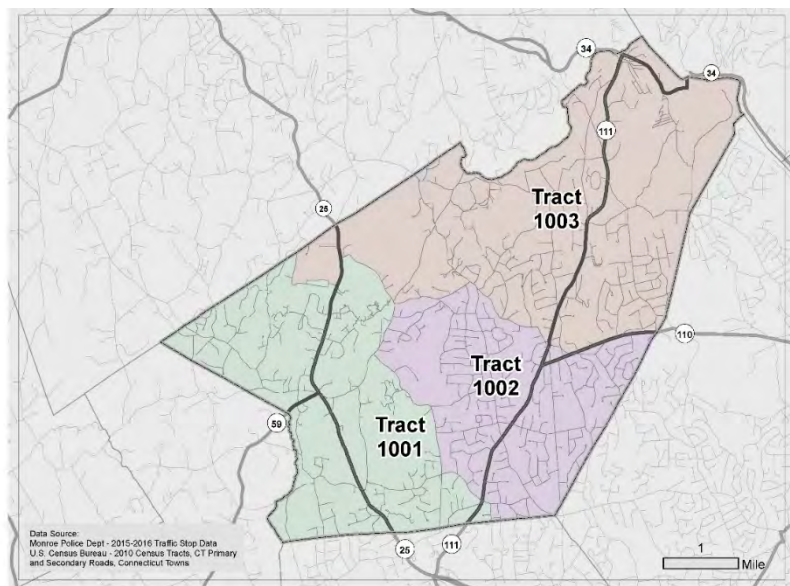
of people (36% of the total population) in tract 1002. The racial breakdown in each census tract is similar in each area. Figure 1.2 shows the distribution for each census tract in terms of white and non-white driving age population.

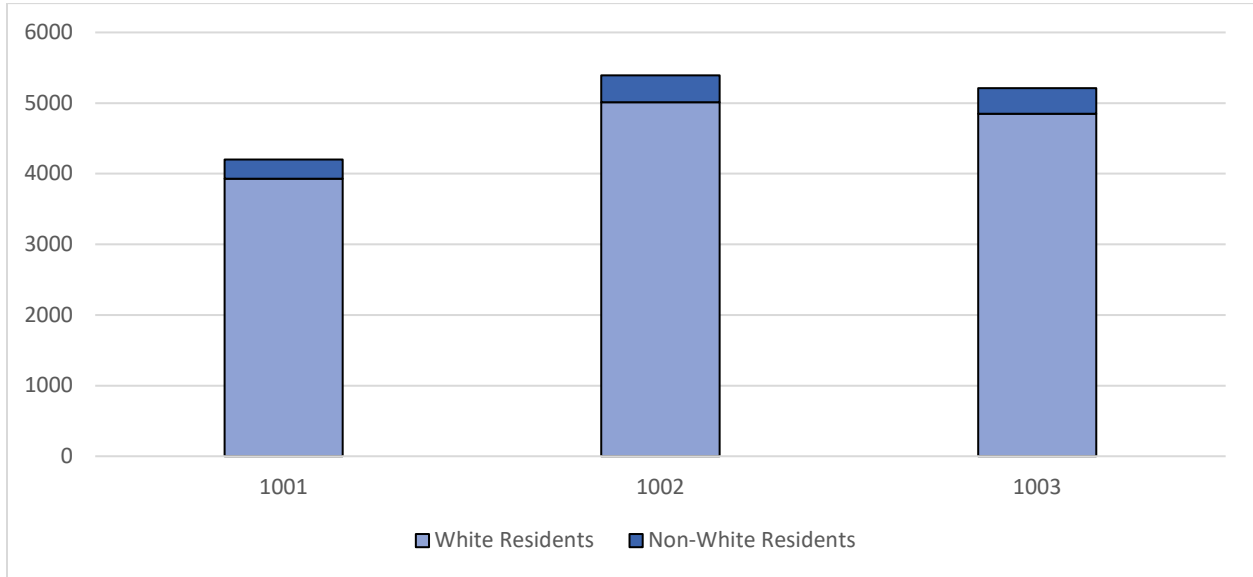**Figure 1.2: Age 16 and Older Resident Population by Census Tract**

Figure 1.3 illustrates the volume of traffic enforcement that occurred in each Monroe census tract. Census tract 1001 has the largest percentage of traffic enforcement with 46% of the town's traffic stops. Most of Route 25 in Monroe lies within census tract 1001.

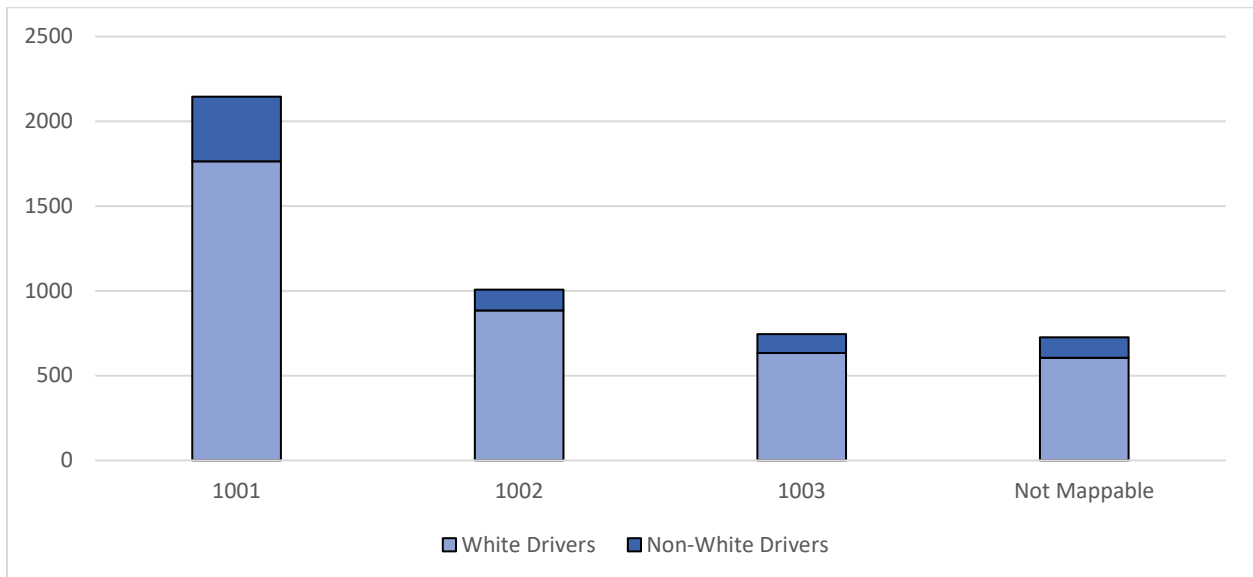**Figure 1.3: Traffic Stops by Census Tract**

Figure 1.4 is a map of traffic stops made in Monroe. The two census tracts that account for 64% of the traffic enforcement activity comprise 65% of the resident driving age population in Monroe. Tract 1002 is the larger of these two tracts with 36% of the town's population. The second most heavily populated census tract in town (1003) is located outside of the high enforcement activity area. Monroe's overall resident driving age population is 7% minority and 6% of all Monroe residents who were stopped were minority. Resident minority drivers were not stopped at a rate that exceeded their representation in any of the tract's resident minority driving age population.

Figure 1.4: Traffic Stop Map
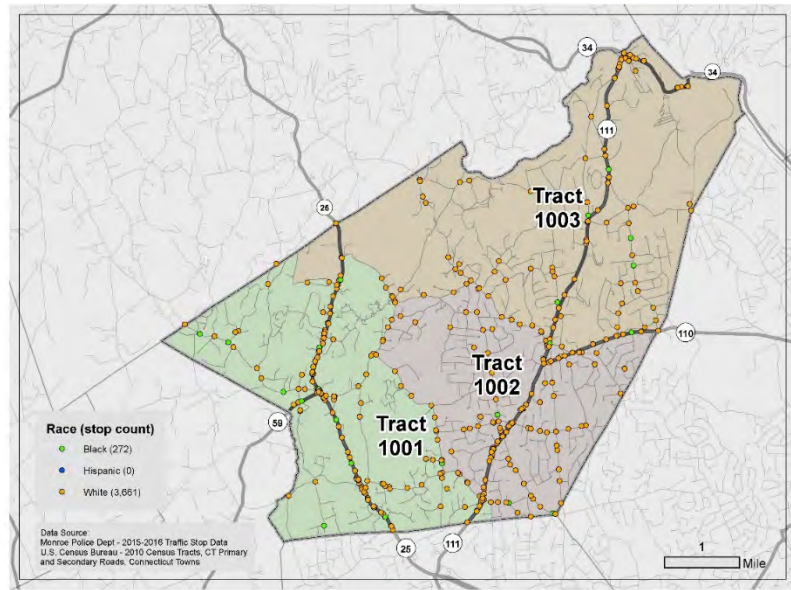
Traffic Stop Breakdown by Race/Ethnicity

In Monroe, 16% of all drivers stopped were minority drivers, classified as all non-white drivers, but predominantly black or Hispanic drivers. Monroe's resident population age 16 and older is 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, considering that about 7% of the population is minority but 16% of the drivers stopped were minority. However, the racial and ethnic makeup of different areas of Monroe varies by census tract, so the disparities were more pronounced in some areas compared to others.

Figure 2.1 shows the difference between the local black resident population and the black drivers stopped by census tract. Monroe's resident population is 1.3% black. The overall percentage of Monroe traffic stops involving black drivers was 7%. The percentage of black drivers stopped exceeded the town stop average of 7% in only one census tract (1001). There was a positive disparity above the resident black driving age population in all census tracts, with the largest disparity in tract 1001.

Figure 2.1: Black Population Compared to Black Drivers Stopped by Census Tract
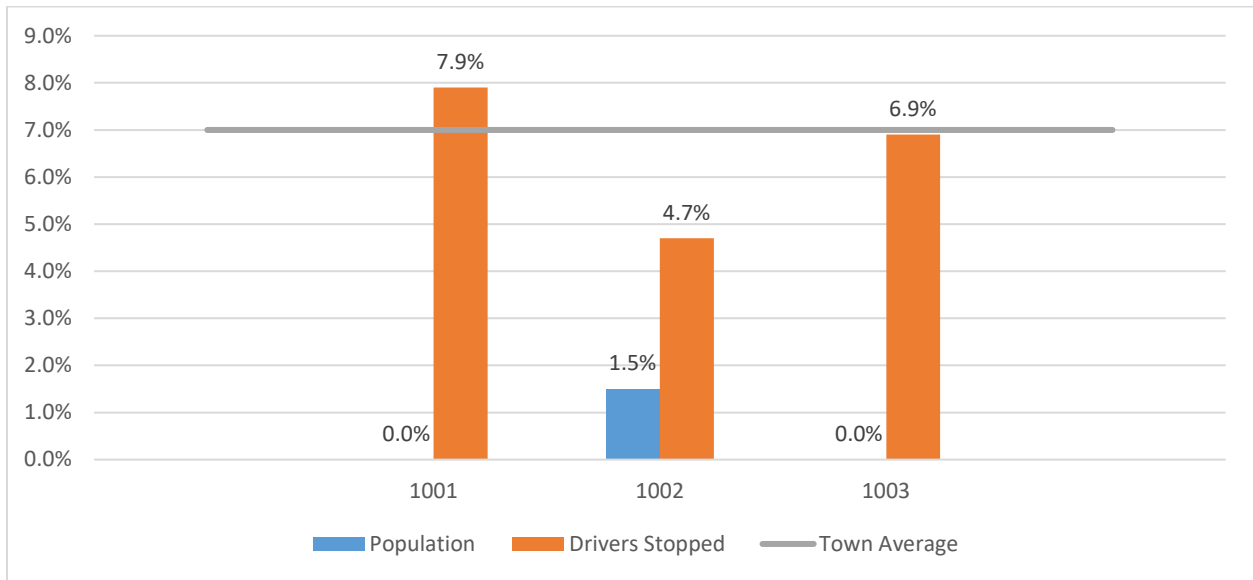
Figure 2.2 shows the difference between the local Hispanic resident population and the Hispanic drivers stopped by census tract. Monroe's resident population is 4.3% Hispanic. The overall percentage of traffic stops involving Hispanic drivers was 7.5%. The percentage of Hispanic drivers who were stopped exceeded the town average in only one census tract (1001). There was a positive disparity above the resident Hispanic driving age population in all census tracts, with the largest disparity in tract 1001.

Figure 2.2: Hispanic Population compared to Hispanic Drivers Stopped by Census Tract
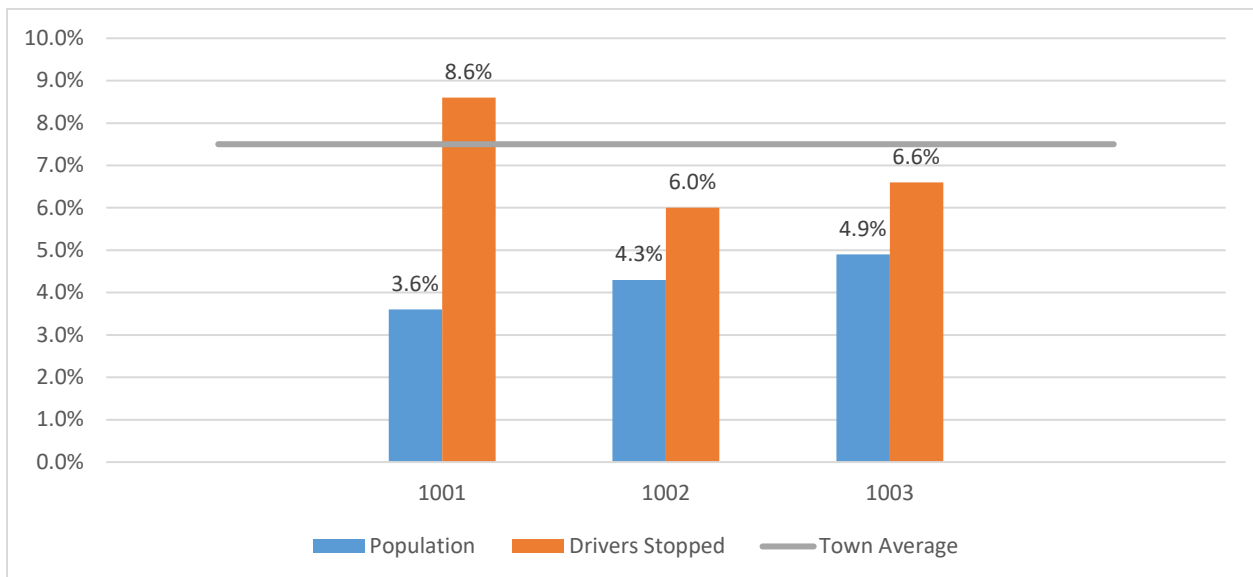
Highway Corridor Analysis

In addition to the census tract-based analysis, we also conducted separate analyses of the highway corridors with the greatest number of traffic stops. These two corridors were Route 25 and Route 111. Route 25 is by far the most heavily traveled route in Monroe, averaging from 18,000 to just over

20,000 vehicles per day throughout all of its length according to Connecticut Department of Transportation (DOT) 2013 average daily traffic (ADT) estimates. Route 25 connects the city of Bridgeport and the town of Brookfield. It is a six-lane freeway starting in Bridgeport and converts to a two-lane road in the northern section of Trumbull just before it crosses into Monroe. Route 25 is approximately six miles in length through Monroe and is known as Main Street. It intersects with Route 59 in the village of Stepney.

A total of 1,353 traffic stops were made along the Route 25 corridor during the study year, which was 30% of the total for the town but 63% of all the stops made within census tract 1001, through which Route 25 predominantly passes. The stops made on Route 25 included more non-residents than in the town as a whole (86% compared to 70%) and involved a higher proportion of black and Hispanic drivers than the town-wide average. Black drivers accounted for 12% of the Route 25 stops (compared to the town average of 7% for black drivers). Hispanic drivers accounted for 12.5% of the Route 25 stops (compared to the town average of 7.5%). Over 49% of all Hispanic drivers and 50% of all black drivers stopped in Monroe were stopped on Route 25 compared to 26% of all the white drivers stopped in the town. Census tract 1001, which accounts for most of the Route 25 corridor in Monroe also accounts for almost 46% of all traffic stops on this road.

Route 111 is a state highway that runs from the Merritt Parkway in Trumbull to Route 34 in the northeast corner of Monroe. This corridor is also known as the Monroe Turnpike and it intersects with Route 110 (Shelton Road) at the town center. It intersects with Route 34 in the Stevenson section of Monroe. Department of Transportation ADT estimates show it to be the second most heavily traveled road in Monroe with an average of just over 19,000 vehicles per day at its southernmost point where it crosses into Trumbull; 12,000 to 13,000 vehicles per day where it intersects with Route 110 in the center of town; and 4,000-8,000 vehicles per day north of the Route 110/111 intersection.

A total of 696 traffic stops were made along Route 111 during the study year, which was 15% of the total stops made in town. Of the drivers stopped on Route 111, 66% were not residents of Monroe, which was slightly below the town average of 70%. Driver demographics for those stopped on Route 111 mirrored the demographics for all drivers stopped in town. Black drivers accounted for 6% of the Route 111 stops (compared to the town average of 7%). Hispanic drivers accounted for 7.6% of the Route 111 stops (compared to the town average of 7.5%). Over 15% of all Hispanic drivers and 13% of all black drivers stopped in Monroe were stopped on Route 111.

Special Enforcement Campaigns

Monroe participated in special enforcement campaigns, some that were sponsored by the Connecticut DOT through funds made available by the National Highway Traffic Safety Administration (NHTSA) and others that were department-wide initiatives. The special enforcement campaigns in which Monroe participated focused on (1) distracted driving, (2) drinking and driving, and (3) seatbelt safety ("Click-It or Ticket"). The Monroe Police Department was able to identify the months the department participated in the special enforcement campaigns, but not the case numbers for stops made as part of these campaigns. The department reported 788 stops or 17% of all their enforcement during the study period was a result of participating in one of the special enforcement campaigns.

Monroe participated in "Click It or Ticket" seatbelt enforcement campaigns in November 2015 and May 2016. During those periods, the department reported making 29 motor vehicle stops. Monroe

also participated in two distracted driving (cell phone) campaigns in April and August 2016. The department participated for eight shifts in April and 12 shifts in August making 165 motor vehicle stops during these periods. Lastly, Monroe also participated in drunk driving checkpoints and roving patrols for the Thanksgiving, Christmas and New Year's holiday 2015, Memorial Day weekend 2016, July 4th holiday 2016, and Labor Day weekend 2016. Monroe reported making 594 stops during these campaigns.

Traffic Stop Distribution for Monroe Officers

Monroe's 4,625 traffic stops is comparable to those in 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 128. Of the 36 officers reporting stops, 10 made fewer than 20 stops, six made between 20 and 50 stops, five made between 50 and 100 stops, six made between 100 and 200 stops, and nine made over 200 stops. The nine most active officers making over 200 stops collectively accounted for 68% of all the Monroe stops. The most active officer reported 705 traffic stops or 15% of all traffic enforcement in Monroe. This indicates the extent to which a relatively small portion of the officer force influenced Monroe's stop data.

Post-Stop Outcome Review

Reason for Stops

The reasons police stop a motor vehicle can vary significantly from department to department depending, among other things, on a department's overall philosophy on the purpose of traffic enforcement. We reviewed the statutory authority that Monroe officers reported as the reason for stopping motor vehicles. The three most common reasons used for stopping a motorist in Monroe account for over 56% of the total stops. The three largest stop categories were for speeding violations (30%), defective or improper lighting equipment (13%), and other moving violations (12%). Figure 3.1 illustrates by race and ethnicity the reason officers cited to stop a motor vehicle.

Figure 3.1: Reason for Traffic Stop
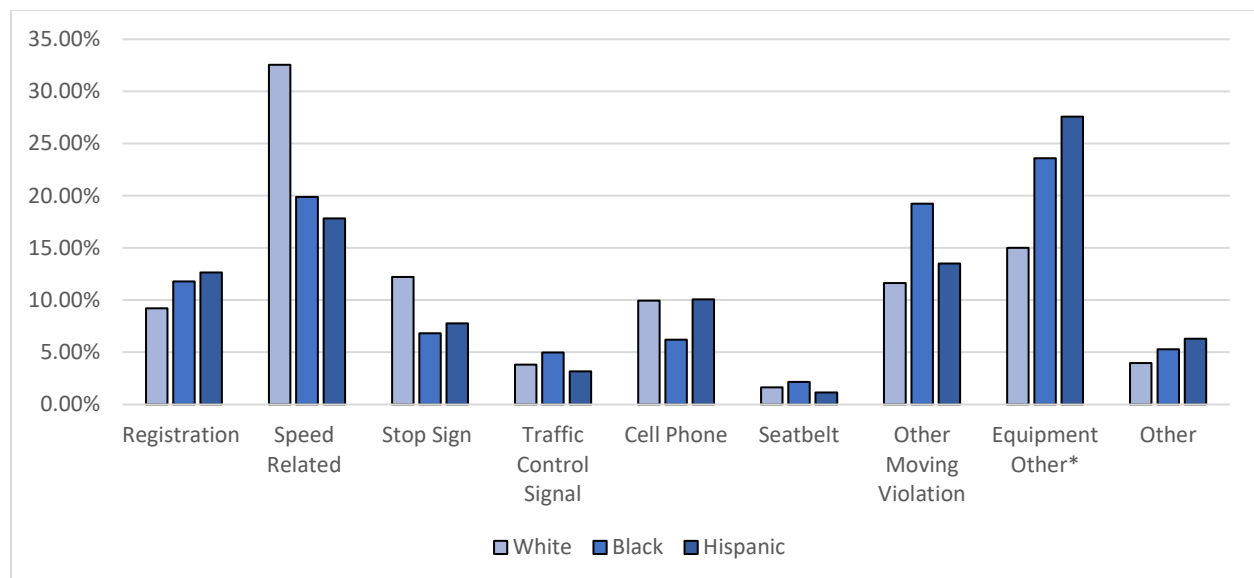
*Equipment Other includes violations for defective lights, excessive window tint, or display of plate violations.

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 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, equipment-related (defective, improper, or inoperative lighting; display of plates; or window tinting) are closely related to the frequency

Figure 3.2: Safety-Related Motor Vehicle Stops
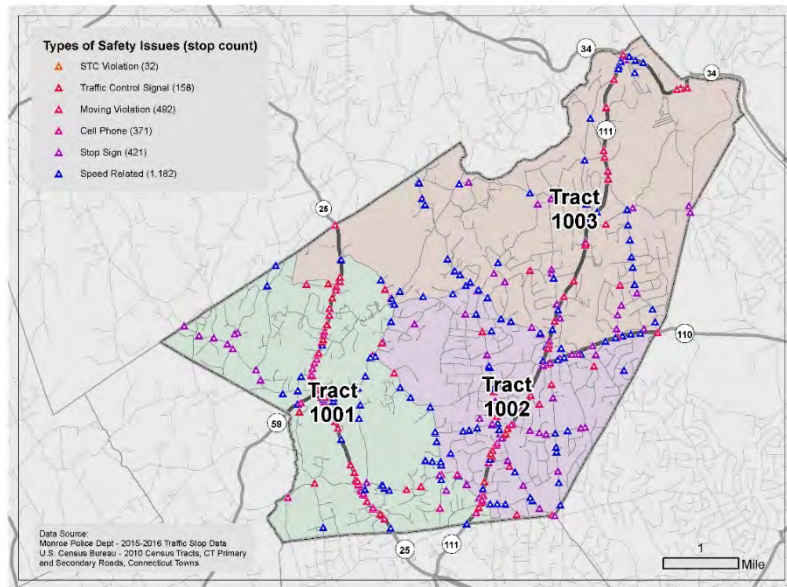
and location of where the stops are made. When these types of stops are made more frequently in locations where there are higher concentrations of minority drivers, they tend to result in higher proportions of minority drivers being stopped than white drivers. However, in many places, the data also shows that when these same types of stops are made in areas with a higher concentration of white drivers, the stop demographics shift toward white drivers, suggesting that the likelihood of finding violators may be more dependent on location than race.

The Monroe data illustrates that the reason for motor vehicle stops on Route 25 and Route 111, where a higher percentage of minority drivers are stopped, are different from the reasons frequently cited on other roadways in town. Speed-related traffic violations accounted for 6% of the stops on Route 25 and 11% of the stops on Route 111 compared to 51% of the stops on other roads. Additionally, defective or improper lighting violation stops accounted for 16% of the stops on Route 25, and 24% of the stops on Route 111 compared to 6% of the stops on other roads. Of all the equipment-related motor vehicle enforcement 65% occurred on Route 25 and Route 111. These two corridors also account for 65% of all black and Hispanic stops. These patterns seem to suggest that where these types of stops are made is an important factor in the stop demographics. Figure 3.2 is a map of traffic enforcement for equipment-related motor vehicle stops. Stops made for defective lights, window tints, or display of plate were labeled "equipment-related" violations. For comparison, figures 3.3 is a map of traffic enforcement for safety-related motor vehicle stops. Stops made for speed, stop sign, traffic light, cell phone, or moving violations were labeled "safety-related" stops.

The more serious charges resulting from the use of equipment-related stops most frequently involved vehicle operation while either the vehicle's registration or the driver's license was under suspension (26 of the 44 misdemeanor charges were for this reason- 59%). This was a higher rate than for the stops made for all other reasons that did not involve equipment-related violations (54 of 136 of the misdemeanor outcomes—40%). For the 18 other equipment-related stops that resulted in misdemeanor outcomes, nine were charged for misuse of license plates or registration (typically

using the registration and/or license plates issued for one vehicle on a different vehicle, seven were charged for violation of minimum motor vehicle insurance requirements, and two were charged with alcohol related offenses.

Black and Hispanic drivers were also more likely to be stopped for "other moving violations" in proportion to their total stops. We typically use this categorization for numerous different traffic violations that do not normally occur with sufficient frequency to justify individual categorization

Figure 3.3: Equipment-Related Motor Vehicle Stops
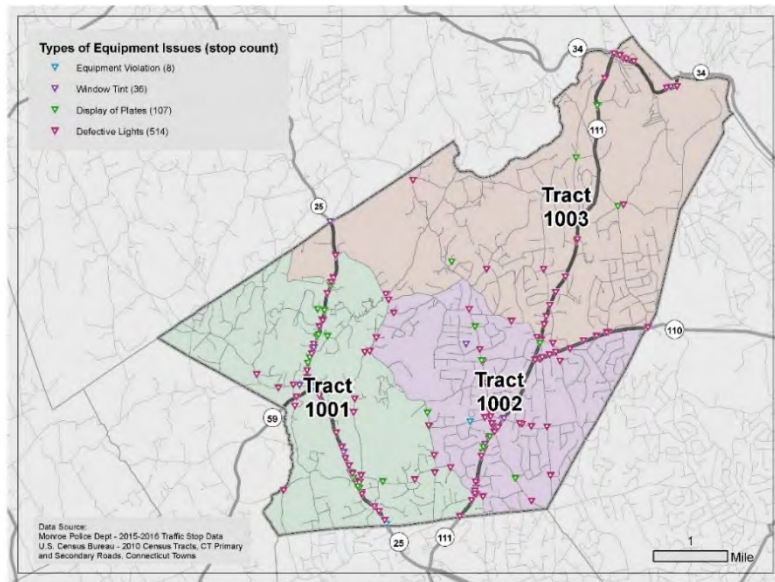
similar to speeding, stop sign, and traffic light offenses. Other violations in this category typically include things like failing to drive in the established traffic lane, passing on the right, passing in a no passing zone and following too closely. In the case of Monroe, the vast majority (70%) of the stops in the "other moving violations" category were made for violations of CGS Sec. 14-236 which requires that a vehicle be driven "as nearly as practicable entirely within a single lane" on a highway divided into two or more clearly marked lanes for traffic. Failure to drive in the established lane can sometimes be interpreted broadly so that a vehicle, which only touches the marked lane line, can be considered in violation even if it has not actually left the lane in which it was traveling. The racial disparity is unsurprising given that over 60% of all the stops made for other moving violations occurred on Route 25 and Route 111. As we have noted previously, these two corridors appear to have a higher percentage of minority drivers traversing them.

In our discussions with the department, officials indicated that the use of 14-236 motor vehicle violations is part of a proactive policing strategy. In particular, these violations are often used during roving DUI patrols. A roving patrol refers to an officer on patrol conducting motor vehicle enforcement with the purpose of identifying a specific violation, in this case, drinking and driving. Of the 575 stops made for other moving violations, 37 of them (6.4%) ultimately resulted in the issuance of a misdemeanor summons and 33 of them (5.7%) resulted in an arrest. Fewer than 3.5% of stops made for all other reasons ultimately resulted in the issuance of a misdemeanor summons and 3.2% resulted in an arrest. The data indicated that there were 42 drivers charged with alcohol-related offenses and 22 (52%) of those drivers charged were initially stopped for a 14-236 violation. Stops for 14-236 violations clearly result in a greater likelihood of identifying a more serious offense like driving under the influence of alcohol or drugs than stops made initially for some other reason.

Outcome of Stops

The majority of motor vehicle stops in Monroe resulted in the driver receiving a warning (70%). 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 be charged with an infraction compared to white

and Hispanic drivers, but more likely to receive a verbal warning. Figure 3.4 shows the outcome of motor vehicle stops by race and ethnicity.

Figure 3.4: Outcome of Traffic Stop


*Uniform Arrest Report

Most violations of the motor vehicle laws are designated as infractions but some are not. The more serious violations can be reckless driving, operating under a license suspension, operating under the influence of alcohol or drugs, and operating an uninsured or underinsured vehicle. The system for collecting and reporting traffic stop data requires officers to record the statutory citation for the violation that was the basis for the stop as well as any subsequent charges that differed from and were more significant that the initial charge. This gives an analyst the data on the initial cause for making a stop as well as any subsequent, more serious charge. For example, if someone was initially stopped for a lesser reason such as not wearing a seat belt or rolling through a stop sign, the officer might subsequently determine that the driver was operating with a suspended license. If this information is properly recorded, it is possible to distinguish those stops from the ones that begin and end with the same charge.

In Monroe, 180 traffic stops resulted in issuing the driver a misdemeanor summons (4%). This was below the statewide average of 4.8% of stops resulting in misdemeanor charges. When considered as a proportion of their total stops, black and Hispanic drivers were 2.5 times more likely to be issued a misdemeanor summons than were white drivers (8.4% of black drivers stopped and 8.9% of Hispanic drivers stopped compared to 3.1% of all white drivers). Of these stops, 137 were initiated for a reason that was not a misdemeanor violation (e.g. speeding, stop sign violation, defective or improper lighting, etc.) However, once the officer interacted with the operator of the vehicle a misdemeanor violation was identified. The largest percentage of these stops were for a license or registration related issues. In particular, 44% of the misdemeanor stops were for operating with a suspended or revoked license or registration. Additionally, 23% were for alcohol or drug related offenses. Unlike many infraction violations, officers do not have discretion in the issuance of a misdemeanor summons when a misdemeanor violation is identified.

Search Information

A review of department search information shows that 1.9% (90) of the drivers stopped in Monroe were subjected to a motor vehicle search. The rate of motor vehicle searches is below the state's 3% average. Black and Hispanic drivers were searched at a rate slightly higher than white drivers were. Of the 90 vehicles searched, 31% were subjected to an inventory search (compared to 21% statewide), 17% were subjected to a consent search (compared to 37% statewide), and 52% were subjected to a search for some other reason (compared to 40% statewide). Given the relatively small number of searches conducted, these differences are not significant. Contraband was found at almost the same rate for white and Hispanic drivers, but a lower rate for black drivers searched. Figure 3.5 illustrates the motor vehicle search rate and the rate at which contraband was found (the "hit rate").

Figure 3.5: Search and Hit Rate
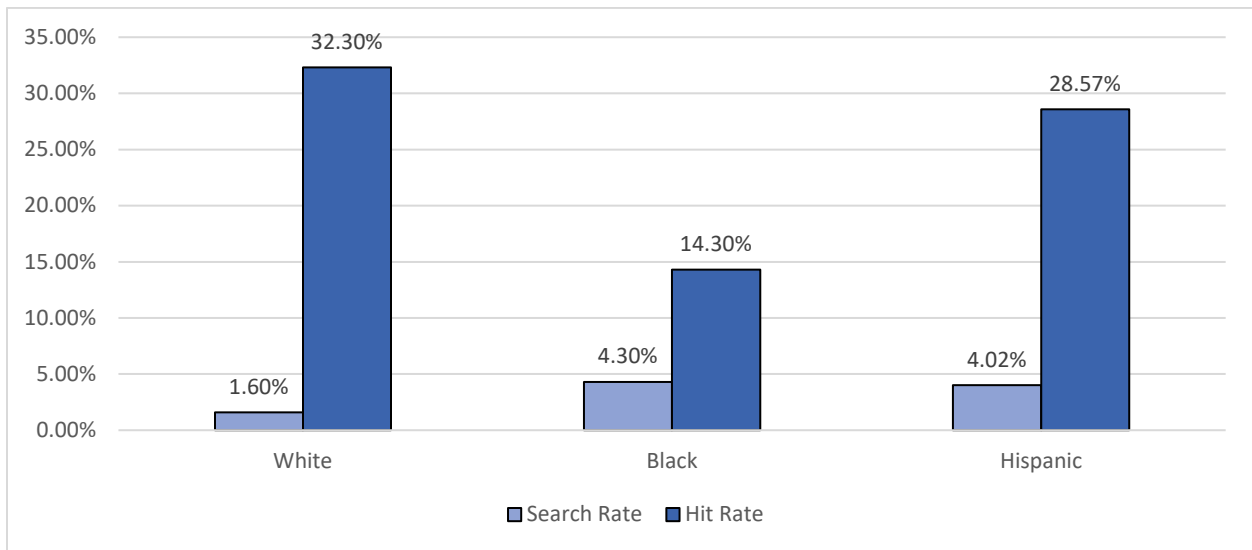
Additional Contributing Factors

Law enforcement administrators choose to deploy police resources within a community based on a number of different factors, including where calls for service are more prevalent, accident rates are higher, or crime rates are higher. In addition to these factors, police presence may be greater where traffic volume is higher as the result of common factors that draw people into a community such as employment and entertainment. Traffic enforcement actions are likely to be more prevalent in locations that attract greater police presence due to some of these factors. Basic information on crime, accidents, and other economic factors associated with Monroe provide a context to potentially explain the rational for police deployments that are important considerations.

According to the Connecticut Economic Resource Center (CERC) town profiles, approximately 5,614 people work in Monroe and its major employers include Neopost USA, Swiss Army Brands, Stop & Shop, Big Y, and Really Good Stuff. The vast majority of commuters traveling into Monroe for employment are from Bridgeport, Shelton, Trumbull, and Newtown. The overall unemployment rate is 5.1%, which is below the unemployment rate for Fairfield County and the state.

In 2016, the crime rate in Monroe was reported to be 43 per 10,000 residents, compared to the state crime rate of 204 per 10,000 residents. According to the 2016 Connecticut Uniform Crime Report[7], there were 86 reported crimes in Monroe in 2016, 74% of which were larcenies. The three most reported crimes were larceny (64), burglary (17), and motor vehicle theft (3).

During our study period, there were approximately 458 motor vehicle accidents on roads patrolled by the Monroe Police Department. Accidents were reported as occurring on 50 roads. The roadways with the highest number of accidents were Route 111 (Monroe Turnpike) (137 accidents), Route 25 (Main Street) (116 accidents), and Hattertown Road (23 accidents). There were only nine roads with 10 or more accidents and those roads account for 80% of all accidents in Monroe.

Figure 4.1 illustrates the time of day when traffic accidents were reported and the number of traffic stops that occurred during that same period. This shows how traffic enforcement is correlated with traffic accidents in Monroe. While the vehicle crash rate tends to build steadily throughout the day in Monroe, it peaks during the morning commute period from 6:00 a.m. to 8:00 a.m.

Figure 4.1: Accidents Compared to Traffic Stops by Time of Day
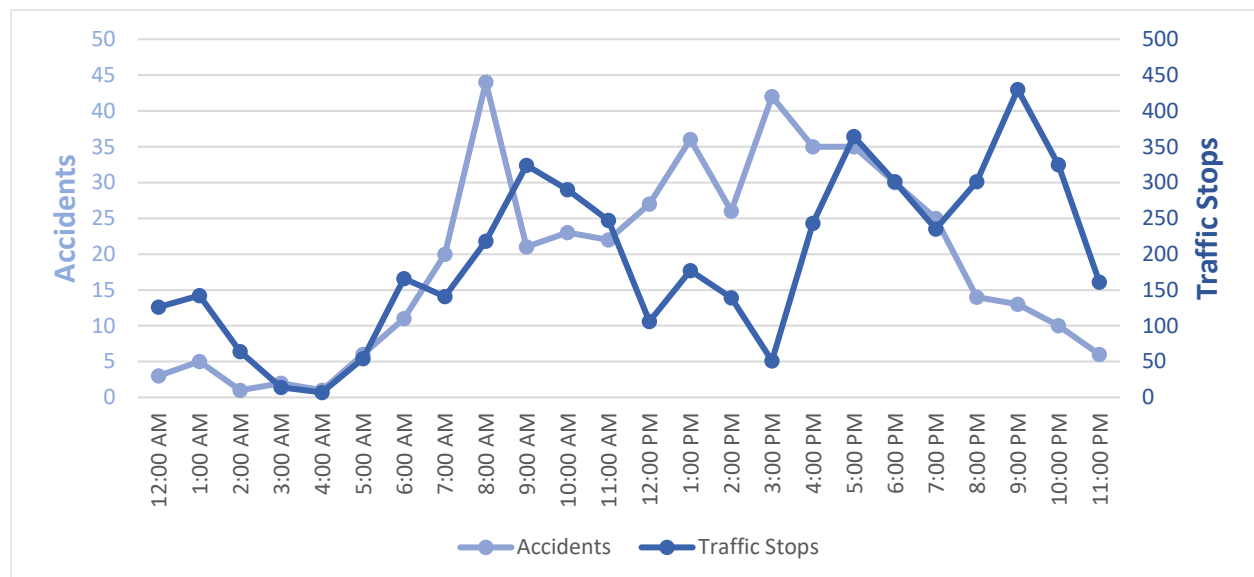
Summary of Findings

The Monroe Police Department identified factors they believe contributed to the disparity identified in the initial analysis of traffic stops. 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 levels of motor vehicle enforcement. They also indicated the impact that reported incidents of crime and accidents in the Route 25 and Route 111 corridors have had on the deployment of departmental resources. It is evident from the volume of traffic stops made along these two corridors that departmental resources are concentrated there. It makes sense that the highest levels of motor

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[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: the violent crimes of murder, rape, robbery, and aggravated assault and the property crimes of burglary, larceny-theft, and motor vehicle theft.

vehicle enforcement would be in the same area that has the highest levels of traffic volume, calls for service, and motor vehicle accidents.

Route 25 is by far the most heavily traveled route in Monroe, followed by Route 111, which is also a high traffic volume roadway. Routes 25 and 111 are the major travel routes for traffic to and from surrounding communities. Almost 45% of all traffic stops in Monroe occurred on one of these two roadways. A higher percentage of minority drivers were stopped on these roadways than the town average with 10% of the stops involving black drivers (compared to the town average of 7%) and 11% of the stops involving Hispanic drivers (compared to the town average of 7.5%).

Monroe's traffic stop data also reflects an extremely low non-white driving age resident population and the relatively large proportion of non-Monroe residents who make up the majority of people who were stopped in Monroe. Since 70% of all drivers stopped in Monroe 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 Monroe, compared to 65% of white drivers who were non-residents. The influence non-resident drivers had on stop demographics affected census tracts and roadways to varying degrees. Non-residents most heavily affected Route 25; over 86% of all drivers stopped on Route 25 were not residents of the town. About 62% of drivers stopped on all roadways other than Route 25 were not town residents. Approximately 82% of the white drivers stopped on Route 25 were not town residents compared to 98% of black drivers and 97% of Hispanic drivers. This corridor is responsible for 53% of the non-resident Hispanic drivers stopped in Monroe and 55% of the non-resident black drivers stopped compared to only 32% of the non-resident white drivers stopped. The data suggests that non-resident minority drivers travel on Route 25 at a higher rate than they travel on other roadways.

In addition, Monroe has 36 officers who made at least one traffic stop during the study period. The average stops made per officer was 128, but nine officers (25% of the officer force) accounted for 68% 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

In Monroe, the three most common reasons used for stopping a motorist make up 56% of the total stops. The three largest stop categories were for speeding violations (30%), defective of improper lighting equipment (13%), and other moving violations (12%). White non-Hispanic drivers were more likely than were either black or Hispanic drivers 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. 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.

Equipment-related motor vehicle enforcement was most highly concentrated on Route 25 and Route 111, with 65% of all equipment-related stops. These roadways also had the largest percentage of black and Hispanic drivers stopped in town. In the other areas where these stops were made and the driving population appears to have a higher percentage of white drivers, there was a greater

proportion of white drivers stopped for these violations. 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 than racially inherent differences in the overall likelihood of violation.

Black and Hispanic drivers were also stopped at a higher rate for "other moving violations" in proportion to their total stops. Other violations in this category typically include things like failing to drive in the established traffic lane, passing on the right, passing in a no passing zone and following too closely. In the case of Monroe, the vast majority (70%) of the stops in the "other moving violations" category were made for violations of CGS Sec. 14-236 which requires that a vehicle be driven "as nearly as practicable entirely within a single lane" on a highway divided into two or more clearly marked lanes for traffic. The racial disparity is unsurprising given that over 60% of all the stops made for other moving violations occurred on Route 25 and Route 111. As we have noted previously, these two corridors appear to have a higher percentage of minority drivers traversing them. It is important to note that of the 42 drivers charged with alcohol-related offenses, just over half were initially stopped for a 14-236 violation.

With regard to stop outcomes, minority drivers were more likely to receive a misdemeanor summons, whereas white drivers were more likely to receive warning. Stops involving Hispanic drivers were more likely to result in an infraction citation than either white or black drivers but less likely to result in a verbal or written warning. The proportion of Monroe's traffic stops that resulted in a misdemeanor summons (4%) was below the state average of 4.8%. When considered as a proportion of their stops, black and Hispanic drivers were 2.5 times more likely to be issued a misdemeanor summons than were white drivers. The majority of the stops that resulted in a misdemeanor charge were initiated for a reason that was not initially a misdemeanor violation. However, once the officer interacted with the operator a misdemeanor violation was identified. Most of the misdemeanor charges were for a license or registration related issue (44%) and a significant number were for alcohol or drug related offenses (23%). Unlike many infraction violations, officers do not have discretion in the issuance of a misdemeanor summons when such a violation is identified.

Monroe police searched 1.9% of drivers they stopped, which was below the state average of 3%. Black and Hispanic drivers were searched at a rate higher than that of white drivers. Contraband was found after a search at a higher rate for white driver. Given the relatively small number of searches conducted, these differences are not significant.

Conclusion

Taken as a whole, the Monroe traffic stop data seems to reflect the significant influence the Route 25 corridor may be having on traffic stop demographics. This highway appears to be somewhat more diverse than the predominantly white local driving age population around town. Route 25 has a relatively high level of enforcement as well as a relatively higher proportion of non-resident minority drivers travelling this roadway. It is a primary travel corridor within the town for business, shopping, and entertainment activities. It also generates a considerable number of calls for service, vehicle crashes, and traffic from surrounding communities, particularly because Route 25 is a major artery for travel between Bridgeport and Danbury.

While white drivers are more likely to be stopped in Monroe than black or Hispanic drivers for more types of hazardous driving behaviors as a proportion of their overall traffic stops, black and Hispanic drivers, conversely, are proportionally more likely to be stopped for vehicle equipment, registration

and other moving violations. Our analysis indicates that this difference could be due to the greater frequency with which these types of violations are enforced on the town's two roadways with high enforcement (Route 25 and Route 111) than in the town as a whole. Minority drivers, particularly non-resident minority drivers, are more likely to be among those in the driving population in these corridors than in the rest of the town. Thus, their greater likelihood of being stopped for these violations may be due more to the fact that these violations are enforced more on the roads where they tend to be driving rather than to an inherently greater likelihood that minority drivers violate these laws with greater frequency than white drivers.

The disparities do not appear excessive in nature, but the department should be aware of how these activities may be affecting its stop demographics. It would benefit from a periodic review of traffic enforcement policies as they relate to enforcement activity along Route 25 and Route 111 in order to evaluate the extent to which they may have a disproportionate impact on minority drivers. The department would also benefit from the evaluation of both the location and frequency of stops for equipment-related motor vehicle violations to better understand the impact they may be having on minority drivers.

I.B. (6): NEWTOWN FOLLOW-UP ANALYSIS SUMMARY

This analysis continues the work of the Racial Profiling Prohibition Project's study of traffic stops conducted since October 1, 2013. This follow-up report focuses on data reported for stops conducted from October 1, 2015 through September 30, 2016. Table 1.0 below compares summary racial data for reported traffic stops in Newtown over a three-year period.

Table 1.0 Newtown Traffic Stops – 2013 - 2016

	2013-2014 Stops		2014-2015 Stop		2015-2016 Stops	
White	8,332	88.6%	8,606	86.4%	4,382	83.8%
Black	471	5.0%	540	5.4%	364	7.0%
AsPac*	130	1.4%	157	1.6%	76	1.5%
AI/AN**	25	0.3%	31	0.3%	38	0.7%
Hispanic	444	4.7%	622	6.3%	369	7.1%
Total	**9,402**		**9,956**		**5,229**	

*Asian Pacific Non-Hispanic
** American Indian/Alaska Native Non-Hispanic

Overview of the November 2017 Traffic Stop Analysis

The November 2017 Traffic Stop Analysis report indicated that for the October 1, 2015 – September 30, 2016 study period the Newtown Police Department made 5,229 traffic stops. Of these, 16.2% were minority stops (7.1% Hispanic and 7.0% black). The annual VOD analysis indicated a statistically significant disparity in the rate that Hispanic motorists were stopped during daylight relative to darkness. Within the inter-twilight window, the odds that a Hispanic motorist was stopped during daylight was 2.3 times larger than the odds during darkness. These results were statistically significant at the 99% level and robust to the inclusion of a variety of controls, officer fixed-effects, and a restricted sample of moving violations. Although certain assumptions have been made in the design of each methodology, it is reasonable to conclude that departments with consistent data disparities separating them from the majority of other departments should be subject to further review and analysis with respect to the factors that may have caused these differences.

Descriptive Analysis of the 2015-2016 Traffic Stop Data

The racial and ethnic disparities in the Newtown Police Department data were studied using a more detailed review of traffic enforcement during the 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. Newtown provided latitude and longitude coordinates that allowed accurate mapping of 90% of their stops. According to the 2010 census, Newtown is a town with approximately 20,792 residents over the age of 16. Approximately 7% of the driving age population in Newtown is identified as a minority. Table 2.0 outlines the basic demographic information for Newtown residents over age 16.

Table 2.0: Newtown Population

Race/Ethnicity	16+ Population Total	% of Population Total
White Non-Hispanic	19,238	92.5%
Black Non-Hispanic	378	1.8%
AsPac Non-Hispanic	451	2.2%
Hispanic	725	3.5%
Other	0	0.0%
Total	**20,792**	

Newtown is the state's second largest town in area with approximately 59 square miles in area and has 244 miles of roadway, which is ranked within the top five for most miles of roadway per town. Interstate 84 runs east to west across the southern part of Newtown from Southbury to Brookfield. Route 6 runs from exit 10 off Interstate 84 west to the Bethel town line. Route 25 also runs from the Monroe town line north to the Brookfield town line. The town is also bordered by Bethel, Brookfield, Easton, Monroe, Redding, and Southbury. The six border towns are predominantly white demographically, with an average driving age white population of 94% (compared to Newtown's white driving age population of 92.5%). Of the drivers stopped in Newtown overall, 31% were Newtown residents and 69% lived elsewhere.

Newtown is divided into five patrol districts: Center, Northeast, Northwest, Southeast, and Southwest. In most cases, state routes are used as natural dividing lines between districts. The police department consists of 45 sworn officers. The Patrol Division is made up of six supervisors and 25 patrol officers. There is also a Traffic Unit, which consists of a supervisor and two officers. The Patrol Division and Traffic Unit are responsible for all traffic complaints, enforcement, and accident response. The Patrol Division is split into three shifts: (1) midnight to 8 a.m. has a minimum of three officers, (2) 8 a.m. to 4 p.m. has a minimum of four officers, and (3) 4 p.m. to midnight has a minimum of four officers. The Traffic Unit rotates their hours weekly to ensure that they can remain responsive to traffic complaints. The Traffic Unit maintains a "hot list" which identifies roadways experiencing motor vehicle issues and/or citizen complaints.

Figure 1.1: Newtown Census Tract Map
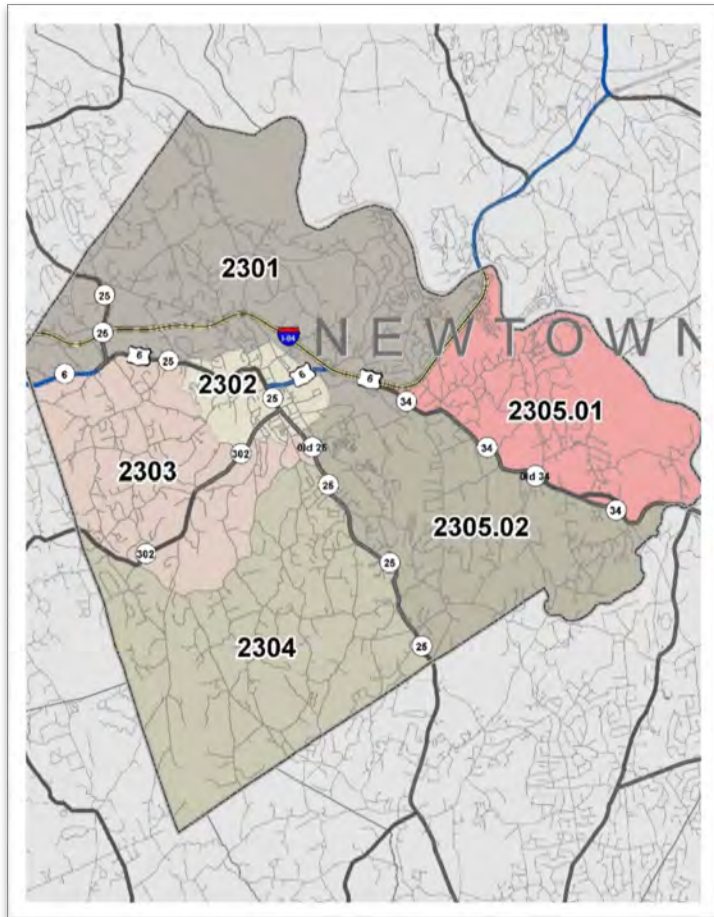
The U.S. Census Bureau divides Newtown into six census tracts. Figure 1.1 is a map that outlines the boundaries of Newtown census tracts, which will be referred to throughout this report. The resident driving age population in each census tract varies from about 1,300 to about 5,300 people, with the largest concentration of people (26% of the total population) in tract 2301. The racial breakdown in each census tract varies with 100% of the black residents living in tract 2305.02. Hispanic residents are distributed throughout five of the six census tracts. Figure 1.2 shows the distribution for each census tract in terms of white and non-white driving age population.

Figure 1.2: Age 16 and Older Resident Population by Census Tract
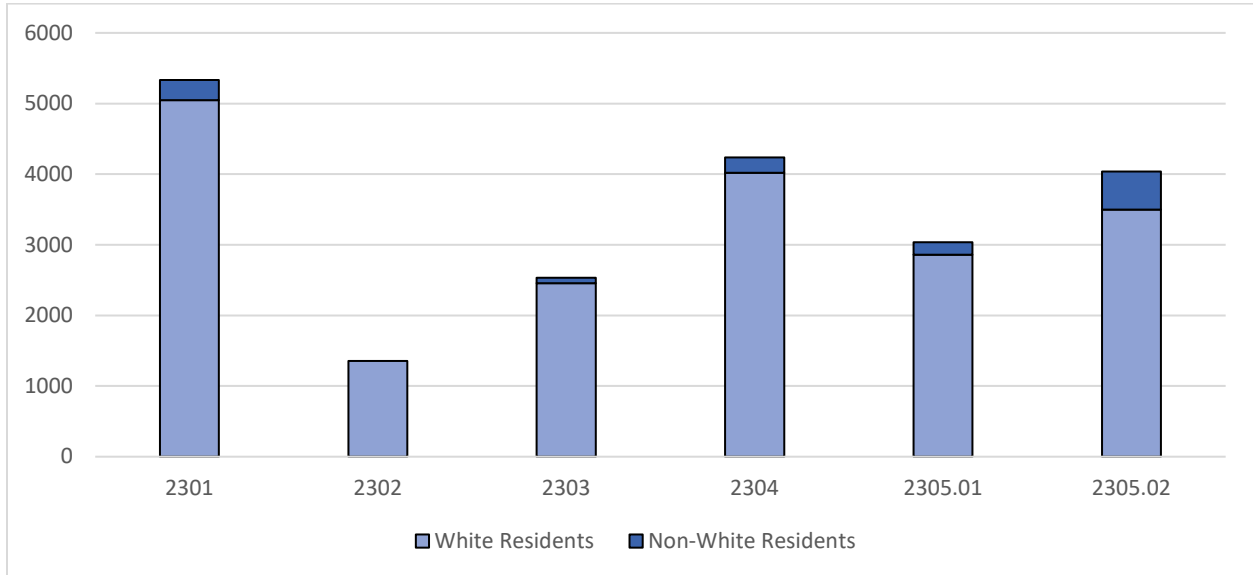

Figure 1.3 illustrates the volume of traffic enforcement that occurred in each Newtown census tract. Census tract 2301 has the largest percentage of traffic enforcement with 24% of the town's traffic stops. Interstate 84 and a large section of Routes 25 run through census tract 2301.

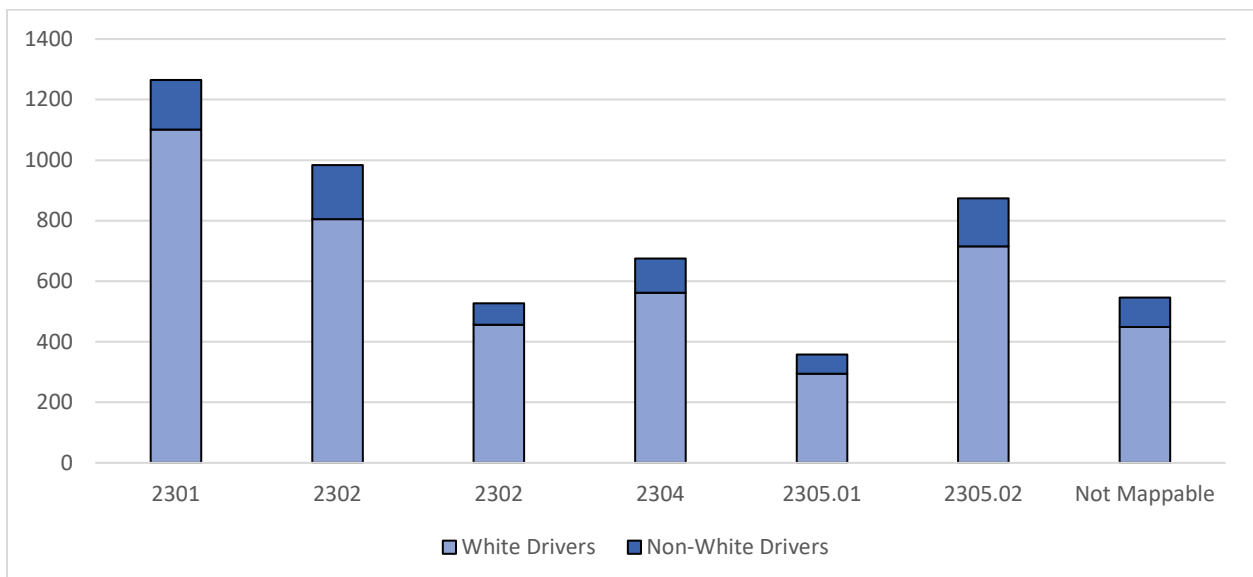**Figure 1.3: Traffic Stops by Census Tract**

Figure 1.4 is a map of traffic stops made in Newtown. The two census tracts that account for 43% of the traffic enforcement activity comprise 33% of the resident driving age population in Newtown. Tract 2301 is the larger of these two tracts with 26% of the town population. The second most heavily populated census tract in Newtown (2304) is located outside the high enforcement activity area. Newtown's overall resident driving age population is 6% minority and 5% of all Newtown residents who were stopped were minority. Over 21% of all non-resident drivers stopped were minority.

Traffic Stop Breakdown by Race/Ethnicity

In Newtown, 16% of all drivers stopped were minority drivers, classified as all non-white drivers, but predominantly black or Hispanic drivers. Newtown's resident population age 16 and older is 6% minority. On its face, this might suggest a wide disparity in the proportion of minority drivers stopped during the study

Figure 1.4: Traffic Stop Map

period. In one sense, this is true, considering that about 6% of the population is minority but 16% of the drivers stopped were minority. However, the racial and ethnic makeup of different areas of Newtown varies by census tract, so the disparities were more pronounced in some areas compared to others.

Figure 2.1 shows the difference between the local black resident population and the black drivers stopped by census tract. Newtown's resident population is 1.8% black. The overall percentage of Newtown traffic stops involving black drivers was 7%. The percentage of black drivers stopped exceeded the town stop average of 7% in four of the six census tracts (2302, 2304, 2305.01, and 2305.02). There was a positive disparity above the resident black driving age population in all census tracts, with the largest disparity in tract 2305.01.

Figure 2.1: Black Population compared to Black Drivers Stopped by Census Tract
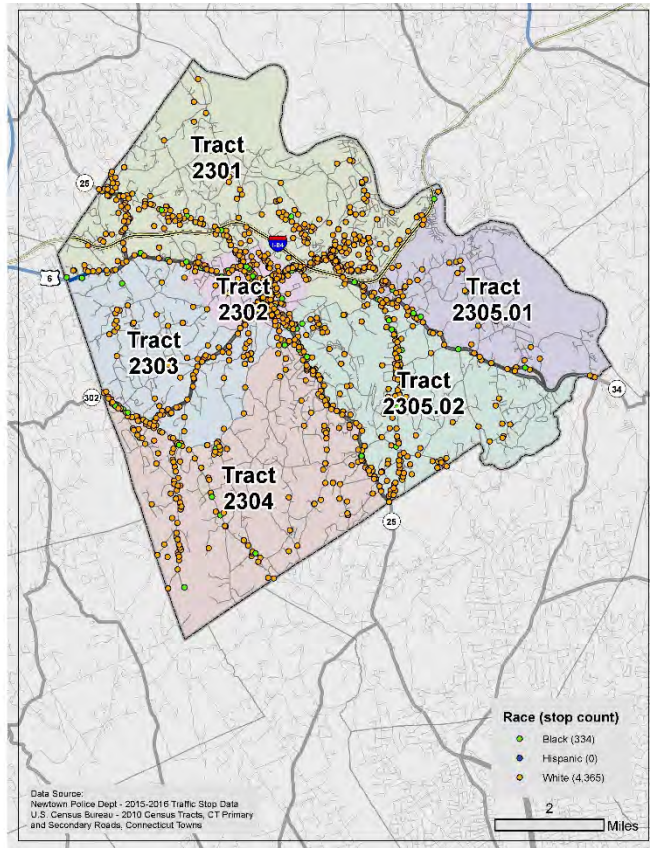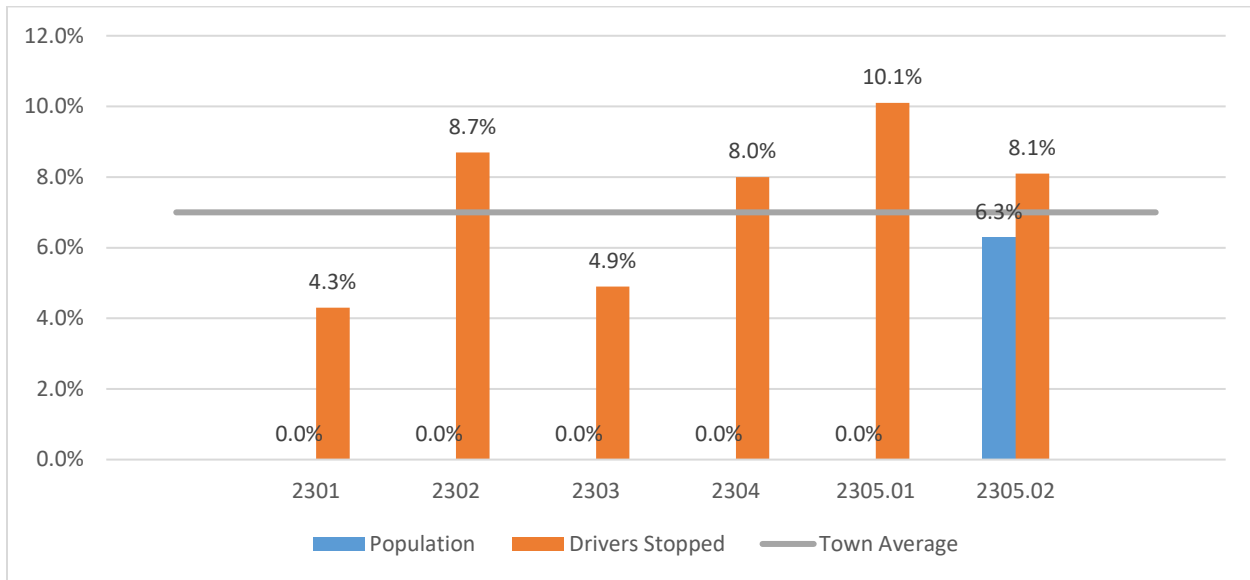

Figure 2.2 shows the difference between the local Hispanic resident population and the Hispanic drivers stopped by census tract. Newtown's resident population is 3.5% Hispanic. The overall percentage of traffic stops involving Hispanic drivers was 7%. The percentage of Hispanic drivers who were stopped exceeded the town average in only one of the six census tracts (2305.02). There was a positive disparity above the resident Hispanic driving age population in all census tracts, with the largest disparity in tract 2302.

Figure 2.2: Hispanic Population compared to Hispanic Drivers Stopped by Census Tract
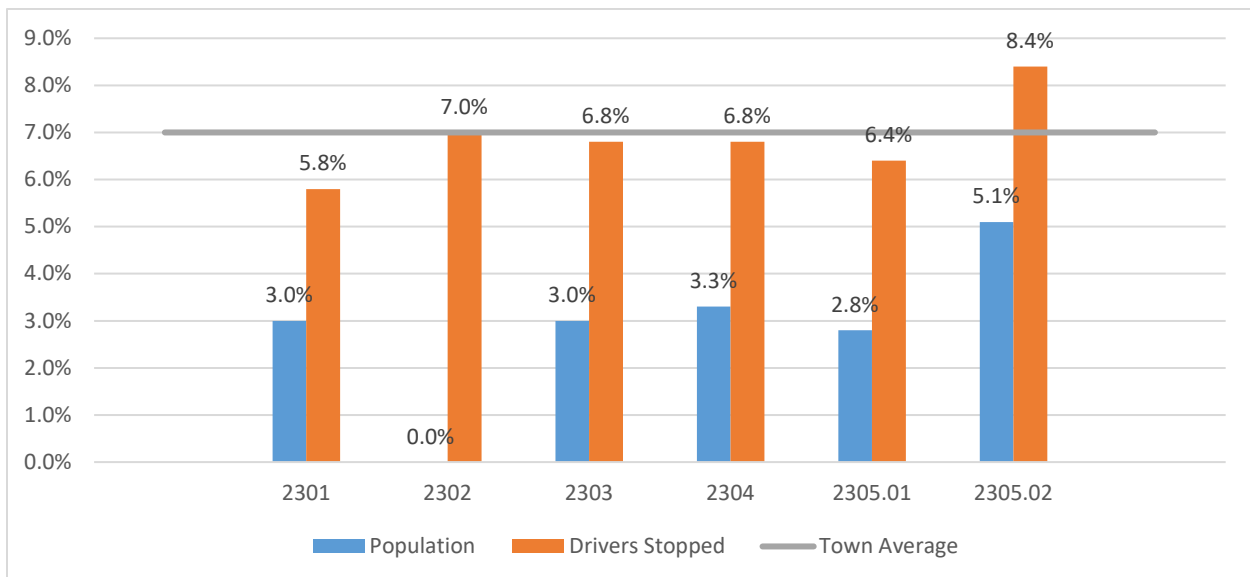
Non-Resident Component of Newtown Traffic Stops

Newtown'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-Newtown residents who make up the majority of people who were stopped in Newtown. Newtown's resident driving age population is estimated as 92.5% white, 3.5% Hispanic, 1.8% black, and 2.2% Asian/Pacific Islander. The demographics of the Newtown residents who were stopped during the study year closely mirrored the demographics for the town. Since 70% of all drivers stopped in Newtown were not residents, out-of-town drivers clearly had an impact on the stop data. The racial breakdown of drivers stopped who were not Newtown residents were as follows: 79% white, 9.2% Hispanic, 9.8% black, 1.5% Asian/Pacific Islander, and 0.7% Indian American. Approximately 91% of Hispanic drivers and 98% of black drivers stopped were not residents, compared to 65% of white drivers.

Newtown has a number of roads and corridors that are used to connect Newtown to its many surrounding communities. This includes corridors such as Route 25, Route 34, and Route 6. In addition, Interstate 84 has three on-ramps and three off-ramps within Newtown. The Route 25, 34 and 6 corridors appear to have a greater percentage of non-town residents stopped compared to other local roadways. Almost 80% of all drivers stopped on these three corridors were not from Newtown, compared to 66% of drivers stopped on all other roadways.

Highway Corridor Analysis

In addition to the census tract-based analysis, we also looked at the highway corridors with the greatest number of traffic stops. These two corridors were South Main Street (Route 25) and Main Street/Mount Pleasant Road (Route 25/6). According to the 2013 average daily traffic (ADT) counts conducted by the Connecticut Department of Transportation, both of these roadways are two of the three most heavily traveled routes in Newtown. Route 34 is the other most heavily traveled roadway, but does not experience the same level of traffic enforcement. Route 25 and 6 overlap from the center of town where Main Street crosses over Church Hill Road and heads west for four miles to the border of Bethel. South Main Street (also known as Route 25) begins at the Monroe border and heads north for five miles to the intersection of Route 6 in the center of town.

A total of 673 traffic stops were made along the Main Street/Mount Pleasant corridor during the study year, which was 13% of the total for the town. The stops made on this roadway included more non- residents than in the town as a whole (77% compared to 70%) and involved a higher proportion of black and Hispanic drivers than the town-wide average. Black drivers accounted for 13% of these stops (compared to the town average of 7%). Hispanic drivers accounted for 9.5% of the stops (compared to the town average of 7%). Over 17% of all the Hispanic drivers and 24% of all black drivers stopped in Newtown were stopped on Main Street/Mount Pleasant Road compared to 11% of white drivers.

There were 626 traffic stops made along South Main Street during the study year, which was 12% of the total stops made in town. The stops made on South Main Street included more non-residents than in the town as a whole (79% compared to 70%) and involved a higher proportion of black and Hispanic drivers than the town-wide average. Black drivers accounted for 9.5% of these stops (compared to the town average of 7%). Hispanic drivers accounted for 10% of the stops (compared to the town average of 7%). Over 18% of all Hispanic drivers and 16% of all black drivers stopped in Newtown were stopped on South Main Street compared to 11% of white drivers.

Special Enforcement Campaigns

Newtown participated in special enforcement campaigns, some that were sponsored by the Connecticut Department of Transportation through funds made available by the National Highway Traffic Safety Administration (NHTSA) and others that were department-wide initiatives. The special enforcement campaigns in which Newtown participated focused on: (1) distracted driving and (2) drinking and driving. The Newtown Police Department was able to identify the months the department participated in the special enforcement campaigns, but not the case numbers for stops made as part of these campaigns. The department reported 301 stops or 6% of all their enforcement during the study period was a result of participating in one of the special enforcement campaigns.

Newtown participated in four DUI Enforcement grant programs that began on October 1, 2015 and ended on September 10, 2016. As part of these campaigns, the department conducted two sobriety checkpoints on Wasserman Way and stopped 252 vehicles. A total of 107 shifts participated in the enforcement grant. Newtown also participated in a distracted driving (cell phone) campaign in April 2016. The department participated for 16 shifts over four operations. They made 49 traffic stops as part of this campaign. Although the department did participate in a number of targeted enforcement campaigns, the overall stop activity likely did not affect the racial disparities identified.

Traffic Stop Distribution for Newtown Officers

Newtown's total of 5,229 traffic stops is comparable to those in other towns of its size. During the study period, traffic stop data was reported for 37 officers. The average number of stops made per officer was 141. Of the 37 officers reporting stops, 12 made fewer than 100 stops, 13 made between 100 and 200 stops, nine made between 200 and 300 stops, and three made over 300 stops. The three officers who made more than 300 stops account for 20% of the total stops. The 12 most active officers making over 200 stops collectively accounted for 60% of all the Newtown stops. This indicates the extent to which a relatively small portion of the officer force influenced Newtown's stop data.

Post-Stop Outcome Review

Reason for Stops
The reasons police stop a motor vehicle can vary significantly from department to department depending, among other things, on a department's overall philosophy on the purpose of traffic enforcement. We reviewed the statutory authority that Newtown officers reported as the reason for stopping motor vehicles. The three most common reasons used for stopping a motorist in Newtown account for over 65% of the total stops. The three largest stop categories were for speeding violations (46%), cell phone violations (9.5%), and stop sign violations (9%). Although the disparities appear to be small, 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 violations than white drivers as a percentage of their total stops. Figure 3.1 illustrates the reason officers used to stop a motor vehicle by race and ethnicity.

Figure 3.1: Reasons for Traffic Stop
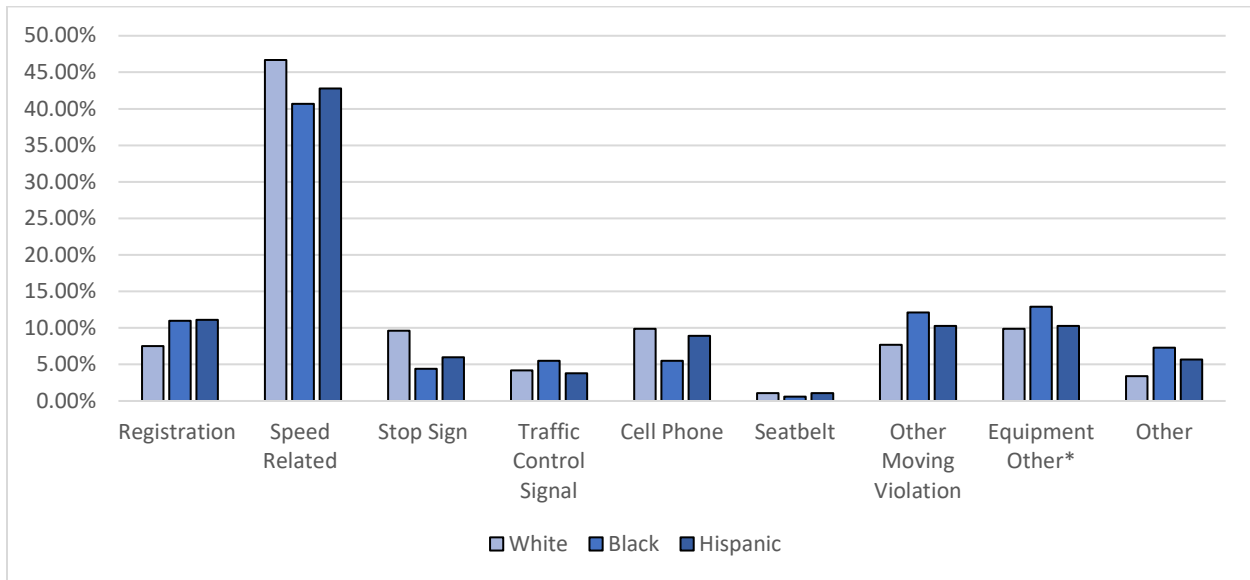
*Equipment Other includes violations for defective lights, excessive window tint, or display of plate violations.

The data shows that the reason for stopping vehicles can vary by census tract. For example, in two of the three census tracts with the highest levels of enforcement (2301 and 2305.02), speed-related traffic stops account for approximately 60% of all stops. On the other hand, only 31% of the stops in the other high enforcement census tract (2302) were for speeding violations. This appears to be driven by the fact that the nature of the roadways is different in each census tract. Census tract 2301 includes a large portion of Route 6 (Mount Pleasant Road) and Currituck Road, which connects Newtown to Brookfield. Census tract 2305.02 includes South Main St. (Route 25) which appears to have the largest traffic volume of any corridor in Newtown. Census tract 2302 covers a much smaller geographical area and includes the town center. The make-up of roadways within census tract 2302 makes it less conducive for speed enforcement. Figure 3.2 is a map of traffic enforcement for safety-related motor vehicle stops. Stops made for speed, stop sign, traffic light, cell phone or moving violations were labeled "safety-related" stops.

Figure 3.2: Safety-Related Motor Vehicle Stops
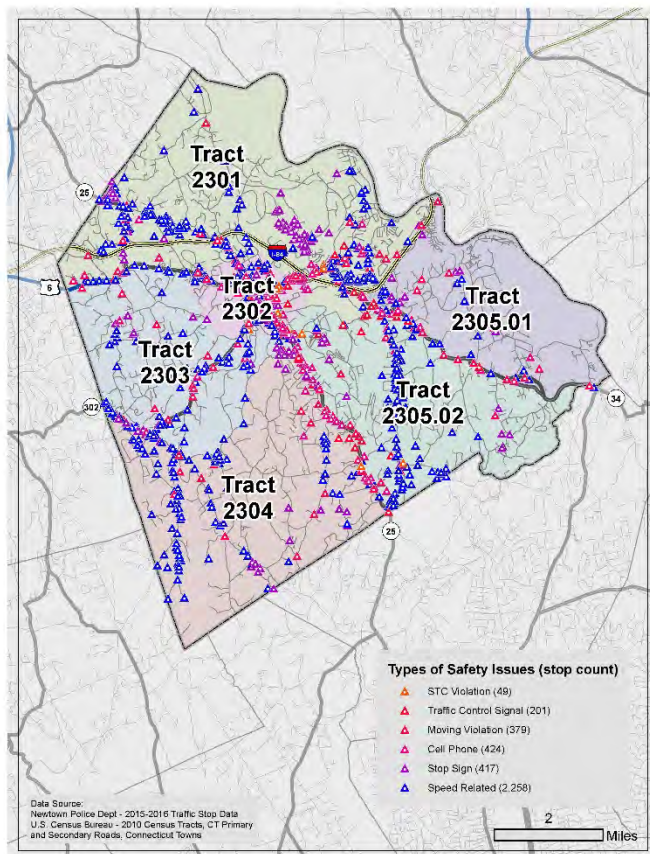
Of the three high enforcement census tracts, the data illustrates that equipment-related motor vehicle enforcement is more highly concentrated in census tract 2302, where 37% of all equipment-related stops were made. Over 18% of all stops in census tract 2302 were the result of an equipment- related violation compared to 7% of tract 2301 and 6.5% in tract 2305.02. It is worth noting that over 25% of all black drivers were stopped in tract 2302, which represents the area with the largest percentage of black stops. The data shows that, with respect to the racial and ethnic demographics of those stopped, equipment-related stops (defective, improper, or inoperative lighting; display of plates; or window tinting) are closely related to the frequency and location of where the stops are made. When these types of stops are 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. Given this information, it is unsurprising that there

Figure 3.3: Equipment-Related Motor Vehicle Stops

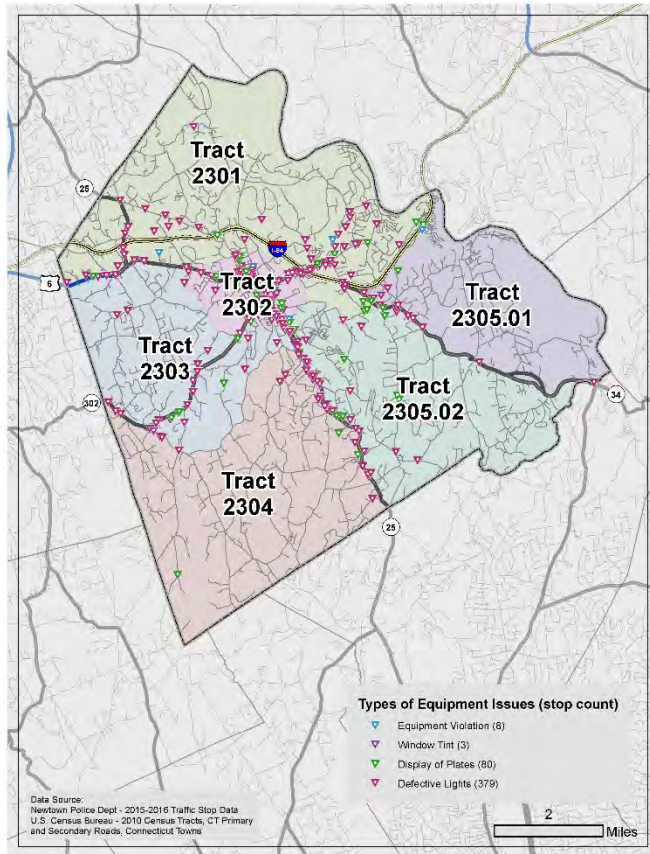would be a small disparity in equipment-related stops for black drivers. Figure 3.3 is a map of traffic enforcement for equipment-related motor vehicle stops. Stops for defective lights, window tints, or display of plate were labeled "equipment-related" violations.

Outcome of Stops

The majority of motor vehicle stops in Newtown resulted in the driver receiving a warning (67%). Black and Hispanic drivers were more likely to receive a misdemeanor summons as a percentage of their total stops. Hispanic drivers were more likely to be charged with an infraction compared to white and black drivers, but less likely to receive a warning. Figure 3.4 shows the outcome of motor vehicle stops by race and ethnicity.

Figure 3.4: Outcome of Traffic Stop

Most violations of the motor vehicle laws are designated as infractions but some are not. The more serious violations can be reckless driving, operating under a license suspension, operating under the influence of alcohol or drugs, and operating an uninsured or underinsured vehicle. The system for collecting and reporting traffic stop data requires officers to record the statutory citation for the violation that was the basis for the stop as well as any subsequent charges that differed from and were more significant that the initial charge. This gives an analyst the data on the initial cause for making a stop as well as any subsequent, more serious charge. For example, if someone was initially stopped for a lesser reason such as not wearing a seat belt or rolling through a stop sign, the officer might subsequently determine that the driver was operating with a suspended license. If this information is properly recorded, it is possible to distinguish those stops from the ones that begin and end with the same charge.

A total of 145 traffic stops resulted in issuing the driver a misdemeanor summons (2.8%). This was lower than the statewide average of 4.8% for stops resulting in misdemeanor charges. When considered as a proportion of their total stops, black drivers were more than twice as likely and Hispanic drivers were almost three times as likely to be issued a misdemeanor summons as a result of the stop as were white drivers (5% of all black drivers stopped and 6.5% of all Hispanic drivers stopped compared to 2.3% of all white drivers stopped). Of these stops, 113 were initiated for a reason that was not a misdemeanor violation (e.g. speeding, stop sign violation, defective or improper lighting, etc.) However, once the officer interacted with the operator of the vehicle a misdemeanor violation was identified. The vast majority of these stops were for a license or registration related issue and driving under the influence of alcohol or drugs. In particular, 39% of the misdemeanor stops resulted in a charge of operating with a suspended or revoked license. Almost 16% of the misdemeanor stops resulted in a charge for driving under the influence of alcohol or drugs. Unlike many infraction violations, officers do not have discretion in the issuance of a misdemeanor summons when a misdemeanor violation is identified.
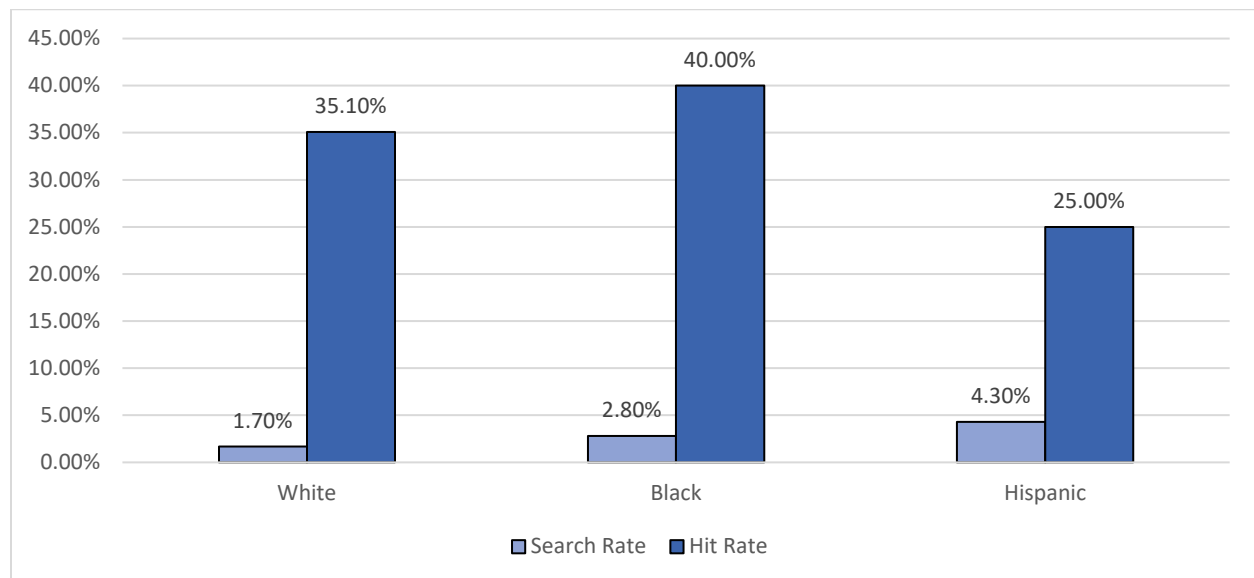
Search Information

A review of department search information shows that 1.9% (100) of the drivers stopped in Newtown were subjected to a motor vehicle search. This rate of motor vehicle searches is lower than

the state's 3% average. Black and Hispanic drivers were searched at a higher rate than white drivers were. Of the 100 vehicles searched, 30% were subjected to an inventory search (compared to 21% statewide), 4% were subjected to a consent search (compared to 37% statewide), 50% were subjected to a search for some other reason (compared to 40% statewide), and officers did not report the search authority in 16% of the cases.

Further analysis of the Newtown search data has revealed that the department's inventory search policy may have an 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. Hispanic drivers were significantly more likely to be searched as a result of an inventory search than white or black drivers were (56% of Hispanic drivers compared to 26% of white drivers and 20% of black drivers). During inventory searches contraband was found 17% of the time compared to 54% of the time for all other searches. Since inventory searches tend to produce contraband hits less frequently than other types of searches, the greater prevalence of inventory searches for Hispanic drivers influences the overall distribution demographics of the search hit rate for Newtown to some degree. However, given the relatively small number of searches conducted, these differences are not significant. Figure 3.5 illustrates the motor vehicle search rate and the rate at which contraband was found (the "hit rate").

Figure 3.5: Search and Hit Rate

Calls for Service and Citizen Complaints

Law enforcement administrators choose to deploy police resources within a community based on a number of different factors, including where calls for service are more prevalent. The department provided researchers with the calls for service log, which included calls for service and officer initiated actions that were called into police dispatch. The logs include approximately 20,059 entries from October 1, 2015 through September 30, 2016, excluding traffic stops. The top reasons for calling dispatch were for a building check (55%), suspicious activity (8%), or a response to an alarm (6%).

These top three reasons account for about 69% of all calls. Unfortunately, the information provided in the call logs was in summary form and did not identify the information by specific location.

Newtown not only deploys resources based on areas with higher call for service volume, but the traffic division is also responsible for responding directly to citizen traffic complaints. According to the department, citizens regularly attend the Police Commission meetings to lodge complaints with the commission, which serves as the local traffic authority for the town. The Traffic Unit collects and maintains a list, which identifies roadways that are experiencing motor vehicle issues or areas where traffic enforcement is requested as the result of a citizen complaint. The Traffic Unit prepares a monthly activity report that outlines their enforcement actions.

Additional Contributing Factors

In addition to calls for service, law enforcement administrators also distribute police resources within a community based on accident rates, or where crime rates are higher. In addition to these factors, police presence may be greater where traffic volume is higher as the result of common factors that draw people into a community such as employment and entertainment. Traffic enforcement actions are likely to be more prevalent in locations that attract greater police presence due to some of these factors. Basic information on crime, accidents, and other economic factors associated with Newtown provide a context to potentially explain the rational for police deployments that are important considerations.

According to the Connecticut Economic Resource Center (CERC) town profiles, approximately 8,565 people work in Newtown and its major employers include Garner Correctional Facility, Charter Communications, Masonicare at Newtown, and Taunton Press. The vast majority of commuters traveling into Newtown for employment are from Danbury, Southbury, Bethel, and New Milford. The overall unemployment rate is 4.4%, which is below the unemployment rates for Fairfield County and the state.

In 2016, the crime rate in Newtown was reported to be 33 per 10,000 residents, compared to the state crime rate of 204 per 10,000 residents. According to the 2016 Connecticut Uniform Crime Report[8], there were 87 reported crimes in Newtown in 2016, 67% of which were larcenies. The three most reported crimes were larceny (58), burglary (20), and motor vehicle theft (5).

During our study period, there were approximately 608 motor vehicle accidents on roads patrolled by the Newtown Police Department. Accidents were reported as occurring on 108 roads. The roadways with the highest number of accidents were South Main St. (99 accidents), Church Hill Rd. (70 accidents), and Berkshire Rd. (61 accidents). There were only 13 roads with 10 or more accidents and those roads account for 69% of all accidents in Newtown. Figure 4.1 illustrates the time of day when traffic accidents were reported and the number of traffic stops that occurred during that same period. This illustrates how closely traffic enforcement is correlated with traffic accidents in Newtown. While the vehicle crash rate tends to build steadily throughout the day in Newtown, it peaks during the evening commute period from 3:00 p.m. to 6:00 p.m.

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[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: the violent crimes of murder, rape, robbery, and aggravated assault and the property crimes of burglary, larceny-theft, and motor vehicle theft.

Figure 4.1: Accidents Compared to Traffic Stops by Time of Day
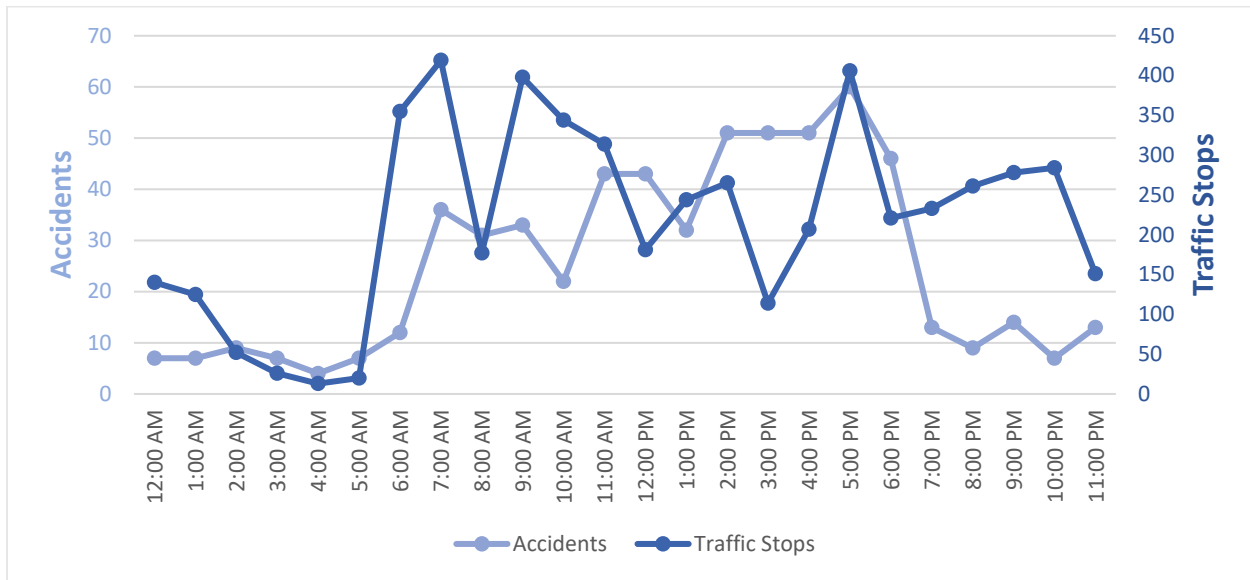
Summary of Findings

The Newtown Police Department identified factors they believe contributed to the disparity identified in the initial analysis of traffic stops. In particular, the department identified Route 25, Route 6, and Route 34 as major traffic generators for the town. Interstate 84 also has a significant impact on traffic through Newtown with three on-ramps and off-ramps. Areas with the highest levels of traffic appear to be some of the same areas with the highest levels of motor vehicle enforcement. The department also indicated the impact that reported incidents of crime and accidents in the high enforcement census tracts have had on the deployment of departmental resources.

The two major roadways where significant amounts of traffic enforcement occurred (Main Street/Mount Pleasant Road and South Main Street) account for almost 25% of all traffic stops in Newtown. Approximately 11% of the stops involved black drivers and 10% of the stops involved Hispanic drivers. Main Street/Mount Pleasant Road and South Main Street are two of the three major travel routes for traffic to and from surrounding communities. Non-resident minority drivers made up at least 22% of those stopped on these roads. It is evident from the number of traffic stops made on these roadways that departmental resources are concentrated in these areas.

Newtown has a small non-white driving age population with about 3.5% Hispanic residents and 2% black residents. Almost 76% of all Hispanic residents live in three census tracts (2301, 2304, and 2305.02) and 100% of black residents live in only one census tract (2305.02). Census tract 2305.02 is the only tract with a minority population above the town average of 6%. Sixty percent of Newtown's stops occurred in three census tracts (2301, 2302, and 2305.02). The traffic enforcement within these three census tracts is primarily driven by activity on Route 25, Route 6, and the center of town.

Newtown'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 the highest levels of traffic enforcement. Census tract 2304 has the second largest resident population at 21%, but accounts for only 13% of traffic enforcement. On the other hand, census tract

2302 has the smallest resident population at 7%, but accounts for the second highest traffic enforcement area with 19% of stops.

Newtown has a low non-white driving age resident population and a relatively large proportion of non-Newtown residents who make up the majority of people (70%) stopped in town. The demographics of the Newtown residents who were stopped during the study period closely mirrored the demographics for the town. However, the racial demographics for drivers stopped who were not Newtown residents was significantly more diverse. It is clear from the data that out-of-town minority drivers had the largest impact on the racial disparity. Approximately 91% of Hispanic drivers and 98% of black drivers stopped were not town residents compared to 65% of white drivers. The three major corridors that connect Newtown to surrounding communities (Route 25, Route 6 and Route 34) have a significantly greater percentage of non-town residents stopped compared to other local roadways.

Lastly, Newtown has 37 officers who made at least one traffic stop during the study period. The average stops made per officer was 141, but 12 officers making over 200 stops each (32% of the officer force) accounted for 60% 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

In Newtown, the three most common reasons used for stopping a motorist make up 64% of the total stops. The three largest stop categories were for speeding violations (46%), cell phone violations (9.5%), and stop sign violations (9%). White non-Hispanic drivers were more likely than were either black or Hispanic drivers 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. 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.

Equipment-related motor vehicle enforcement was most highly concentrated in census tract 2302, with 37% of all equipment-related stops. This census tract covers the center of town where Route 25 and Route 6 intersect. It is also where over 25% of all black drivers are stopped, which is the area with the largest percentage of black stops in town. In the other areas where these stops were made and the driving population appears to have a higher percentage of white drivers, there was a greater proportion of white drivers stopped for these violations. 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.

Overall, almost 67% of all drivers stopped received a warning. Stops involving Hispanic drivers were more likely to result in an infraction citation than either white or black drivers but less likely to result in a verbal or written warning. The proportion of Newtown's traffic stops that resulted in a misdemeanor summons (2.8%) was below the state average of 4.8%, but black and Hispanic drivers were more likely to receive a misdemeanor summons than white drivers were. The majority of the

stops that resulted in a misdemeanor charge were initiated for a reason that was not initially a misdemeanor violation. However, once the officer interacted with the operator a misdemeanor violation was identified. Most of the misdemeanor charges were for a license or registration related issue. Unlike many infraction violations, officers do not have discretion in the issuance of a misdemeanor summons when such a violation is identified.

Newtown police searched 1.9% of drivers they stopped, which was below the state average of 2.9%. Black and Hispanic drivers were searched at a higher rate than white drivers were. The Newtown inventory search policy appeared to effect its overall search numbers. Over 30% of all searches were the result of an inventory search and Hispanic drivers were searched more frequently because of this policy. Since inventory searches tend to produce contraband at a lower rate, the greater prevalence of inventory searches for Hispanic drivers influenced the overall demographics of the search-hit rate. Compared to white drivers, the rate of contraband found was slightly higher for black drivers and lower for Hispanic drivers. However, given the relatively small number of searches conducted and the influence of the inventory search policy, these differences are not significant.

Conclusion

Taken as a whole, the Newtown traffic stop data reflects the influence of the Route 6 and Route 25 corridors that appears to be somewhat more diverse than the predominantly white local driving age population. These roadways appear to have a relatively high level of enforcement and a relatively higher proportion of non-resident minority drivers travelling them. Based on our review of additional data, we have determined that the relative disparities in Newtown appear to be due to three basic factors:

(1) the relatively high levels of enforcement in three census tracts (2301, 2302, and 2305.02), with significant traffic volume, and which coincide with both the largest local resident minority driving age populations and the highest likelihood that relatively high proportions of non-resident minority drivers are traversing the area because of the nature of traffic passing through Newtown to surrounding communities along Route 6 and Route 25;

(2) the presence of significant traffic magnets along the Route 6 and Route 25 corridors that generate a considerable number of calls for service, vehicle crashes, and traffic from surrounding communities; and

(3) the use of equipment-related motor vehicle stops that disproportionately affected minority drivers.

After a full review, the disparities do not appear excessive in nature, but the department would benefit from a periodic review of traffic enforcement policies as they relate to enforcement activity along Route 6 and Route 25 in order to evaluate the extent to which they may have a disproportionate impact on minority drivers. The department would also benefit from the evaluation of both the location and frequency of stops for equipment-related motor vehicle violations to better understand the impact they may be having on minority drivers.

Department Response

Below is a response provided by Newtown Police Chief, James Viadero.

Department of
Police Services
Three Main Street
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James M. Viadero
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TOWN OF NEWTOWN

Ken Barone
Project Manager
Institute for Municipal and Regional Policy
Central Connecticut State University
New Britain, Ct

September 26, 2018

Mr. Barone;

Thank you for providing me with the updated Follow-up Analysis Summary for the Newtown Police Department. As indicated in your correspondence you requested a response to (3) specific questions pertaining to the initial study and follow-up. Hopefully the responses below are helpful in the furtherance of your studies.

Question#1

What was learned?

As a result of working with your Institute a further understanding of the methodology and rational behind the annual study was provided to this agency. Shortly after meeting with you and a member of your Institute my command staff was able to ask questions, provide details on our agency's enforcement practices and concerns with the findings of the initial report. This dialogue resulted in a month's long endeavor of providing additional statistics on our town, enforcement practices, areas that enforcement are focused on and the rationale behind focusing certain areas.

As initially discussed at the first meeting, this agency believed that the actual driving population of Newtown was not accurately accounted for in the census data utilized to approximate this population. Through collaboration your Institute was able to understand the driving demographics of Newtown and the impact that I-84 and other main routes have on our enforcement practices. Through the data provided and through interviews of staff it was determined that "non-resident minority drivers traverse the area because of the nature of traffic passing through Newtown to surrounding communities along Route 6 and 25".

james.viadero@newtown-ct.gov

As the Chief of Police data is an important factor in deploying resources and gauging the effectiveness and impact that we have on the community we serve. Gaining a full understanding of the study, allowing for a collaborative interaction between the Institute and this agency surely aided in the furtherance of this goal.

Question#2

What changes were made?

As a result of the initial study my staff reviewed the training provided pertinent to the racial profiling data sheet and other areas of concern on the collection of the data. Roll call training was conducted on the importance of this data collection, clearing up any vagaries or concerns on how the data should be collected and when the data form needs to be done, assuring that accurate data is being collected.

Additionally, the content of the initial report was shared with all sworn staff and discussed at roll call in an effort to educate the officers on the content and process the study followed. As in other areas of law enforcement a training opportunity always presents itself and improvements can be made. The final report will be reviewed and if warranted changes and training implemented.

Question #3

Is there any information for the community to consider?
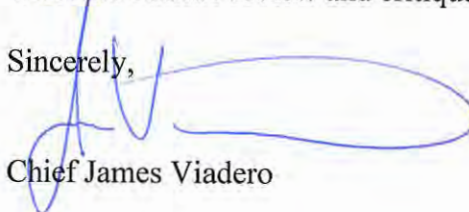
Transparency and accountability are two main elements that an agency continually attempts to accomplish on behalf of the community they serve. The initial report and final analysis serve as a tool that allows the public to see how the agency operates and why traffic enforcement is a key element to public safety. Hopefully these reports and detailed analysis allow the community to understand our enforcement practices and the effectiveness of this agency.

In conclusion, the initial report was concerning to me as the Chief of this agency. There was not a clear understanding of the methodology and a great deal of misinformation on how the data is analyzed and compiled. The main concern of any law enforcement executive or police officer is to provide fair and impartial policing to the community they serve.

The process of further analysis and working collaboratively with the researchers provided a greater understanding of the process. In particular allowing this agency to explain its enforcement practices and to demonstrate that the driving population is influenced by the main routes and interstates that traverse the Town, and not solely based on census data and statistics. One major source of criticism of the report is that the report is published and released prior to a detailed follow-up. I believe that doing a follow-up analysis on the agencies identified as statistically out of the norm prior to release will establish a sense of legitimacy on all sides. It is my understanding after attending the last committee meeting that this is the process that will be adhered to going forward.

Lastly, I feel confident that the data analyzed in the study pertaining to Newtown officers confirmed that "None of the officers were identified as having been statistically more likely to stop a minority motorist than their benchmark". While this benchmark alone is not indicative as a whole of the effectiveness of the agency, it does demonstrate that there are no officers acting inappropriately. As the Chief of the Newtown Police Department I welcome outside review and critique and look forward to working with the Institute in the future.

Sincerely,

Chief James Viadero

I.B. (7): NORWICH FOLLOW-UP ANALYSIS SUMMARY

This analysis continues the work of the Racial Profiling Prohibition Project's study of traffic stops conducted since October 1, 2013. This follow-up report focuses on data reported for stops conducted from October 1, 2015 through September 30, 2016. Table 1.0 below compares summary racial data for reported traffic stops in Norwich over a three-year period.

Table 1.0: Norwich Traffic Stops – 2013 - 2016

	2013-2014 Stops		2014-2015 Stops		2015-2016 Stops	
White	4,327	62.5%	3,678	61.7%	3,757	60.8%
Black	1,367	19.8%	1,120	18.8%	1,275	20.6%
AsPac*	315	4.6%	270	4.5%	217	3.5%
AI/AN**	7	0.1%	16	0.3%	12	0.2%
Hispanic	903	13.1%	875	14.7%	922	14.9%
Total	**6,919**		**5,959**		**6,183**	

*Asian Pacific Non-Hispanic, ** American Indian/Alaska Native Non-Hispanic

Overview of the November 2017 Traffic Stop Analysis

The November 2017 Traffic Stop Analysis report indicated that for the October 1, 2015 – September 30, 2016 study period the Norwich Police Department made 6,183 traffic stops. Of these, 39.2% were minority stops, of which 15% were Hispanic drivers and 20.6% were black drivers. The annual VOD analysis indicated a statistically significant disparity in the rate that Hispanic motorists were stopped during daylight relative to darkness. Within the inter-twilight window, the odds that a Hispanic motorist was stopped during daylight was 1.6 times larger than the odds during darkness. These results were statistically significant at the 99% level and robust to the inclusion of a variety of controls, officer fixed-effects, and a restricted sample of moving violations. The synthetic control analysis and post-stop analysis did not reveal a statistically significant disparity. The results of these analyses indicated that further investigation into the source of the observed statistical disparity in Norwich was warranted to determine the factors that may be causing these disparities.

Descriptive Analysis of the 2015-2016 Traffic Stop Data

The racial and ethnic disparities in the Norwich Police Department data were studied using a more detailed review of 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 23% of the traffic stops reported. Due to the lack of detailed location information available in Norwich for the majority of stops, the census tract-based analysis was replaced by a descriptive analysis of major corridors and roadways. The location information typically identified the road where the traffic stop took place, 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 75% of traffic stops in Norwich are made on 11 roadways and more specifically, two roadways account for 38% of all stops.

We also supplemented the corridor analysis with visuals from the stops that we could map. Although this accounts for less than one quarter of the stops conducted during our study period, it still helps to illustrate overall traffic enforcement trends.

According to the 2010 census, Norwich is a town with approximately 31,638 residents over the age of 16. Approximately 29% of the driving age population in Norwich is identified as a minority. Table 2.0 outlines the basic demographic information for Norwich residents over age 16.

Table 2.0: Norwich Population

Race/Ethnicity	16+ Population Total	% Population Total
White Non-Hispanic	22,434	70.9%
Black Non-Hispanic	2,835	9.0%
AsPac Non-Hispanic	2,551	8.0%
Hispanic	3,351	10.6%
Other	467	1.5%
Total	**31,638**	

Norwich is approximately 28 square miles in area and the Yantic, Shetucket, and Quinebaug Rivers flow into the city to form the harbor from which the Thames River flows south to the Long Island Sound. Norwich is divided into several neighborhoods that have maintained independent identities. There are 16 different neighborhoods that make-up the city including: Bean Hill, Downtown, Westside, Eastside, Greeneville, Jail Hill, Laurel Hill, Norwichtown, Occum, Ox Hill, Plain Hill, Taftville, Thamesville, City Hall Square, Broadway, and Yantic.

Interstate 395 (I-395) runs from the border of Montville to the north where it crosses Route 2 and continues northeast to the border of Lisbon. I-395 begins in East Lyme as it branches off Interstate 95 east towards New London. It is a relatively rural interstate roadway and passes Route 2A, which provides access to the Mohegan Sun Casino. Interstate 395 is approximately nine miles in length through the city of Norwich. The second major state highway in Norwich is Route 2, which is a primary state route connecting Hartford to Norwich. Route 2 enters Norwich from Bozrah where it joins Route 32. The roadway continues east where it intersects with I- 395 and ends as a limited access highway at the intersections of Town Street, Harland Road, and Washington Street. Route 32 separates from Route 2 in downtown Norwich where it continues south along the Thames River while Route 2 continues east into Preston and Ledyard. Route 2 is a major corridor to the Foxwoods Resort and Casino in Ledyard.

Six other municipalities share a common border with Norwich: Franklin, Sprague, and Lisbon to its north, Preston to its east, Montville to its south, and Bozrah to its west. Five of the six border towns are almost entirely white demographically, with an average white driving age population of 99%. The proportion of Montville's white population (79%) is smaller than that of the other five border towns. However, these are all significantly above the white driving age population of Norwich. Approximately half of the drivers stopped in Norwich during the study year were not residents of the town. Less than 38% of the black drivers stopped and 47% of the Hispanic drivers stopped were not residents compared to 56% of the white drivers who were nonresidents.

Although we do not conduct an analysis by census tract, it is still helpful to understand the racial make-up of different sections of the town, as evidenced in the census tract data. The U.S. Census

Bureau divides Norwich into nine census tracts. Figure 1.1 is a map that outlines the boundaries of Norwich census tracts. The resident driving age population in each census tract varies from about 2,000 to about 4,400 people, with the largest concentration of people (14% of the total population) in tract 6967. The racial breakdown in each census tract varies, from a high of over 48% minority driving age residents in census tract 6968 to a low of only 5% in tract 6963. A large portion of the minority population in Norwich resides in the three census tracts directly to the west of the Thames River. Within tracts 6964, 6967, and 6968, 58% of all the driving age black residents and 60% of all the driving age Hispanic residents of Norwich live. Figure 1.2 shows the distribution for each census tract in terms of white and non-white driving age population.

Figure 1.2: Age 16 and Older Resident Population by Census Tract

Figure 1.1: Norwich Census Tract Map
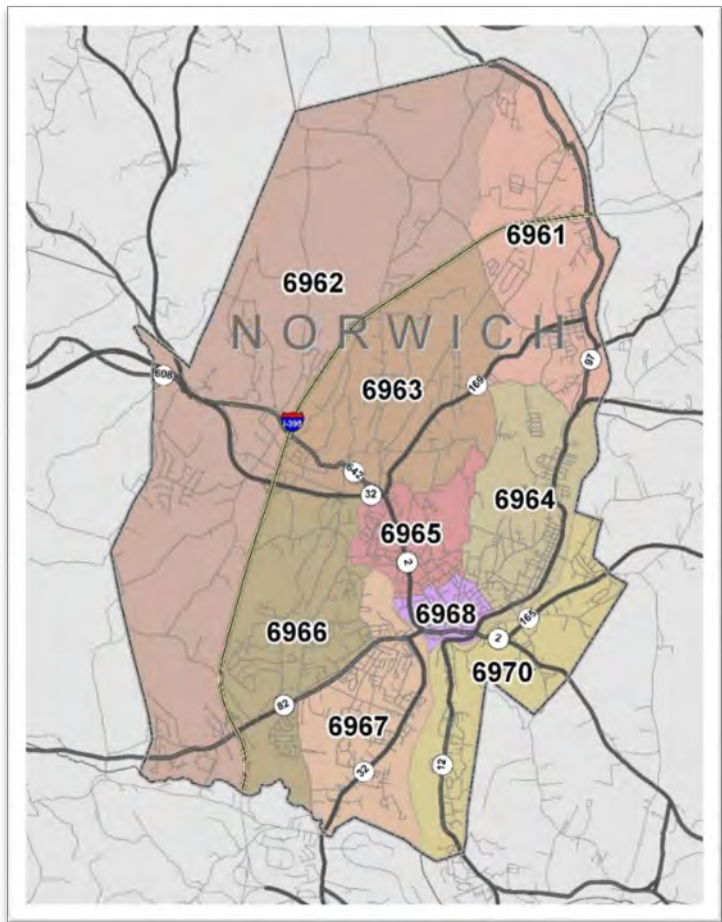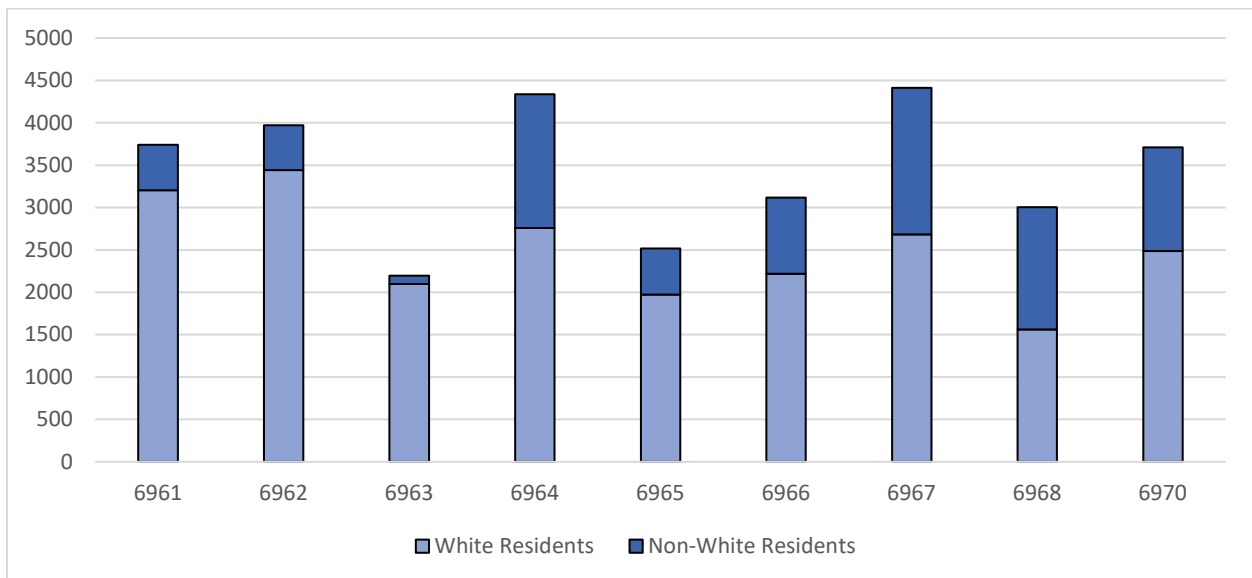
Researchers were able to identify 14 roadways in Norwich that account for 81% of traffic stop locations. More than 100 stops were conducted on each of these 14 roadways; all other roads in town

contributed fewer than 100 traffic stops. In particular, the Route 82/West Main Street and Route 2/Washington Street corridors account for 38% of all traffic enforcement in town. Therefore, this analysis of traffic enforcement in Norwich will largely focus more on these roadways rather than on census tracts, although some references to the census tract data are included.

Figure 1.3 illustrates the volume of traffic enforcement that occurs on each of the 14 identified roads. The Route 82 corridor accounted for 22% of Norwich traffic stops. The Washington Street/Route 2 corridor accounted for 16% of the traffic stops. The next largest group of stops occurred on New London Turnpike, East Main Street, and North Main Street. Taken together, these three roads accounted for almost 18% of Norwich's stops. The following analysis focuses primarily on the Route 82 corridor and the Washington Street/Route 2 corridor.

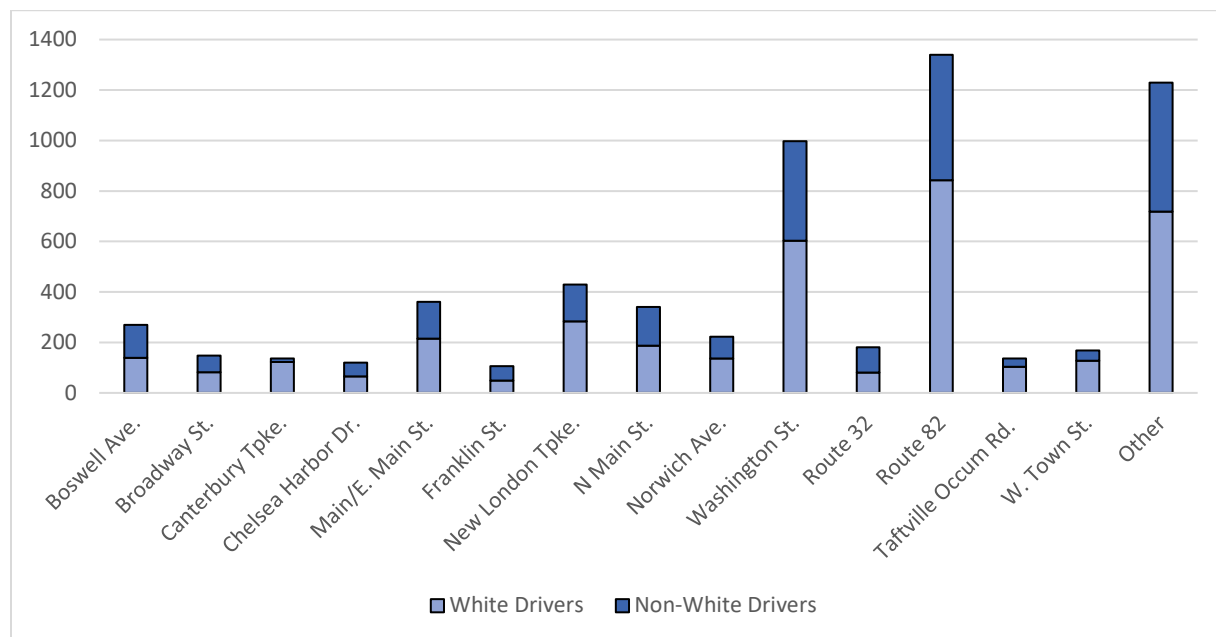**Figure 1.3: Traffic Stops by Major Roadway**

Figure 1.4 is a map of the 24% of traffic stops made in Norwich that could be mapped. Although we were unable to map the majority of stops, the stops that we could map follow a similar trend shown in the data for unmapped stops. It is clear from the image that the majority of traffic enforcement occurs on Route 82 and Washington Street.

## Traffic Stop Breakdown on Route 82

Twenty-two percent of all traffic stops in Norwich occurred on Route 82. Route 82 is a four lane roadway that runs from the southwest corner of Norwich near Bozrah north to where it intersects with Route 2 in the center of town. The entire roadway is approximately three miles long and includes shopping centers, entertainment, and retail along most of the route. Route 82 is referred to as West Main Street from Route 2 south until it crosses the New London Turnpike where it becomes the Salem Turnpike to the border of town.

To help understand traffic flow on Route 82, the analysis looked at the average daily traffic (ADT) records that are reported by the Connecticut Department of Transportation (DOT). DOT is responsible for collecting traffic volume information for state and local roads throughout the state by placing counting stations at different points along the roadway for a period to count the cars that drive through that point. According to the ADT information for Route 82, traffic starts to pick up around 5:00 a.m. and steadily increases throughout the morning commute. Traffic volume remains steady throughout the afternoon and peaks during the evening commute. Starting around 6:00 p.m., traffic volume steadily decreases overnight.

Figure 2.1 is a graph of traffic flow compared to traffic enforcement on Route 82. Traffic flow on Route 82 peaks during the evening commuting hours, but the roadways remains busy all afternoon. Traffic enforcement peaks were offset somewhat from the commute peaks, with enforcement peaks from 8:00 a.m. to 10:00 a.m. and 4:00 p.m. to 7:00 p.m. However, by far the most active enforcement period on Route 82 was from midnight to 2:00 a.m.

Figure 1.4: Traffic Stop Map
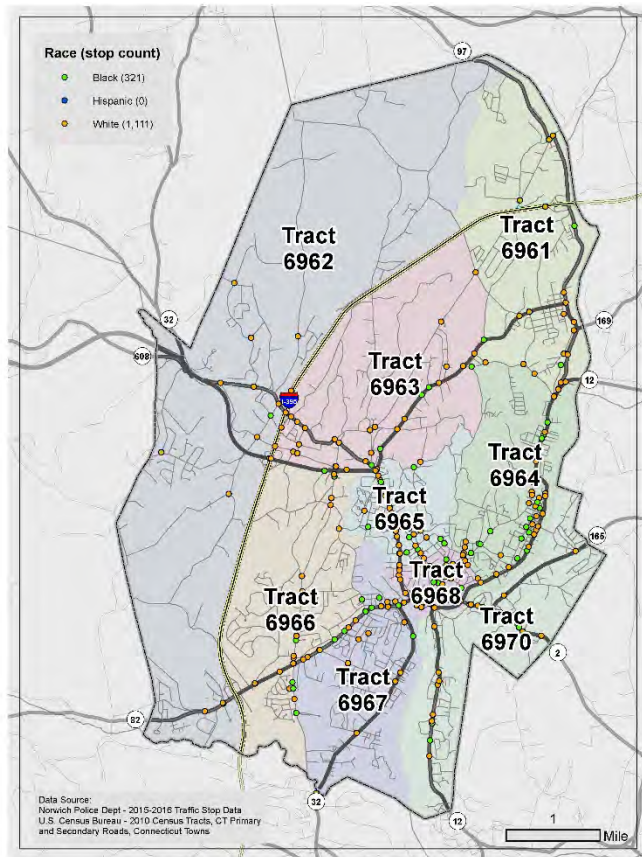
Figure 2.1: Route 82 Traffic Flow Compared to Traffic Enforcement
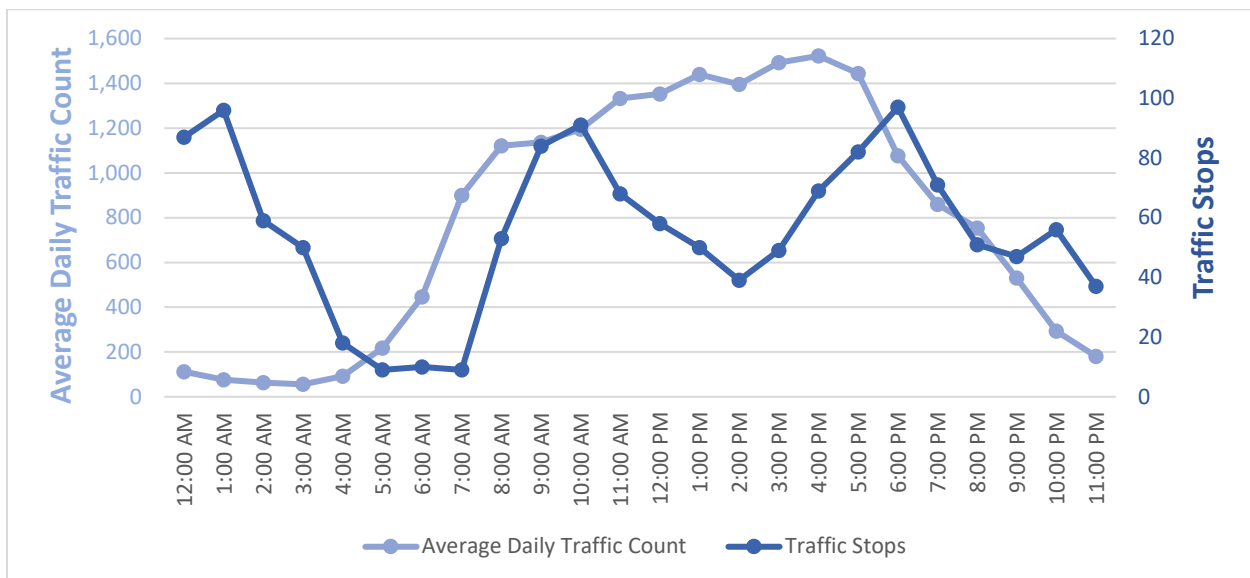
The overall percentage of traffic stops involving minority drivers on Route 82 was 37%. Approximately 13% of drivers stopped were Hispanic and 20% were black. Of the more than 1,340 traffic stops on Route 82, 51% of the drivers stopped were not residents of Norwich (which is equivalent to the town-wide average of non-resident drivers stopped). Hispanic drivers were 15% of all Norwich residents stopped on Route 82 and 12% of all non-residents. Black drivers were 25% of all Norwich residents stopped on Route 82 and just over 14% of all non-residents. Figure 2.2 shows the proportion of traffic stops on Route 82 by race and ethnicity.

Figure 2.2: Route 82 Traffic Stops by Race/Ethnicity
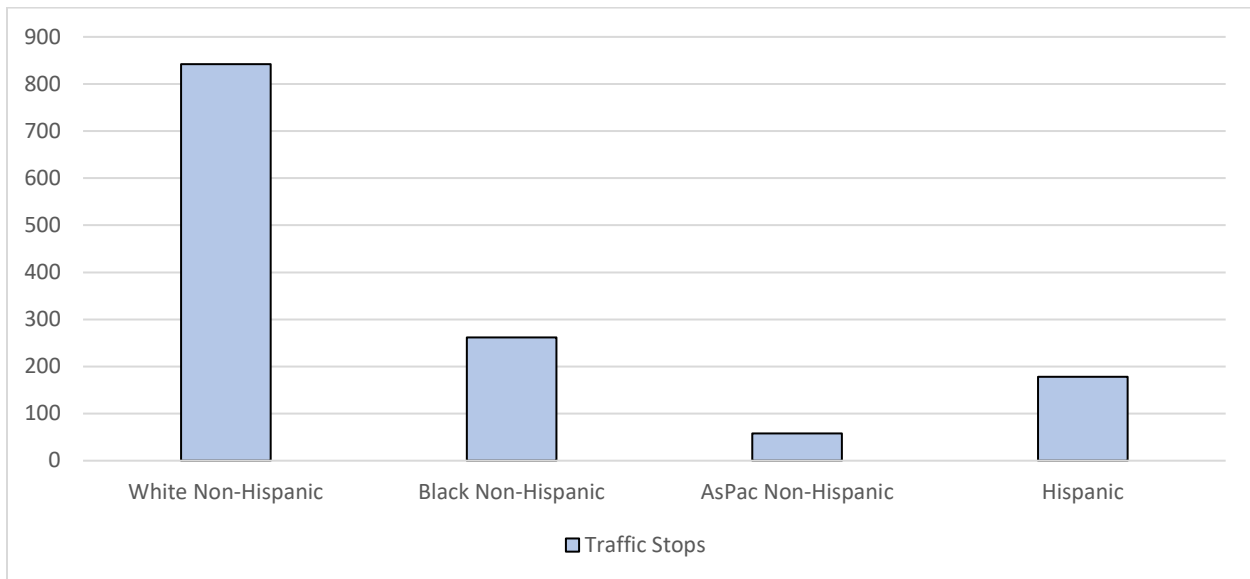
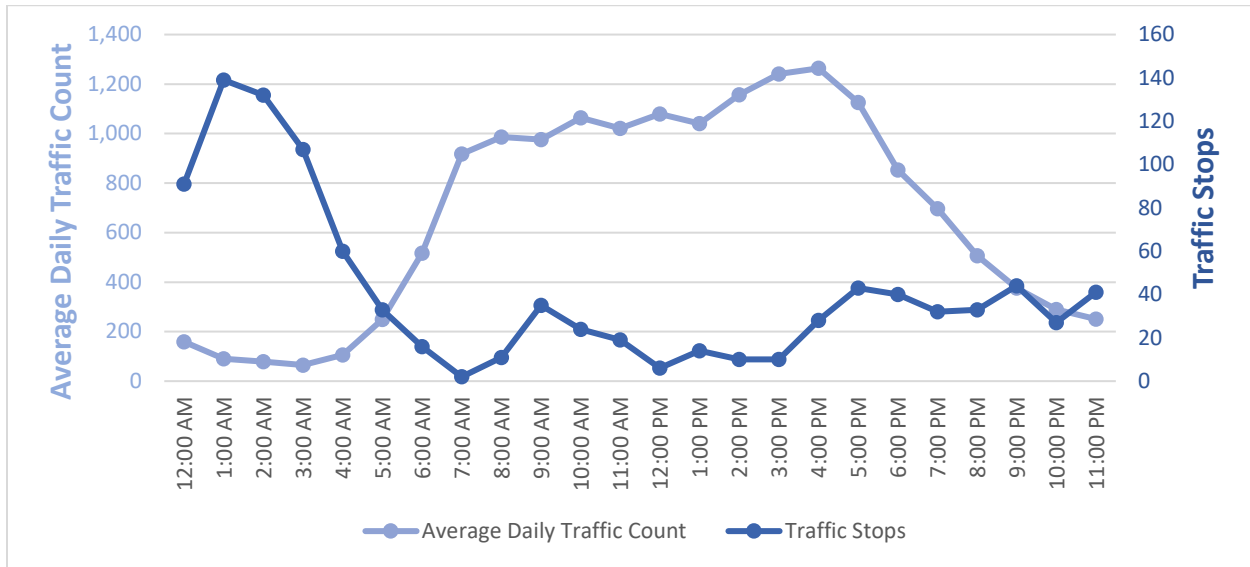## Traffic Stop Breakdown on Washington Street

Sixteen percent of all traffic stops in Norwich occurred on Washington Street. Washington Street is mostly a two lane roadway that runs from the Canterbury Turnpike south to where Route 2 becomes a local road and continues southeast to where it intersects with Main Street and West Main Street. The entire roadway is approximately two miles long and includes the locations of Backus Hospital, several religious institutions, schools, and residential homes. Washington Street is also referred to as Route 2 or Route 32 from the intersection of Route 2 and Town Street south to West Main and Main Street.

To help understand traffic flow on Washington Street, the analysis looked at the ADT records that are reported by DOT. According to the ADT information for Washington Street, traffic starts to pick up around 5:00 a.m. and steadily increases throughout the morning commute. Traffic volume remains steady throughout the afternoon and peaks during the evening commute. Starting around 6:00 p.m., traffic volume steadily decreases overnight.

Figure 3.1 is a graph of traffic flow compared to traffic enforcement on Washington Street. Traffic flow on Washington Street steadily increases starting around 6:00 a.m. through the morning and afternoon hours when it peaks during the evening commuting hours. Traffic enforcement on Washington Street is most active from midnight to 2:00 a.m. Traffic enforcement throughout the high traffic volume periods is low. It is worth noting that according to the ADT counts, traffic volume is greatest where the Route 2 expressway ends and becomes Washington Street. Traffic volume

remains significant near Backus Hospital, but decreases by almost 50% as you travel south by Broadway Street. The traffic volume increases again, where Washington Street intersects with West Main Street. It is clear from the ADT map that traffic on Washington Street is significantly impacted by the Route 2 expressway, Backus Hospital, and the Main Street area.

Figure 3.1: Washington Street Traffic Flow Compared to Traffic Enforcement

The overall percentage of traffic stops involving minority drivers on Washington Street was 40%. Approximately 16% of drivers stopped were Hispanic and 18% were black. Of the more than 997 traffic stops on Washington Street, 67% of the drivers stopped were not residents of Norwich (compared to the town-wide average of 51%). Hispanic drivers were 17% of all Norwich residents stopped on Washington Street and 16% of all non-residents. Black drivers were 20% of all Norwich residents stopped on Washington Street and just over 17% of all non-residents. Figure 3.2 shows the proportion of traffic stops on Washington Street by race and ethnicity.

Figure 3.2: Washington Street Traffic Stops by Race/Ethnicity
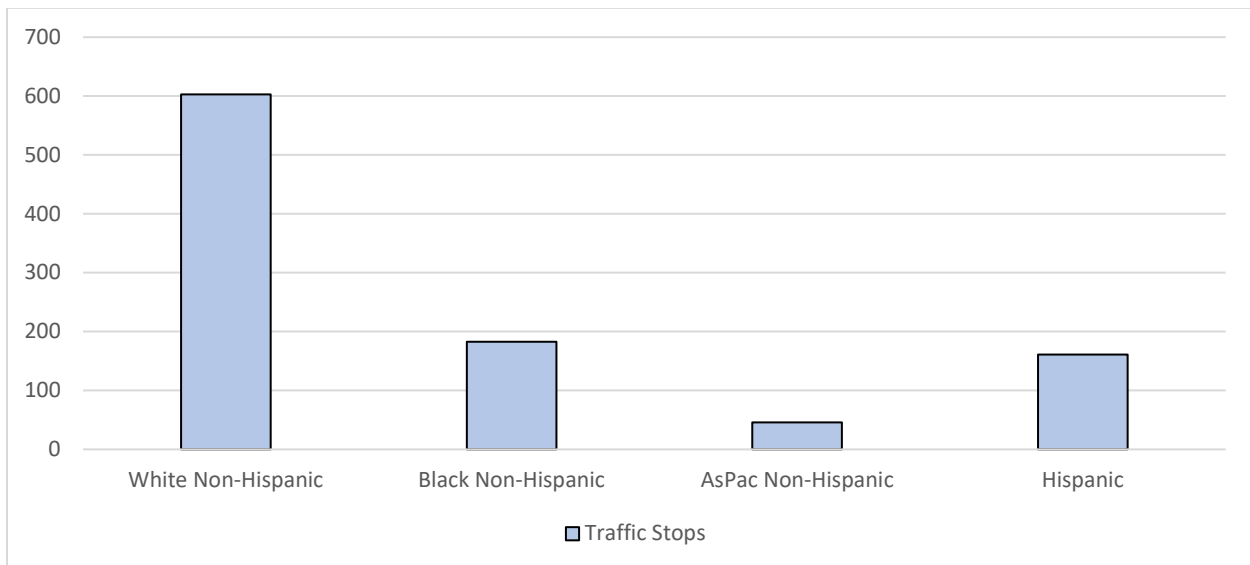
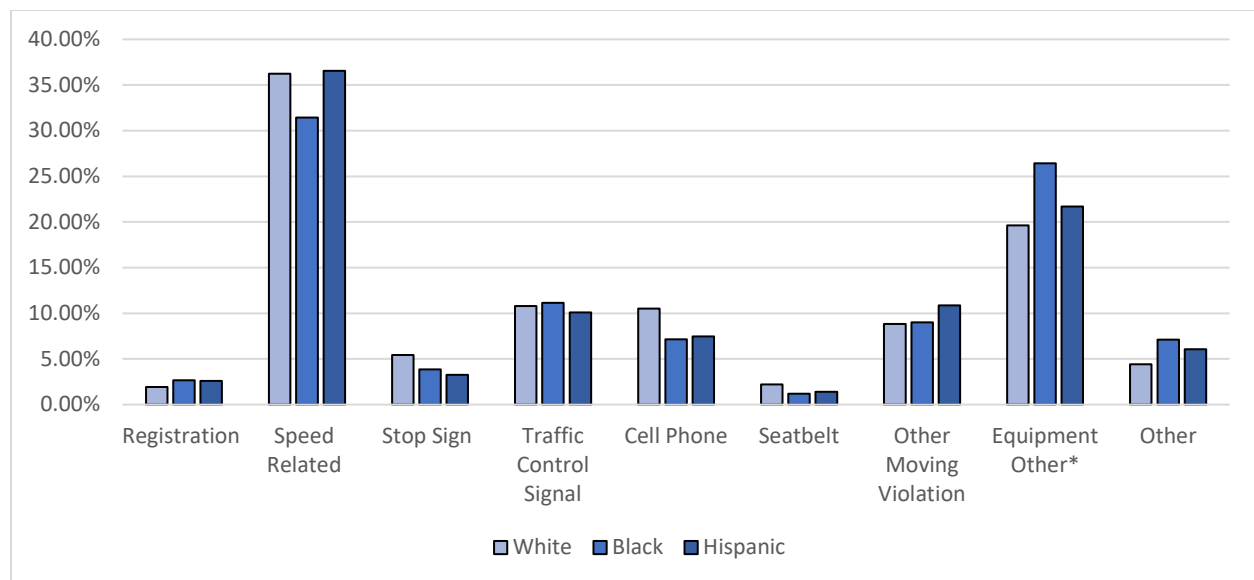## Traffic Stop Distribution for Norwich Officers

Norwich's 6,183 traffic stops were reported for 81 officers. The average number of stops made per officer was 76. Of the 81 officers reporting stops, 42 made fewer than 50 stops, 17 made between 50 and 100 stops, nine made between 100 and 150 stops, nine made between 150 and 250 stops, and four made over 250 stops. The four most active officers making more than 250 stops collectively accounted for 23% of Norwich stops. While these four officers clearly had the greatest impact on Norwich's total stop numbers, the average number of stops per officer is still substantial and are not greatly impacted by any one officer.

Post-Stop Outcome Review

Reason for Stops

The reasons police use to stop a motor vehicle can vary significantly from department to department. We reviewed the statutory authority that Norwich officers reported as the reason for stopping motor vehicles. The three most common reasons for stopping a motorist in town made up 64% of the total stops. The three largest stop categories were for speed-related violations (35%), defective or improper lighting violations (18%), and traffic signal violations (11%). 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 violations than white drivers as a percentage of their total stops. Figure 4.1 illustrates by race and ethnicity the reason officers cited to stop a motor vehicle.

Figure 4.1: Reasons for Traffic Stops

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

Just over 21% of Norwich's stops were made for violations involving defective, missing, or inoperative vehicle lighting; improper display of license plates; and window tinting. This was a higher proportion for such stops than most of the municipal police departments in the state during the study year. The statewide average for stopping drivers for these violations was 12%. Just over 81% of these equipment-related violations resulted in a warning. This was a significantly higher warning rate than for all other types of violations, which was only 65%. Figure 4.2 is a map of the traffic stops that we

could map that illustrate traffic enforcement for equipment-related motor vehicle stops. Stops for defective lights, window tints, or display of plate were labeled "equipment-related" violations.

The data shows that, with respect to the racial and ethnic demographics of those stopped for equipment-related violations (defective, improper, or inoperative lighting; display of plates; or window tinting) can be closely related 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 also shows that when these same types of stops occur in areas with 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 Norwich data tends to confirm these observations. Of the stops that we could

Figure 4.2: Equipment-Related Motor Vehicle Stops

map (1,430 stops), there were 42 equipment-related stops made in census tract 6968, which has the highest percentage of minority residents over the age of 16. The racial breakdown for these stops shows 19% Hispanic drivers, 33% black drivers, and 38% white drivers. There were 29 equipment-related stops made in census tract 6963, which has the lowest proportion of minority residents over 16. The demographics for these stops were 7% Hispanic drivers, 13% black drivers, and 80% 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 or black drivers.

These stops occurred more frequently on the roadways in census tracts with higher percentages of minority residents. Of the 1,321 stops for equipment-related violations, 40% were identified on Washington Street, Main Street, North Main Street, and smaller roadways in that area of town. The roadways with the largest number of equipment-related stops was West Main Street and the Salem Turnpike (Route 82) with approximately 17% of all equipment-related stops. The frequency and location of these stops on these roadways appears to have had a large impact on the size of the disparity affecting both black and Hispanic drivers in Norwich. These roadways appear to have a higher percentage of minority drivers traversing them due to the residential make-up of the area. Of all the black drivers stopped in Norwich, 26.5% were stopped for equipment-related reasons. Similarly, 22% of all the Hispanic drivers stopped were stopped for equipment-related reasons and 20% of all the white drivers stopped were stopped for equipment-related reasons.
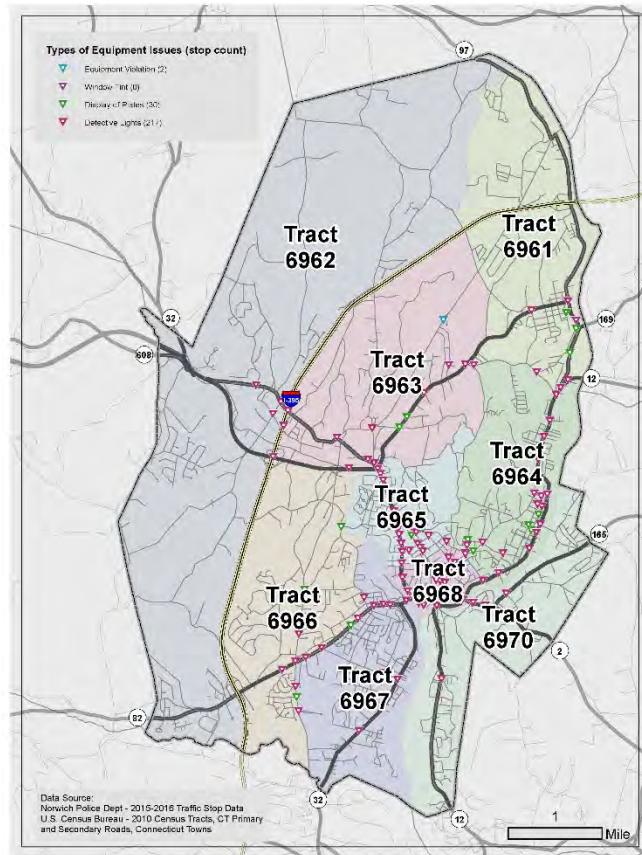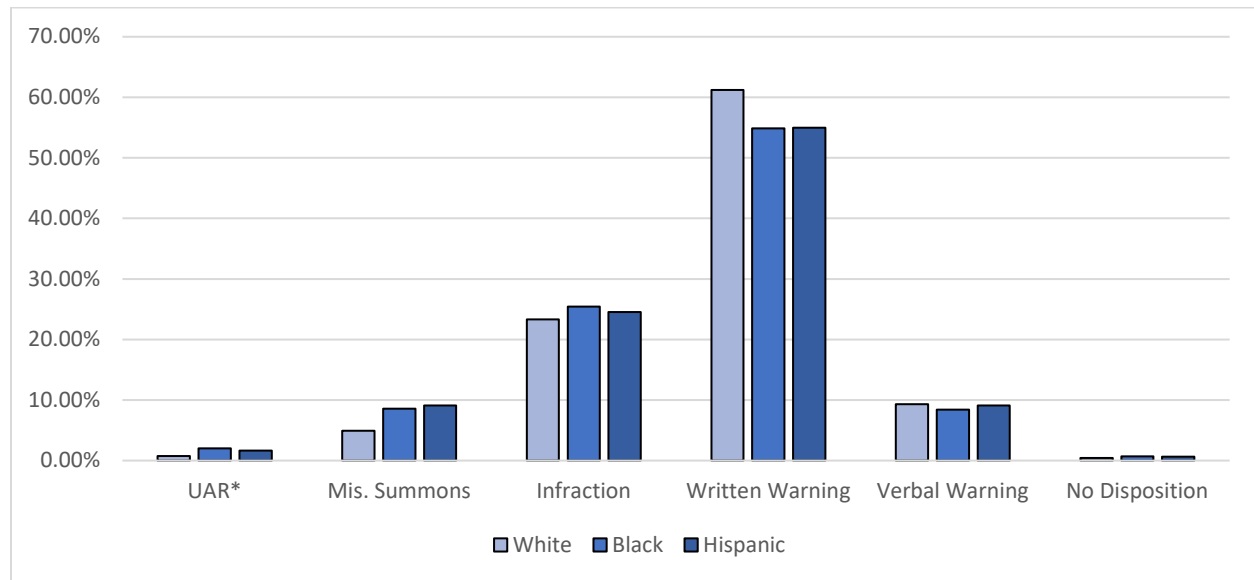
Outcome of Stops

The majority of motor vehicle stops in Norwich resulted in the driver receiving a warning (68%). Black and Hispanic drivers were more likely to receive a misdemeanor summons as a percentage of their total stops. Black and Hispanic drivers were also slightly more likely to be charged with an infraction compared to white drivers. Figure 4.3 shows the outcome of motor vehicle stops by race and ethnicity.

Figure 4.3: Outcome of Traffic Stop

   *Uniform Arrest Report

Most violations of the motor vehicle laws are designated as infractions but some are not. The more serious violations can be reckless driving, operating under a license suspension, operating under the influence of alcohol or drugs, and operating an uninsured or underinsured vehicle. The system for collecting and reporting traffic stop data requires officers to record the statutory citation for the violation that was the basis for the stop as well as any subsequent charges that differed from and were more significant that the initial charge. This gives an analyst the data on the initial cause for making a stop as well as any subsequent, more serious charge. For example, if someone was initially stopped for a lesser reason such as not wearing a seat belt or rolling through a stop sign, the officer might subsequently determine that the driver was operating with a suspended license. If this information is properly recorded, it is possible to distinguish those stops from the ones that begin and end with the same charge.

In Norwich, 381 of the stops made resulted in the issuance of a misdemeanor summons (6%). Black and Hispanic drivers were almost twice as likely to be issued a misdemeanor summons following a stop than were white drivers (8.6% of black drivers stopped and 9.1% of Hispanic drivers stopped compared to 4.9% of all white drivers). Of these stops, 305 were initiated for a reason that was not a misdemeanor violation (e.g. speeding, stop sign violation, defective or improper lighting, etc.) However, once the officer interacted with the operator of the vehicle a misdemeanor violation was identified. The vast majority of these stops were for a license or registration related issue. In particular, 51% of the misdemeanor stops were for operating with a suspended or revoked license. Another 56 misdemeanor stops also resulted in a charge for driving under the influence of alcohol or

drugs. Norwich did not report the secondary statutory citation in 48 of the cases that resulted in a misdemeanor. Unlike many infraction violations, officers do not have discretion in the issuance of a misdemeanor summons when a misdemeanor violation is identified.

Search Information

A review of department search information shows that 7.3% (449) of the drivers stopped in Norwich were subjected to a motor vehicle search. The rate of motor vehicle searches is more than twice the state's 3% average. Black and Hispanic drivers were searched at a rate higher than white drivers were. Of the 449 vehicles searched, 37% were subjected to an inventory search (compared to 21% statewide), 41% were subjected to a consent search (compared to 37% statewide), and 22% were subjected to a search for some other reason (compared to 40% statewide). Figure 4.4 illustrates the motor vehicle search rate and the rate at which contraband was found (the "hit rate").

Further analysis of the Norwich search data has revealed that the department's inventory search policy may have an 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. Of the 6,183 traffic stops made during in the study year, 222 (3.6%) vehicles were towed. However, the department only reported searching 184 towed vehicles and of which, 151 were reported as inventory searches. Hispanic drivers were significantly more likely to be searched as a result of an inventory search than white or black drivers were (51% of Hispanic drivers compared to 36% of white drivers and 28% of black drivers). During inventory searches contraband was found 12% of the time compared to 44% of the time for all other searches. Since inventory searches tend to produce contraband hits less frequently than other types of searches, the greater prevalence of inventory searches for Hispanic drivers influences the overall distribution demographics of the search hit rate for Norwich.

Figure 4.4: Search and Hit Rate
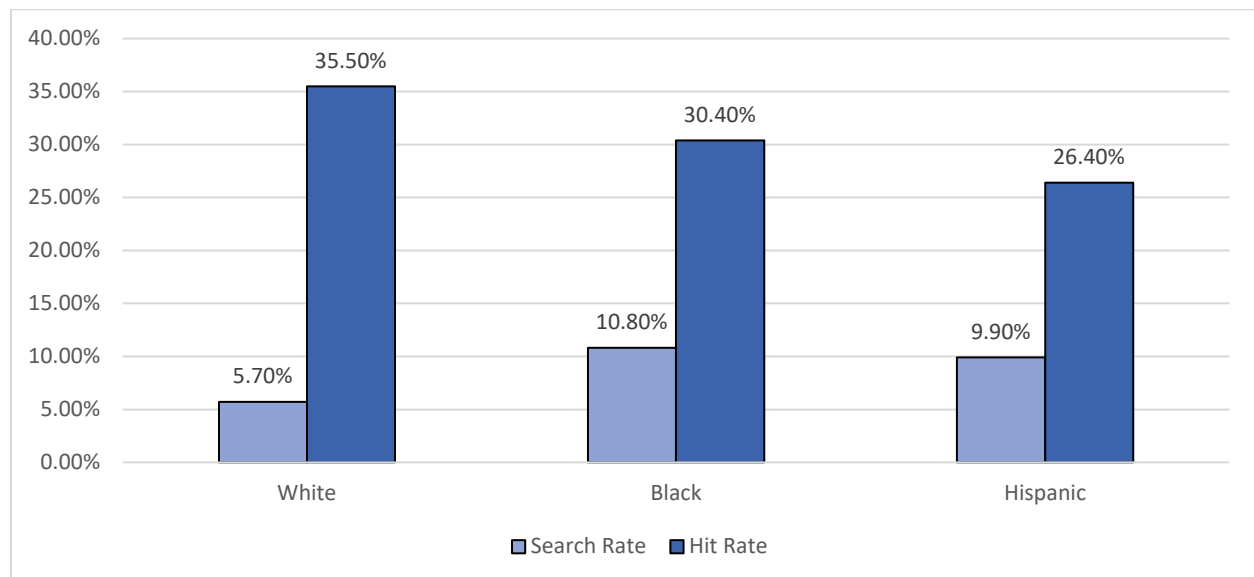
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Additional Contributing Factors

Law enforcement administrators choose to deploy police resources within a community based on a number of different factors, including where calls for service are more prevalent, accident rates are higher, or where crime rates are higher. In addition to these factors, police presence may be greater where traffic volume is higher as the result of common factors that draw people into a community such as employment and entertainment. Traffic enforcement actions are likely to be more prevalent in locations that attract greater police presence due to some of these factors. Basic information on crime, accidents, and other economic factors associated with Norwich provide a context to potentially explain the rational for police deployments that are important considerations.

According to the Connecticut Economic Resource Center (CERC) town profiles, approximately 17,097 people work in Norwich and its major employers include Backus Hospital, the State of Connecticut, Norwich Free Academy, and the City of Norwich. The vast majority of commuters traveling into Norwich for employment are from Griswold, Montville, Groton, Plainfield, and New London. The overall unemployment rate is 7.3%, which is above the unemployment rates for New London County and the state.

In 2016, the crime rate in Norwich was reported to be 195 per 10,000 residents, compared to the state crime rate of 204 per 10,000 residents. According to the 2016 Connecticut Uniform Crime Report[9], there were 742 reported crimes in Norwich in 2016, 56% of which were larcenies. The three most reported crimes were larceny (419), burglary (152), and aggravated assault (84).

During our study period, there were approximately 1,016 motor vehicle accidents on roads patrolled by the Norwich Police Department. Accidents were reported as occurring on 161 roads. The roadways with the highest number of accidents were West Main Street (128 accidents), Salem Turnpike (70 accidents), the New London Turnpike (59 accidents), and Washington Street (59 accidents). There were 22 roads with 10 or more accidents and those roads accounted for 70% of all accidents in Norwich.

Figure 5.1 illustrates the time of day when traffic accidents were reported and the number of traffic stops that occurred during that same period. This illustrates how closely traffic enforcement is correlated with traffic accidents in Norwich. While the vehicle crash rate tends to build steadily throughout the day in town, it peaks during the afternoon hours from noon to 4:00 p.m.

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[9] 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 5.1: Accidents Compared to Traffic Stops by Time of Day
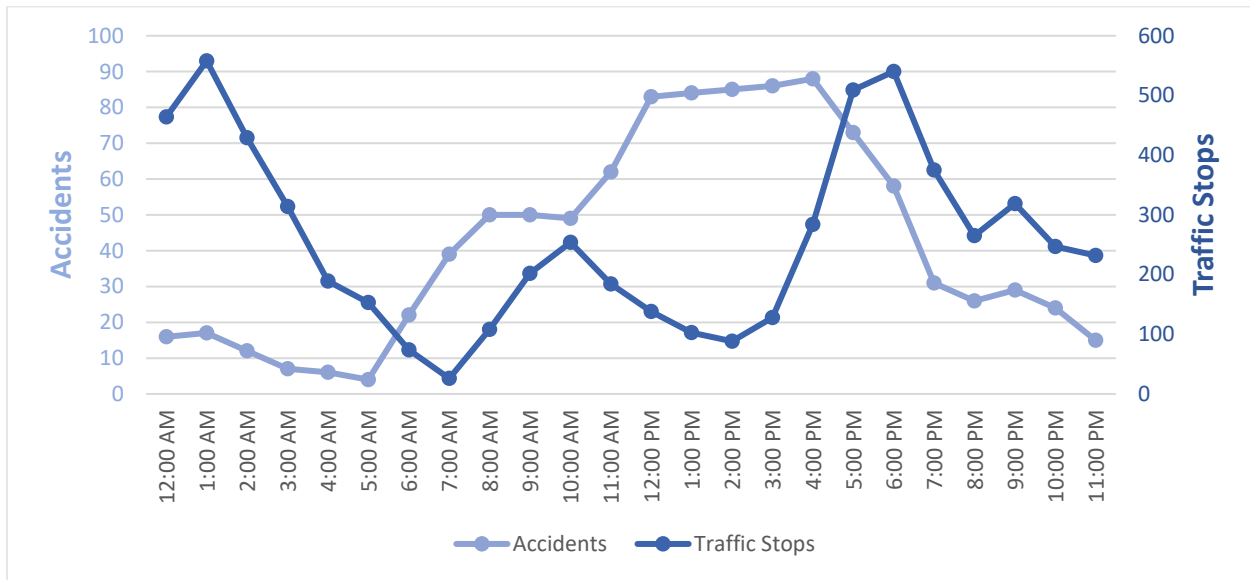
Summary of Findings

The Norwich Police Department identified factors they believe contributed to the disparity identified in the initial analysis of traffic stops. The department stated that they believe their roadways are heavily impacted by out-of-town drivers traveling to the two major casinos in the area, Mohegan Sun and Foxwoods Resort Casino. They identified areas within the town that have the highest call for service volume and areas with the highest levels of traffic as some of the same areas with the highest levels of motor vehicle enforcement. The department also indicated the impact that reported incidents of crime and accidents in the central part of town have had on the deployment of departmental resources. It is evident from the volume of traffic stops made in the center of town and along two major roadways (Route 2 and Route 82) that the department concentrates its resources in these areas.

Norwich's high stop rates of minority drivers appears to be directly related to where it engages in a large portion of its traffic enforcement activity, i.e., areas with the highest population of minority residents. Norwich has a non-white driving age population that includes 11% Hispanic residents and 9% black residents. Almost 58% of all black and Hispanic residents live in three census tracts (6964, 6967, and 6968). All three of the census tracts have minority resident populations that are significantly above the town average of 28%, the largest being tract 6968 with a minority resident population of 48%. These three tracts cover most of the busy downtown area including the heavily traveled Route 2. Of the stops that could be mapped, 48% occurred in these three census tracts.

In Norwich, there was a higher proportion of stops involving minority residents compared to white residents. This is particularly true for black residents where 62% of the black drivers stopped were town residents compared to 44% of stopped white drivers and 53% of Hispanic drivers. Even though non-resident drivers influence the composition of traffic stops in certain portions of Norwich, such as on the Route 82 corridor, the overall influence of out-of-town drivers on the Norwich stop demographics appears to be less of a factor in Norwich than it might be in other communities.

Traffic enforcement in Norwich is largely influenced by the activity along two roadways, Route 2 and Route 82. These roadways account for almost 40% of the total traffic stop activity in town. Route 82 accounts for 22% of all traffic stops in town. This is one of the busiest roadways in the town with over 19,000 cars traveling in each direction on a daily basis. The overall traffic stops involving minority drivers on Route 82 was 37% compared to 39% town wide. In addition, 51% of the drivers stopped on Route 82 were non-resident drivers. However, minority residents were more likely than non-minority residents to be stopped while on Route 82.

Route 2 is locally known as Washington Street and is heavily impacted by traffic from Backus Hospital and the Main Street area. The roadway accounts for 16% of all stops in Norwich. There are over 16,000 cars traveling on a daily basis in each direction on Washington Street. Forty percent of these traffic stops involved minority drivers, with approximately 16% Hispanic drivers stopped and 18% black drivers stopped. There was a significantly higher percentage of non-residents stopped on Washington Street with over 67% of the stops involving out-of-town drivers compared to the town average of 51% out-of-town drivers being stopped.

Norwich had 81 officers who made at least one traffic stop during the study period. The average stops made per officer were 76. Four officers conducted more than 250 stops and accounted for 23% of all traffic enforcement. 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

Speed-related violations (35%) were the largest category of stops made in Norwich. The next largest category of stops were for defective or improper lighting violation (18%) followed by traffic signal violations (11%). White non-Hispanic drivers were more likely to be stopped for driver-related safety issues like speeding, cell phone use, and traffic light 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 equipment-related violations, and other violations than did white drivers. When equipment-related 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 Norwich, when equipment-related stops were made in the three census tracts, 6964, 6967, and 6968 that were more heavily populated by black and Hispanic residents, they were more likely to be stopped for these violations. However, in other areas where these stops were made and the resident population was predominantly white, the stop demographics included a greater proportion of white drivers. 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 and Hispanic drivers, than racially inherent differences in the overall likelihood of violation. Just over 21% of Norwich's stops were for these violations, which exceeded the average of 12% for the state. Of the stops that we could map, almost 50% of them were made in the three census tracts where just over 58% of Hispanic and black residents live. In our corridor analysis, we determined that the roadways with the largest number of equipment-relates stops was West Main Street and the Salem Turnpike (Route 82). These roadways also appear to have a higher percentage of minority drivers traversing them due to the residential make-up of the area. The greater exposure

minority residents may have had to these particular types of enforcement in those areas and the large number of these stops conducted by the department may very well have contributed to the size of the disparity for minority drivers.

Overall, almost 68% of all drivers stopped received a warning. Stops involving black and Hispanic drivers were more likely to result in an infraction citation than white drivers but less likely to result in a verbal or written warning. The proportion of Norwich's traffic stops that resulted in a misdemeanor summons (6.2%) was above the state average of 4.8%. Black and Hispanic drivers were more likely to receive a misdemeanor summons than white drivers were. The majority of the stops that resulted in a misdemeanor charge were initiated for a reason that was not initially a misdemeanor violation. However, once the officer interacted with the operator a misdemeanor violation was identified. Most of the misdemeanor charges were for a license or registration related issue. Unlike many infraction violations, officers do not have discretion in the issuance of a misdemeanor summons when such a violation is identified.

Norwich police searched 7.3% of drivers they stopped, which was more than twice the state average of 3%. Black and Hispanic drivers were searched at almost twice the rate of white drivers. Contraband was found after searching black and Hispanic drivers at a lower rate than white drivers. Overall, contraband was found at a significantly higher rate (65%) when the search was conducted as the result of probable cause, plain view, or some other reason compared to a search that was conducted pursuant to consent (33%). However, consent searches occurred at twice the rate of those for probable cause, plain view, or some other reason (excluding inventory searches). In addition, the Norwich inventory search policy appeared to effect its overall search numbers. Over 36% of all searches were the result of an inventory search and Hispanic drivers were searched more frequently because of this policy. Since inventory searches tend to produce contraband at a lower rate, the greater prevalence of inventory searches for Hispanic drivers influenced the overall demographics of the search-hit rate.

Conclusions

The relative disparities in Norwich appear to reflect a concentration of enforcement activity in many areas of town that also tend to have higher concentrations of minority residents. There are relatively high enforcement levels in three census tracts in the central sections of town where 58% of all Norwich's driving age Hispanics and Black residents live, as well as along sections of Route 82 and Route 2 which have considerable traffic levels and commercial activity. Higher levels of traffic enforcement in these areas tend to mirror the higher levels of calls for service, crime, and motor vehicle accidents. Minority residents of Norwich tended to be more significantly affected by traffic enforcement patterns than white residents. Just over 62% of all the black drivers stopped and 53% of all the Hispanic drivers stopped in Norwich were town residents while only 44% of the white drivers stopped were residents.

While white drivers are more likely to be stopped in Norwich 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 violations. Our analysis indicates that this difference could be due more to the greater frequency with which these stops were made within the high enforcement census tracts, where resident minority drivers are likely to be present in the driving population in greater proportion, rather than to an inherently greater likelihood that minority drivers violate these laws with greater frequency than white drivers.

Norwich searched drivers at a higher rate than the state average. Black and Hispanic drivers were searched at more than twice the rate of white drivers. The rate of contraband found was higher when white drivers were searched compared to black or Hispanic drivers. Contraband was found at a significantly lower rate for consent searches than other searches, but consent searches were used most frequently.

Based on the overall follow-up analysis of the Norwich data, we believe that the general disparities in its stop data with respect Hispanic and black drivers tend to reflect the overall nature of its enforcement policies based on calls for service, crime, and motor vehicle accidents, but that it would benefit by reviewing these practices to assure that the disparate impact these policies have on its minority residents are reasonable in terms of policy outcomes. It is also important that the department assure that its minority community fully understands what benefits come from this enforcement presence. It is recommended that the department:

(1) review its traffic enforcement policies to fully understand and evaluate the disproportionate effect they could be having on minority drivers;

(2) take steps to assure that its minority community is fully engaged in the process of understanding why the allocation of enforcement resources are made and what outcomes are being achieved;

(3) evaluate how the greater use of high discretion equipment-related stops in higher minority areas may be adding to disparities; and

(4) review the role consent searches play in its overall traffic stop efforts to ensure that its officers are not overly relying on this as a traffic stop technique.

Department Response

Below on page 122 is a response provided by Norwich Police Chief, Patrick Daley.

CITY OF NORWICH

CONNECTICUT

POLICE DEPARTMENT

PATRICK J. DALEY
Chief of Police

70 THAMES STREET
NORWICH, CT 06360
(860) 886-5561

October 16, 2018

Ken Barone
Project Manager
Institute for Municipal and Regional Policy
Central Connecticut State University
New Britain, CT

Dear Mr. Barone,

First and foremost I want to thank you and the Institute for all your efforts on behalf of this project. We do appreciate your efforts, your follow-up and follow through. I wish to respond for your request for comments regarding the report.

In your comment solicitation you posed the question *"What have we learned by going through the process?"* We have learned that statistical studies such as this are very complex and the complexities are magnified by incomplete or inaccurate data. Our current reporting method, while fully compliant with Connecticut General Statues, could be improved using GPS level data.

The report confirmed what we already knew to be true, that we concentrate our motor vehicle enforcement activity on roadways that have significant numbers of motor vehicle and/or criminal activity. Fatal motor vehicle accidents have either climbed or remained steady despite a 30% reduction in Part 1 crime over the past several years. We will continue to enforce traffic laws to keep our residents and guest safe while driving in Norwich.

We will continue to have debates about the true makeup of the driving population being based upon census data. I would offer the assistance of this agency to work alongside with your researchers to perform "real world" observations to see if the observed estimated demographics match the ones provided by census data estimations/assumptions.

Your next question posed, *"What changes, if any, did the department make?"* Prior to the report's production we instituted a procedure whereas each motor vehicle stop is logged with our Records Department and any missing or incomplete stop reports address on a weekly basis. We also recognize we need to better track the exact location of the stops and are looking at potential technological

solutions, but with this comes a cost. We also re-trained the entire department on proper logging of the stop especially as it related to blind enforcement.

The final question asked *"Is there other information you think is important for your community to consider?"* Yes -the citizens and guests travelling through our community need to know that Norwich remains highly committed to traffic safety and traffic enforcement. We are equally committed to protecting the Constitutional rights of the residents and guests. Our enforcement is done to lessen both the number of accidents as well as the injuries that result. Norwich is heavily engaged with Federal Highway Safety Grants and this also drives our efforts especially as it relates to Driving While Intoxicated (DWI), seatbelt usage, distracted driving and speed related offenses.
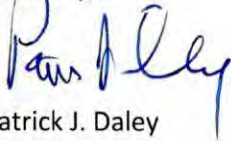
In conclusion, the mission statement of the Norwich Police Department reads:

To protect life, safeguard property, and maintain social order within carefully prescribed ethical and constitutional restrictions while providing community-based police services with compassion and concern. (Emphasis added)

We continue to work toward that mission on a daily basis. We train our officers to enforce the law fairly and impartially. We endeavor to be transparent while protecting the privacy rights of those we encounter. We look upon our actions to determine if they are proper and welcome outside review.

We are heavily engaged in our community and look forward to working with any minorities groups to address the finding of this report.

Sincerely,

Patrick J. Daley
Chief of Police

I.B. (8): RIDGEFIELD FOLLOW-UP ANALYSIS SUMMARY

This analysis continues the work of the Racial Profiling Prohibition Project's study of traffic stops conducted since October 1, 2013. This follow-up report focuses on data reported for stops conducted from October 1, 2015 through September 30, 2016. Table 1.0 below compares summary racial data for reported traffic stops in Ridgefield over a three-year period.

Table 1.0: Ridgefield Traffic Stops – 2013 - 2016

	2013-2014 Stops		2014-2015 Stop		2015-2016 Stops	
White	6,214	84.4%	6,347	82.3%	6,445	80.8%
Black	266	3.6%	341	4.4%	398	5.0%
AsPac*	110	1.5%	139	1.8%	148	1.9%
AI/AN**	52	0.7%	96	1.2%	86	1.1%
Hispanic	724	9.8%	790	10.2%	902	11.3%
Total	**7,366**		**7,713**		**7,979**	

 *Asian Pacific Non-Hispanic
 ** American Indian/Alaska Native Non-Hispanic

Overview of the November 2017 Traffic Stop Analysis

The November 2017 Traffic Stop Analysis report indicated that for the October 1, 2015 – September 30, 2016 study period the Ridgefield Police Department made 7,979 traffic stops. Of these, 19.2% were minority stops (11.3% Hispanic and 5% black). The annual VOD analysis indicated a statistically significant disparity in the rate that Hispanic motorists were stopped during daylight relative to darkness. Within the inter-twilight window, the odds that a Hispanic motorist was stopped during daylight was 2.5 times greater than the odds during darkness. These results were statistically significant at the 99% level and robust to the inclusion of a variety of controls, officer fixed-effects, and a restricted sample of moving violations. Although certain assumptions have been made in the design of each methodology, it is reasonable to conclude that departments with consistent data disparities separating them from the majority of other departments should be subject to further review and analysis with respect to the factors that may have caused these differences.

Descriptive Analysis of the 2015-2016 Traffic Stop Data

The racial and ethnic disparities in the Ridgefield Police Department data were studied using a more detailed review of traffic enforcement during the 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. Ridgefield provided latitude and longitude coordinates that allowed accurate mapping of 86% of their stops. According to the 2010 census, Ridgefield is a town with approximately 18,111 residents over the age of 16. Approximately 7% of the driving age population in Ridgefield is identified as a minority. Table 2.0 outlines the basic demographic information for Ridgefield residents over age 16.

Table 2.0: Ridgefield Population

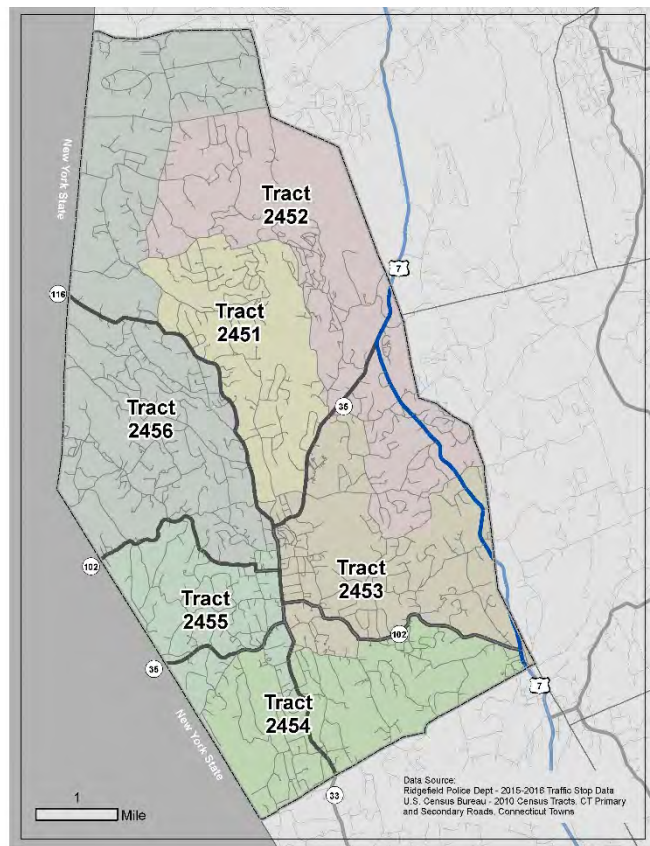| Race/Ethnicity	16+ Population Total	% of Population Total
White Non-Hispanic	16,791	92.7%
Black Non-Hispanic	139	0.8%
AsPac Non-Hispanic	554	3.1%
Hispanic	627	3.5%
Other	0	0.0%
Total	18,111	

Ridgefield is approximately 35 square miles in area. There are a number of state roads that run through Ridgefield. Route 7 (Ethan Allen Highway) is a major corridor that runs along the eastern border of Ridgefield. Route 7 is a north-south highway that runs 78 miles from Norwalk to the Massachusetts border in North Canaan. Route 7 is just over four miles from north to south through two of the six Ridgefield census tracts.

Three other municipalities in Connecticut border Ridgefield, including Danbury to its northeast, Redding to its southeast, and Wilton to its south. The western side of Ridgefield borders the New York towns of North Salem and Lewisboro in Westchester County. Redding and Wilton are predominantly white demographically, with an average driving age white population of 94%. Danbury is more diverse with a driving age white population of 61%. The two border towns in Westchester County are predominantly white demographically, with an average driving age white population of 95% (compared to Ridgefield's white driving age population of 93%). Of the drivers stopped in Ridgefield overall, 30% were town residents and 70% lived elsewhere.

The U.S. Census Bureau divides Ridgefield into six census tracts. Figure 1.1 is a map that outlines the boundaries of Ridgefield census tracts, which will be referred to throughout this report. The resident driving age population in each census tract

Figure 1.1: Ridgefield Census Tract Map

varies from about 2,000 to about 4,000 people, with the largest concentration of people (24% of the total population) in tract 2456. Three of the six census tracts (2452, 2453, and 2456) have a higher percentage of minority residents than the town average with tract 2453 being the largest at 9% of the population. Figure 1.2 shows the distribution for each census tract in terms of white and non-white driving age population.

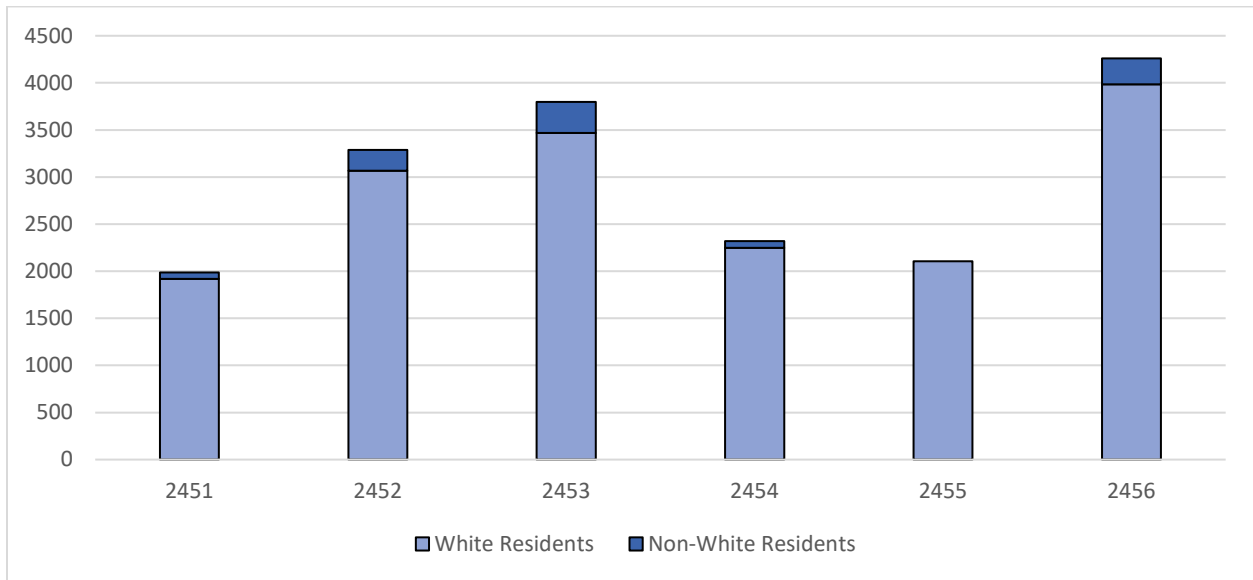**Figure 1.2: Age 16 and Older Resident Population by Census Tract**

Figure 1.3 illustrates the volume of traffic enforcement that occurred in each Ridgefield census tract. A large percentage of traffic enforcement activity (69%) occurred in only two census tracts. Census tract 2452 accounts for the largest percentage of traffic enforcement activity with 30% of the town's traffic stops. There were 1,068 stops that could not be mapped. These are not considered in our analysis, for purposes of discussing traffic stops by census tract.

Figure 1.3: Traffic Stops by Census Tract
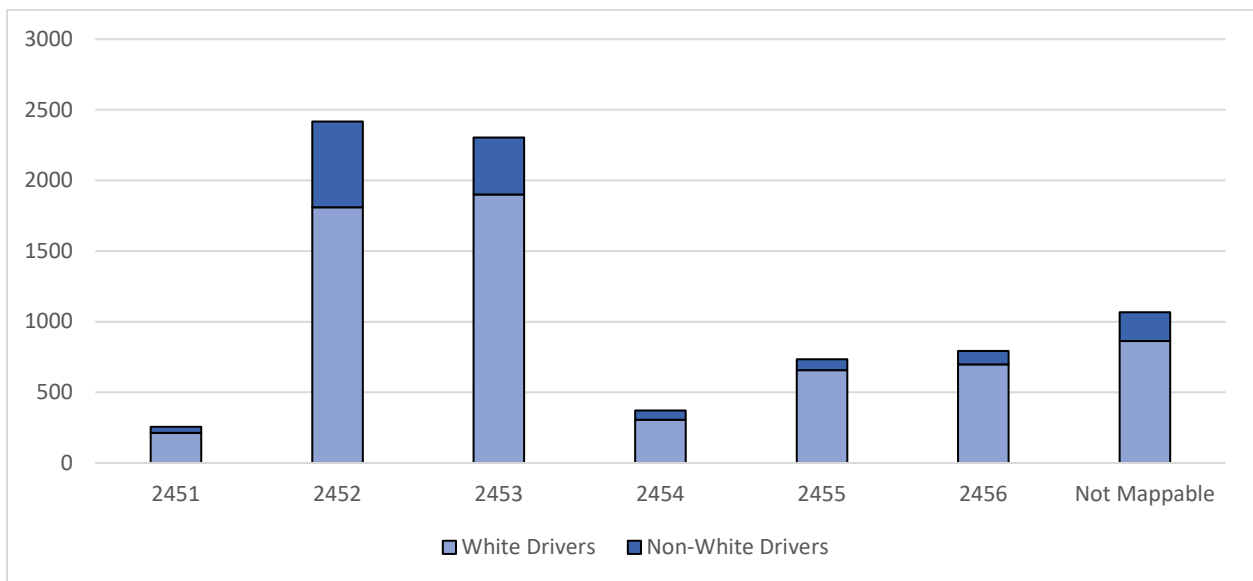
Figure 1.4 is a map of traffic stops made in Ridgefield. The two census tracts that account for 68% of the traffic enforcement activity comprise 40% of the resident driving age population in town. Tract 2453 is the larger of these two tracts with 21% of the town population. The most heavily populated census tract in Ridgefield (2456) is located outside of this high enforcement activity core. Ridgefield's overall resident population is 7% minority and 6.6% of all Ridgefield residents who were stopped were minority. Resident minority drivers were stopped at a similar rate as the proportion of their town population. Approximately 25% of non-resident drivers stopped in Ridgefield were minority. The two census tracts with the highest enforcement account for 73% of all stops of non-residents in Ridgefield. This is most likely because Route 7 and Danbury Road (Route 35) are major traffic routes for surrounding communities. It is clear that non-residents contribute to the overall racial disparity in Ridgefield stop data.

Figure 1.4: Traffic Stop Map
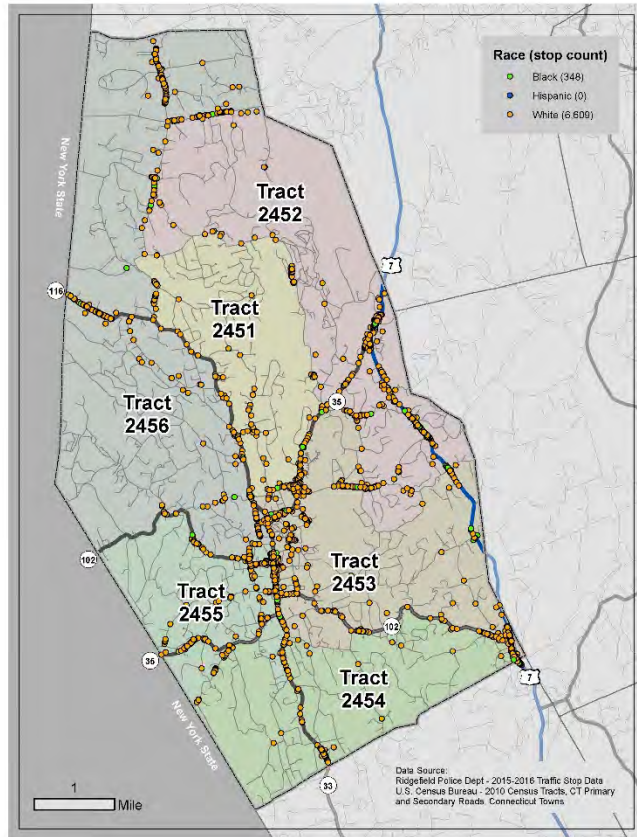
Traffic Stop Breakdown by Race/Ethnicity

In Ridgefield, 19% of all drivers stopped were minority drivers, classified as all non-white drivers, but predominantly black or Hispanic drivers. Ridgefield's resident population age 16 and older is 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, considering that about 7% of the population is minority but close to 19% of the drivers stopped were minority. However, the racial and ethnic makeup of different areas of Ridgefield varies by census tract, so the disparities were more pronounced in some areas compared to others.

Figure 2.1 shows the difference between the local black resident population and the black drivers stopped by census tract. The overall percentage of Ridgefield traffic stops involving black drivers was 5%. The percentage of black drivers stopped exceeded the town average of 5% in two census tracts (2452 and 2454). There was a positive disparity above the resident black driving age population in all census tracts, with the largest disparity in tract 2452.

Figure 2.1: Black Population compared to Black Drivers Stopped by Census Tract[10]
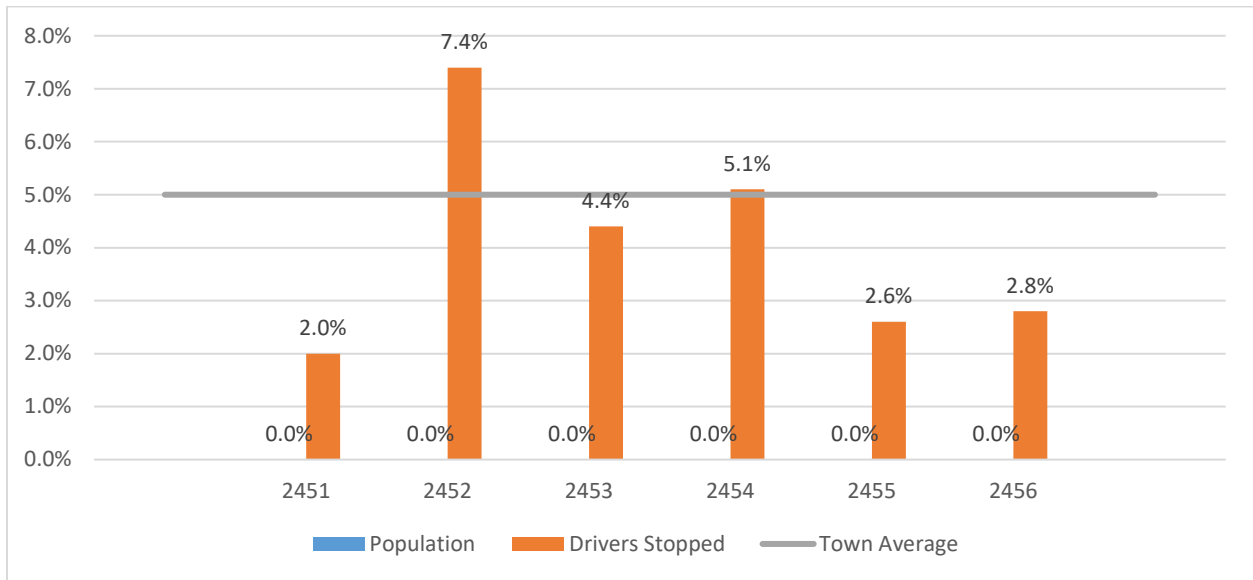

Figure 2.2 shows the difference between the local Hispanic resident population and the Hispanic drivers stopped by census tract. The overall percentage of traffic stops involving Hispanic drivers was 11.3%. The percentage of Hispanic drivers who were stopped exceeded the town average in only one of the six census tracts (2452). There was a positive disparity above the resident Hispanic driving age population in all census tracts, with the largest disparity in tract 2452.

Figure 2.2: Hispanic Population compared to Hispanic Drivers Stopped by Census Tract

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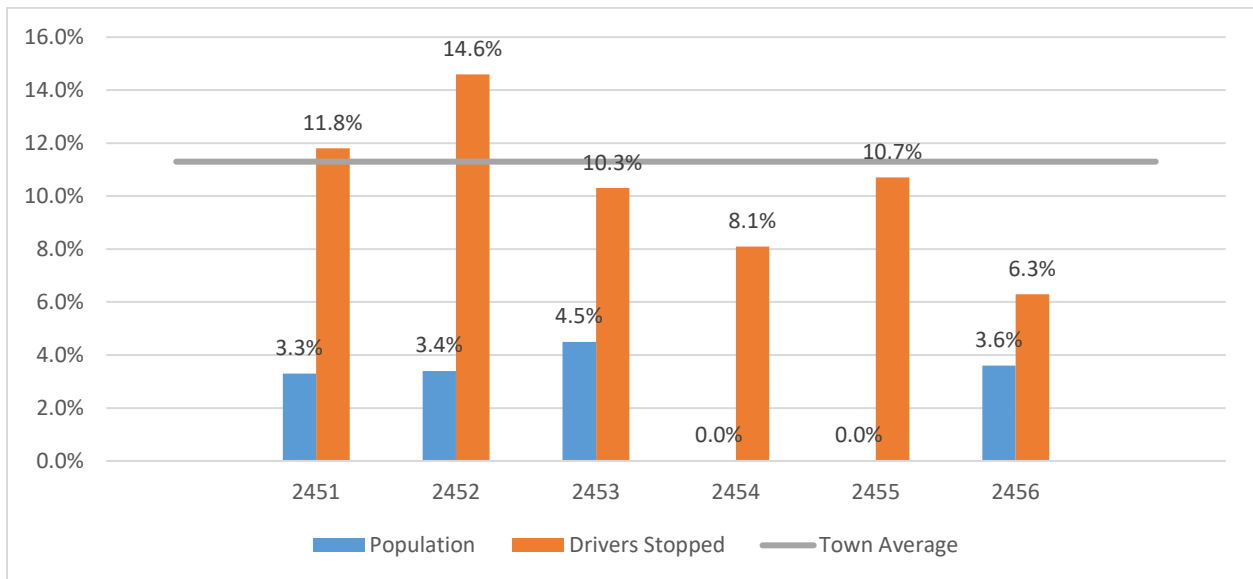
[10] Demographic information is only available for race/ethnic groups over 50 people reported as living in a census tract. According to the 2010 U.S. Census, there were not more than 50 black residents living in any one-census tract in Ridgefield.

Highway Corridor Analysis

In addition to the census tract-based analysis, we also conducted separate analyses of the highway corridors with the greatest number of traffic stops. These three corridors were Route 7 (Ethan Allen Highway), Danbury Rd. (Route 35/7), and Main Street (Route 33/35).

A total of 1,068 stops (13% of all reported stops for Ridgefield) could not be mapped precisely. Based on the descriptions provided, these 1,068 stops occurred on 41 different roads, but only 14 of which had more than 10 traffic stops. These 14 roads accounted for 92% of all the unmapped stops. The stops reported with non-specific location descriptions most often occurred on Ethan Allen Highway (Route 7) (344 stops), Danbury Road (196 stops), North Street (122 stops), and Main Street (64 stops). The racial demographics of the unmapped stops reflected similar minority drivers stopped as the overall stop demographics for the town. The drivers who were stopped were 19% minority and the average for the town was 19% minority.

Ethan Allen Highway runs north from the Redding border to Danbury, through two census tracts (2452 and 2453). A total of 1,739 traffic stops were made along the Ethan Allen Highway corridor during the study year, which was 22% of the total for the town. The stops made on Ethan Allen Highway included more non-residents than in the town as a whole (90% compared to 70%) and involved a slightly higher proportion of black and Hispanic drivers than the town-wide average. Black drivers accounted for 7.5% of the Ethan Allen Highway stops (compared to the town average of 5%). Hispanic drivers accounted for 14.4% of the stops (compared to the town average of 11%). Over 28% of Hispanic drivers and 33% of black drivers were stopped on Ethan Allen Highways compared to 20% of white drivers stopped there. Census tract 2452, which accounts for the majority of the Ethan Allen Highway stops, accounts for over 50% of all traffic stops on this road. There were 370 stops reported on Ethan Allen Highway that could not be mapped because of vague location descriptions.

Danbury Road runs from the center of Ridgefield at Main Street northeast to the border of Danbury. It forms the border between census tracts 2451 and 2453 until it reaches census tract 2452. A total of 1,912 traffic stops were made along Danbury Road during the study year, which was 24% of the total stops made in town. Of the drivers stopped in the Danbury Road corridor, 83% were not residents of Ridgefield, which was above the town average of 70%. Driver demographics for those stopped in the Danbury Road corridor was above the town-wide average for black and Hispanic drivers. Black drivers accounted for 7% of the Danbury Road stops (compared to the town average of 5%). Hispanic drivers accounted for 15% of the Danbury Road stops (compared to the town average of 11%). Over 32% of Hispanic drivers and 35% of black drivers were stopped on Danbury Road compared to 22% of white drivers stopped there. Census tract 2452 accounts for 64% of all traffic stops on this road. There were 173 stops reported on Danbury Road that could not be mapped because of vague location descriptions.

Lastly, Main Street runs from the intersection of Wilton Road West and Wilton Road East north to the intersection of North Salem Road and Danbury Road. Main Street also forms the border between census tracts 2453 and 2455. A total of 1,291 traffic stops were made on Main Street during the study year, which was 16% of total stops made. Of the drivers stopped on Main Street, 66% were not residents of Ridgefield, which was below the town average of 70% non-resident stops. Driver demographics for those stopped on Main Street were below the town-wide average for black and Hispanic drivers. Black drivers accounted for 4% of the Main Street stops (compared to the town average of 5%). Hispanic drivers accounted for 10% of the Main Street stops (compared to the town

average of 11%). Census tract 2453 had the greatest percentage of stops with 58%, followed by 2455 with 36% of all stops on Main Street.

Special Enforcement Campaigns

Ridgefield participated in special enforcement campaigns that were sponsored by the Connecticut Department of Transportation through funds made available by the National Highway Traffic Safety Administration (NHTSA). Ridgefield reported 300 stops as part of the NHTSA-funded campaigns. The special enforcement campaigns in which Ridgefield participated focused on distracted driving in April and August 2016. The Ridgefield Police Department was able to identify only the dates, times, and basic stop information for special enforcement campaigns. They provided the locations for all checkpoints established during each campaign. The case numbers for each stop were not available to match to the traffic stop database.

Stops made during special enforcement campaigns accounted for a small percentage (4%) of all stops made in Ridgefield during the study period. Stop outcomes for stops made during selective enforcement campaigns can, and usually do, result in a high proportion of penalty outcomes rather than warnings compared to stops made during regular routine patrol activities where officers may have more discretion in deciding whether to ticket the violator. Imposition of penalty-based outcomes is one of the tenets for participation in these federally funded programs. Stop demographics can also differ, particularly with respect to distracted driving campaigns which focus primarily, though not exclusively, on cell phone use. In general, cell phone stop demographics statistically tend to show higher proportions of female violators and lower proportions of minority drivers than is typical for other types of motor vehicle violations. Finally, the criteria for selection of locations to conduct selective enforcement could differ in some ways from the way stops are generally conducted. For example, effective distracted driving enforcement requires officers to be able to observe drivers in their vehicles without being observed themselves and this can make some locations for this type of enforcement more suitable than others even though the less suitable locations might have as many drivers potentially violating the targeted laws than the more suitable enforcement locations.

Distracted driving campaigns took place in April 2016 and August of 2016. In April 2016, special enforcement for distracted driving was conducted on five separate days. The focused patrols were in the high enforcement corridors on Main Street, Danbury Road, and Ethan Allen Highway. Police reported 163 stops for the April checkpoints, 153 of which were for cell phone violations. These stops accounted for 17% of all stops conducted in April. The August 2016 focused patrols were conducted on five separate days. They also primarily took place in the high enforcement corridors of Main Street, Danbury Road, and Ethan Allen Highway. There were 137 stops reported for the August checkpoints, 129 of which were for cell phone violations. These stops accounted for 15% of all stops conducted in August. During the two campaigns, cell phone violation stops accounted for 24% of all cell phone related stops in town during the study period.

Traffic Stop Distribution for Ridgefield Officers

Ridgefield's 7,979 traffic stops is much larger than 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 222. Of the 36 officers reporting stops, six made fewer than 20 stops, four made between 20 and 100 stops, 11 made between 100 and 200 stops, 11 made between 200 and 500 stops, and four made over 500 stops. The most active officer made 1,162 stops or 15% of all stops in town. The four officers making

over 500 stops each collectively accounted for 35% of the Ridgefield stops. Thus, a relatively small portion of its officer force influences Ridgefield's stop data.

Post-Stop Outcome Review

Reason for Stops

The reasons police stop a motor vehicle can vary significantly from department to department. We reviewed the statutory authority that Ridgefield officers reported as the reason for stopping motor vehicles. The three most common reasons cited for stopping a motorist in Ridgefield cover 74% of the total stops. The three largest stop categories were for speeding violations (52%), cell phone violations (15%), and stop sign violations (7%). Black drivers were stopped at a slightly higher rate for speeding violations than white or Hispanic drivers were. Hispanic drivers were stopped at a slightly higher rate than black or white drivers were for cell phone violations. Although there appears to be a higher percentage of black and Hispanic drivers stopped for equipment violations, the total number of equipment-related stops is too small to draw any conclusions. Figure 3.1 shows the reasons officers used to stop a motor vehicle by race and ethnicity.

Figure 3.1: Reasons for Traffic Stops
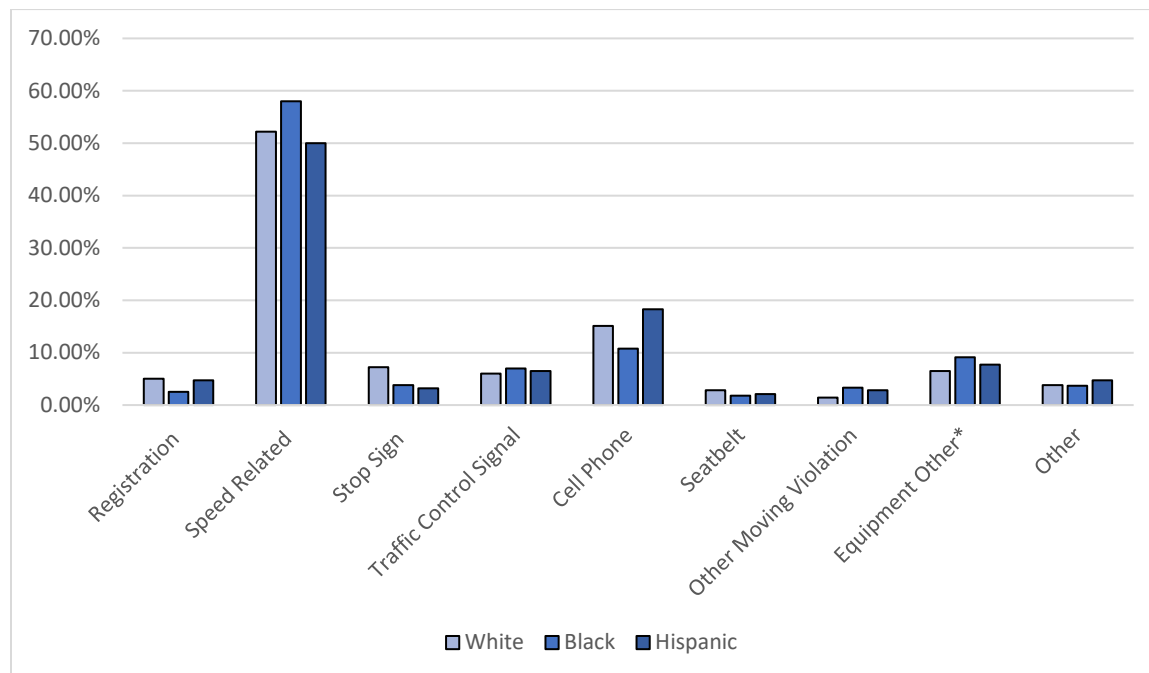
*Equipment Other includes violations for defective lights, excessive window tint, or display of plate violations.

Speed-related motor vehicle enforcement on Danbury Road and Route 7 appears to have had a significant impact on overall traffic stop trends in Ridgefield with speed-related stops occurring there at a significantly higher rate than on other roadways in town. Of the 4,176 speed-related traffic stops in town, 27% occurred on Danbury Road and 14% occurred on Route 7. Census tracts 2452 and 2453, which cover Route 7 and the largest sections of Route 35, accounted for 70% of all stops that could be mapped. Over 37% of the white drivers stopped for speeding were stopped on Danbury Road or Route 7, compared to 66% of black drivers and 56% of Hispanic drivers.
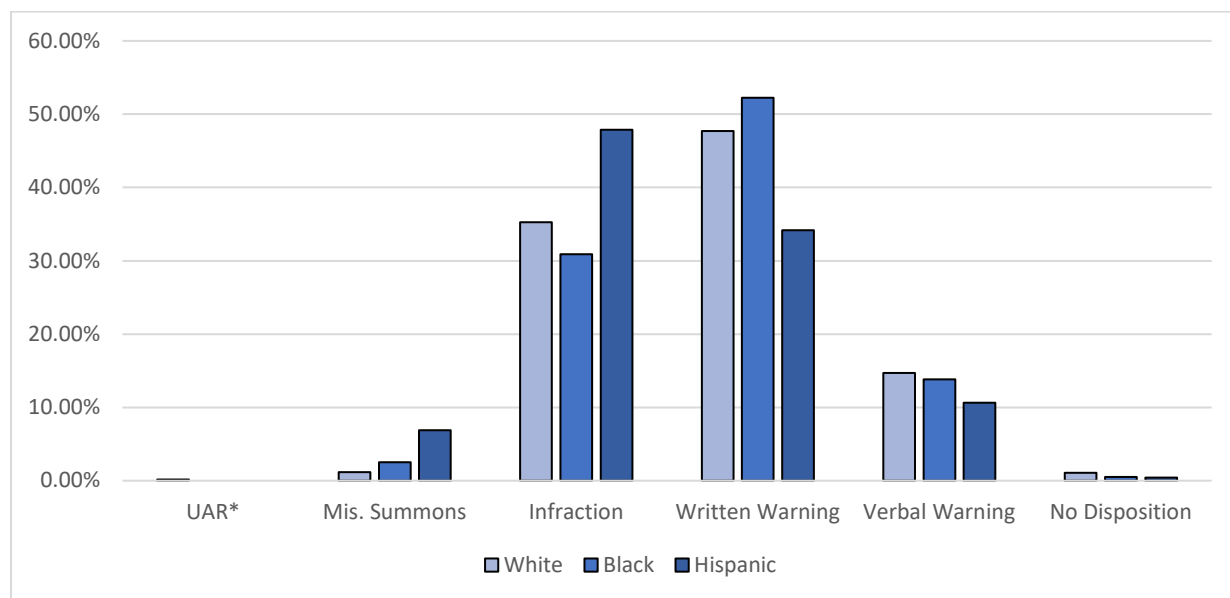
Another important factor is that officers reported 94% of speed-related stops as "blind." This means officers report using a blind enforcement technique like radar, a laser, license plate recognition

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device, or other similar technology or method. The speed-related stops recorded as "blind" were likely the result of an officer using radar or laser technology. Of the speed-related stops recorded as "blind," the racial demographics were 80% white, 6% black, and 11% Hispanic, which almost mirrored the racial demographics for all stops. The demographics of "blind" speeding stops closely matched the overall stop demographics for the department during this study year. This is an indication that the racial demographics of drivers on Ridgefield roadways was reflected in its stop activity.

Outcome of Stops
The majority of motor vehicle stops in Ridgefield resulted in the driver receiving a warning (61%). Black and Hispanic drivers were more likely to receive a misdemeanor summons as a percentage of their total stops. Hispanic drivers were more likely to receive an infraction compared to white and black drivers. Figure 3.4 shows the outcome of motor vehicle stops by race and ethnicity. Figure 3.2 shows the outcome of motor vehicle stops by race and ethnicity.

Figure 3.2: Outcome of Traffic Stops

*Uniform Arrest Report

Most violations of the motor vehicle laws are designated as infractions but some are not. The more serious violations can be reckless driving, operating under a license suspension, operating under the influence of alcohol or drugs, and operating an uninsured or underinsured vehicle. The system for collecting and reporting traffic stop data requires officers to record the statutory citation for the violation that was the basis for the stop as well as any subsequent charges that differed from and were more significant that the initial charge. This gives an analyst the data on the initial cause for making a stop as well as any subsequent, more serious charge. For example, if someone was initially stopped for a lesser reason such as not wearing a seat belt or rolling through a stop sign, the officer might subsequently determine that the driver was operating with a suspended license. If this information is properly recorded, it is possible to distinguish those stops from the ones that begin and end with the same charge.

A total of 147 traffic stops resulted in issuing the driver a misdemeanor summons (1.8%). This was lower than the statewide average of 4.8% for stops resulting in misdemeanor charges. When considered as a proportion of their total stops, black drivers were more than twice as likely and Hispanic drivers were almost seven times as likely to be issued a misdemeanor summons as a result of the stop as were white drivers (2.5% of all black drivers stopped and 7% of all Hispanic drivers stopped compared to 1.2% of all white drivers stopped). Of these stops, 137 were initiated for a reason that was not a misdemeanor violation (e.g. speeding, stop sign violation, defective or improper lighting, etc.) However, once the officer interacted with the operator of the vehicle a misdemeanor violation was identified. The vast majority of these stops were for a license or registration related issue. In particular, 52% of the misdemeanor stops resulted in a charge of operating with a suspended or revoked license. Approximately 7.4% of the misdemeanor stops resulted in a charge for driving under the influence of alcohol or drugs. Ridgefield did not report the secondary statutory citation in 36 of the cases that resulted in a misdemeanor. Unlike many infraction violations, officers do not have discretion in the issuance of a misdemeanor summons when a misdemeanor violation is identified.

Search Information

A review of department search information shows 0.7% (54) of the drivers stopped in Ridgefield were subjected to a motor vehicle search. The rate of motor vehicle searches is less than the state average of 3%. Black drivers were searched at more than twice the rate of white drivers, while Hispanic drivers were searched at only a slightly higher rate than white drivers were. Contraband was found at a higher rate with black and Hispanic drivers, but given the relatively small number of searches conducted, these differences are insignificant. Motor vehicle searches in Ridgefield are concentrated in the high enforcement census tracts. The majority of searches occurred in tracts 2452 (26) and 2453 (8). There were 21 searches on Danbury Road. Figure 3.3 illustrates the motor vehicle search rate and the rate at which contraband was found (the "hit rate").

Figure 3.3: Search and Hit Rate
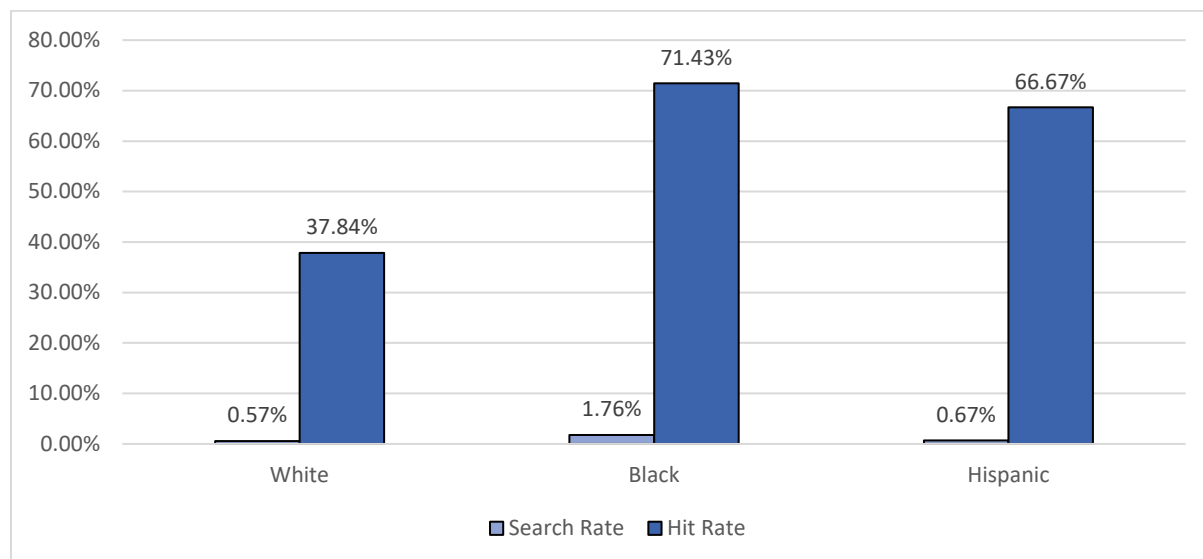
Calls for Service and Citizen Complaints

Law enforcement administrators choose to deploy police resources within a community based on a number of different factors, including where calls for service are more prevalent. The department

provided researchers with the calls for service log, which included calls for service and officer initiated actions that were called into police dispatch. The logs report approximately 14,897 entries from October 1, 2015 through September 30, 2016, exclusive of traffic stops. The top reasons for calling dispatch were for a security check or a response to an alarm, and these account for about 54% of all calls. Unfortunately, the information provided in the call logs was in summary form and did not identify the information by specific location.

However, the department did share summary information on the number of calls per patrol sector. Patrol sector one accounts for the largest volume of calls for service with 39% of all calls, followed by district three with 20% of all calls. These two patrol districts make up the majority of the high traffic enforcement area in the town. Patrol sector one patrols the downtown Ridgefield area that covers a large section of Main Street and patrol sector three patrols the majority of Route 7 and Danbury Road in town. The higher level of calls for service in patrol sectors one and three supports the rationale for the additional resources deployed to patrol in that busier section of the town.

Additional Contributing Factors

In addition to calls for service, law enforcement administrators also distribute police resources within a community based on accident rates or where crime rates are higher. In addition to these factors, police presence may be greater where traffic volume is higher as the result of common factors that draw people into a community such as employment and entertainment. Traffic enforcement actions are likely to be more prevalent in locations that attract greater police presence due to some of these factors. Basic information on crime, accidents, and other economic factors associated with Ridgefield provide a context to potentially explain the rationale for police deployment that are important considerations.

According to the Connecticut Economic Resource Center (CERC) town profiles, approximately 10,580 people work in Ridgefield and its major employers include Boehringer Ingelheim Pharmaceuticals, Benchmark Assisted Living, and Pamby Motors. The vast majority of commuters traveling into Ridgefield for employment are from Danbury, Bethel, and Newtown. The overall unemployment rate is 3.9%, which is below the unemployment rates for Fairfield County and the state.

In 2016, the crime rate in Ridgefield was reported to be 29.8 per 10,000 residents, compared to the state crime rate of 204 per 10,000 residents. According to the 2016 Connecticut Uniform Crime Report[11], there were 74 reported crimes in Ridgefield in 2016. The two most reported crimes were larceny (63) and burglary (7).

During our study period, there were approximately 488 motor vehicle accidents on roads patrolled by the Ridgefield Police Department. Accidents were reported as occurring on 90 roads. The roadways with the highest number of accidents were Danbury Road (106 accidents), Ethan Allen Highway (76 accidents), and Main Street (41 accidents). There were only 10 roads with 10 or more accidents and those roads account for 67% of all accidents in Ridgefield.

Figure 4.1 illustrates the time of day when traffic accidents were reported and the number of traffic stops that occurred during that same period. This shows how closely traffic enforcement is correlated

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[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: the violent crimes of murder, rape, robbery, and aggravated assault and the property crimes of burglary, larceny-theft, and motor vehicle theft.

with traffic accidents in Ridgefield. While the vehicle crash rate tends to build steadily throughout the day in Ridgefield, it peaks during the afternoon period from 3:00 p.m. through 6:00 p.m.

Figure 4.1: Accidents Compared to Traffic Stops by Time of Day
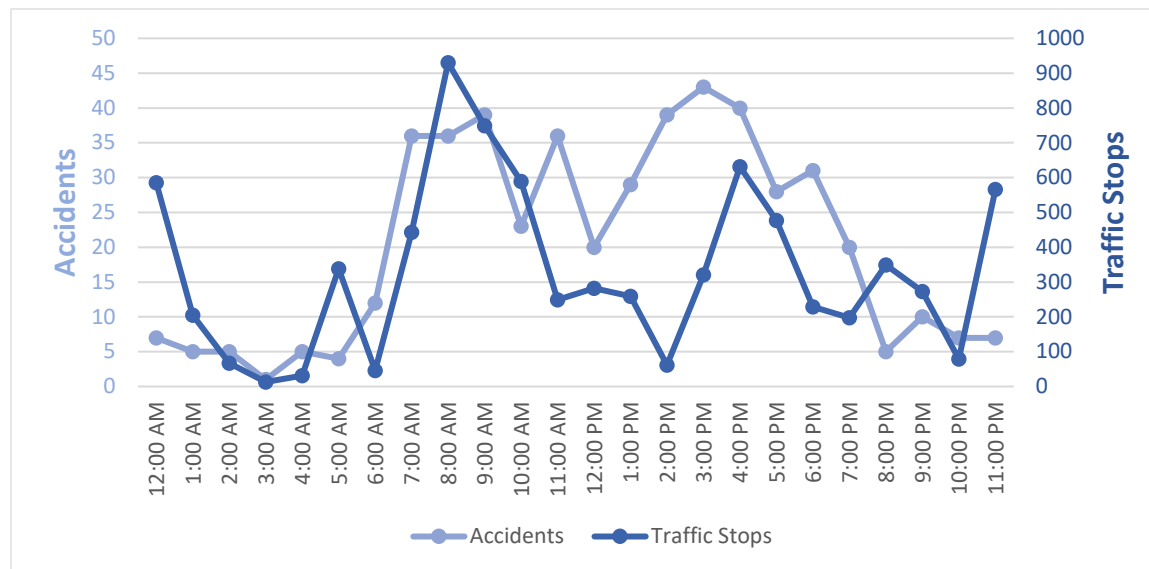
Summary of Findings

The Ridgefield Police Department identified factors they believe contributed to the disparity identified in the initial analysis of traffic stops. In particular, the department identified Danbury Road and Route 7 as major traffic generators for the town. The department also indicated that they have seen an increase in out-of-town residents travelling in these areas for shopping, dining, or entertainment purposes. Areas with the highest levels of traffic appear to be some of the same areas with the highest levels of motor vehicle enforcement. The department also indicated the impact that reported accidents along these high enforcement areas in the southern section of town have had on the deployment of departmental resources. It is evident by the number of traffic stops made on these roadways that departmental resources are concentrated along Danbury Road and Route 7.

Ridgefield has a non-white driving age population that includes about 3.5% Hispanic residents and 1% black residents. Two high enforcement census tracts (2452 and 2453) account for 60% of all traffic enforcement. These same census tracts accounts for 70% of all black drivers stopped and 65% of all Hispanic drivers stopped. The traffic enforcement within census tracts 2452 and 2453 is primarily driven by activity on Danbury Road, Route 7, and Main Street.

There are three major roadways where significant amounts of traffic enforcement occurred (Danbury Road, Route 7, and Main Street). Almost 62% of all traffic stops in Ridgefield occurred on one of these three roadways, with 6.5% of the stops involving black drivers and 13.5% of the stops involving Hispanic drivers. It is also worth noting that 80% of black drivers and 74% of Hispanic drivers were stopped on these roadways compared to 59% of white drivers. Danbury Road and Route 7 are the major travel routes for traffic to and from surrounding communities. Non-resident minority drivers made up at least 86% of those stopped on these roads.

On average, 70% of the drivers stopped in Ridgefield were not residents. The influence non-resident drivers had on stop demographics affected census tracts and roadways to varying degrees. Non-

residents most heavily affected the high enforcement census tracts (2452 and 2453), which also include the three roadways with the greatest enforcement. Non-resident drivers particularly influenced Danbury Road and Route 7. Over 83% of all drivers stopped on Danbury Road were not residents of the town. Non-resident black and Hispanic drivers were more likely to be stopped on Danbury Road than non-resident white drivers were. Approximately 79% of the white drivers stopped on Danbury Road were not town residents compared to 97% of black drivers and 96% of Hispanic drivers. Over 89% of all drivers stopped on Route 7 were not residents of the town. Approximately 87% of the white drivers stopped on Route 7 were not town residents compared to 97% of black drivers and 99% of Hispanic drivers stopped on Route 7.

About 57% of drivers stopped on all roadways other than Danbury Road and Route 7 were not town residents. The percentage of non-resident minority drivers stopped on other roadways was also significantly higher than the percentage of non-resident white drivers. However, the majority of minority drivers were stopped on Danbury Road and Route 7. Therefore, the data suggests that non-resident minority drivers travel on Danbury Road and Route 7 at a higher rate than white drivers do.

Ridgefield has 36 officers who made at least one traffic stop during the study period. The average stops made per officer was 222, but four officers (11% of the officer force) accounted for 35% 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

In Ridgefield, the three most common reasons used for stopping a motorist make up 74% of the total stops. The three largest stop categories were for speeding violations (52%), cell phone violations (15%), and stop sign violations (7%). Black drivers were stopped at a slightly higher rate for speeding violations than white or Hispanic drivers were. Hispanic drivers were stopped at a slightly higher rate than black or white drivers for cell phone violations. Although there appears to be a higher percentage of black and Hispanic drivers stopped for equipment violations, the total number of equipment-related stops is too small to draw any conclusions.

Speed-related motor vehicle enforcement on Danbury Road and Route 7 appears to have had a significant impact on overall traffic stop disparities for black and Hispanic drivers in Ridgefield. Over 37% of the white drivers stopped for speeding were stopped on Danbury Road or Route 7, compared to 66% of black drivers and 56% of Hispanic drivers. Officers reported 94% of speed-related stops as "blind." This means officers report using a blind enforcement technique like radar, a laser, license plate recognition device, or other similar technology or method. The speed-related stops recorded as "blind" were likely the result of an officer using radar or laser technology. Of the speed-related stops recorded as "blind," the racial demographics were 80% white, 6% black, and 11% Hispanic, which almost mirrored the racial demographics for all stops. "Blind" speed enforcement stops are a good indication that the racial demographics of drivers on Ridgefield roadways were reflected in its stop activity.

Overall, almost 61% of all drivers stopped received a warning. Stops involving Hispanic drivers were more likely to result in an infraction citation than either white or black drivers but less likely to result in a verbal or written warning. The proportion of Ridgefield's traffic stops that resulted in a misdemeanor summons (1.8%) was below the state average of 4.8%, but black and Hispanic drivers were more likely to receive a misdemeanor summons than white drivers were. The majority of the

stops that resulted in a misdemeanor charge were initiated for a reason that was not initially a misdemeanor violation. However, once the officer interacted with the operator a misdemeanor violation was identified. Most of the misdemeanor charges were for a license or registration related issue. Unlike many infraction violations, officers do not have discretion in the issuance of a misdemeanor summons when such a violation is identified.

Ridgefield police searched less than 1% of the drivers they stopped, which was below the state average of 2.9%. Black drivers were searched at a higher rate than white or Hispanic drivers were. Contraband was found after a search at a higher rate for black and Hispanic drivers. Given the relatively small number of searches conducted, these differences are not significant.

Conclusion

Taken as a whole, the Ridgefield traffic stop data reflects the influence of the Danbury Road and Route 7 corridors that appears to be somewhat more diverse than the predominantly white local driving age population. Both of these roads appear to have a relatively high level of enforcement and a relatively higher proportion of non-resident minority drivers travelling them. The nature of traffic enforcement in Ridgefield is focused on more serious safety-related violations, particularly speed and cell phone violations. In most of the speed-related stops, officers made the determination to stop the driver using speed enforcement technology. This made it more likely that the stop was blind to the racial demographics of the driver and is an indication that the racial demographics of drivers on Ridgefield roadways was reflected in its stop activity. After a full review, the disparities do not appear excessive in nature, but the department would benefit from a periodic review of traffic enforcement policies as they relate to enforcement activity on Danbury Road and Route 7 in order to evaluate the extent to which they may have a disproportionate impact on minority drivers.

I.C: 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.[12] 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.

The methods used in *Traffic Stop Data Analysis and Findings, 2015-16* seek to identify whether Connecticut police departments exhibit patterns of racial bias in traffic stops and searches. In that report, a total of eight municipal police departments were identified as having a statistically significant disparity in the likelihood that a minority motorist is stopped or searched. These findings held for a variety of descriptive and statistical tests. The compelling statistical evidence warranted further investigation to determine possible explanations or sources for the identified disparities. Here, we outline and apply a methodology to examine racial disparities in traffic stops at the *individual officer* level.

As noted above, the results in *Traffic Stop Data Analysis and Findings, 2015-16* identify statistical disparities at the department level. Profiling, however, may not be an aggregate problem. Since individual officers are the decision makers in the traffic stop process, it makes sense to test for statistical evidence that the minority status of the driver impacts this decision. In this section, an internal-benchmark approach developed by Ridgeway et al. (2006; 2007; 2009) is applied to three of the four departments identified in *Traffic Stop Data Analysis and Findings, 2015-16*. The hypothesis underlying this test is similar to the synthetic control methodology, but at a micro-level. That is, the racial distribution of stopped motorists should be identical when comparing an individual officer's stops to a benchmark officer whose stops are drawn from similar time, places, and contexts. Put simply, the comparison is between an individual officer and other officers who make stops at the same places and times. Thus, the internal-benchmark is unique to each officer, since patrol patterns and stop timing are fairly idiosyncratic.

A test for individual officers has several important benefits. First, it can function as an "early warning" system, allowing decision makers to identify potential issues before they become widespread. Second, it may confirm that aggregate statistical disparities can be traced back to just a few individuals. Finally, it may help answer questions related to these disparities. By looking at individual officers' benchmarking test results and stop patterns, a qualitative assessment becomes easier.

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[12] 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)

1.C. (1): 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.[13] The propensity scores were generated using binary indicator variables for clock time, reason for stop controls, state and town resident controls, day of the week controls, and season controls.[14] Additionally, latitude and longitude enter as continuous variables to control for location. 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. The results for each department are presented sequentially along with a narrative describing the details of the analysis. 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.[15]

A total of 336 unique officer identifiers were listed in the traffic stop database for the 8 municipal departments in the 2015-16 Traffic Stop Analysis and Findings. After limiting the sample to officers with 50 or more traffic stops, a total of 198 officers were examined. Of the officers examined, 21 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 12 of the 21 identified officers had a benchmark that convincingly captured the distribution of observable traffic stops. A summary of the results of the analysis for each individual department is presented below.

Department: Ansonia

The Ansonia Police Department had a total of 38 unique officer identifiers in the traffic stop database from October 2015 through September 2016. After limiting the sample to officers with 50 or more

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[13] The code used was from a user written R package titled "GBM" by Greg Ridgeway with contributions by Daniel Edwards, Brian Kriegler, Stefan Schroedl and Harry Southworth.

[14] 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, administrative offense, or unlicensed operation.

[15] 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.

traffic stops, a total of 19 officers were examined. None of these officers were identified as having been statistically more likely to stop a minority motorist than their benchmark.

Department: Berlin

The Berlin Police Department contained a total of 35 unique officer identifiers in the traffic stop database from October 2015 through September 2016. After limiting the sample to officers with 50 or more traffic stops, a total of 25 officers were examined. A total of 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. Both of these officers were found to have benchmarks that convincingly captured the distribution of observable traffic stops.

Department: Darien

The Darien Police Department contained a total of 45 unique officer identifiers in the traffic stop database from October 2015 through September 2016. After limiting the sample to officers with 50 or more traffic stops, a total of 23 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: Madison

The Madison Police Department contained a total of 27 unique officer identifiers in the traffic stop database from October 2015 through September 2016. After limiting the sample to officers with 50 or more traffic stops, a total of 18 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. The balancing test revealed that these two officers had benchmarks that convincingly captured the distribution of observable traffic stops.

Department: Monroe

The Monroe Police Department contained a total of 36 unique officer identifiers in the traffic stop database from October 2015 through September 2016. After limiting the sample to officers with 50 or more traffic stops, a total of 20 officers were examined. A total of six officers were identified as being statistically more likely to stop a minority motorist relative to their benchmark. The six officers were then examined using a balancing test that directly compared the distribution of observable traffic stop characteristics with those of the benchmark. Two of these officers were found to have benchmarks that convincingly captured the distribution of observable traffic stops.

Department: Newtown

The Newtown Police Department had a total of 38 unique officer identifiers in the traffic stop database from October 2015 through September 2016. After limiting the sample to officers with 50 or more traffic stops, a total of 27 officers were examined. None of these officers were identified as having been statistically more likely to stop a minority motorist than their benchmark.

Department: Norwich

Note: The Norwich Police Department was unable to provide location data for 77% of total stops. As such, the synthetic benchmark officers are constructed without location data. The importance of location must be considered when evaluating these results.

The Norwich Police Department contained a total of 81 unique officer identifiers in the traffic stop database from October 2015 through September 2016. After limiting the sample to officers with 50 or more traffic stops, a total of 39 officers were examined. A total of five 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. Three of these officers were found to have benchmarks that convincingly captured the distribution of observable traffic stops.

Department: Ridgefield

The Ridgefield Police Department contained a total of 36 unique officer identifiers in the traffic stop database from October 2015 through September 2016. After limiting the sample to officers with 50 or more traffic stops, a total of 27 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. One of these officers were found to have benchmarks that convincingly captured the distribution of observable traffic stops.

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TECHNICAL APPENDICES

Appendix A: Ansonia Police Department Maps

A.1: Map of Traffic Stops by Census Tract
A.2: Hotspot Map of Black Driver Stops
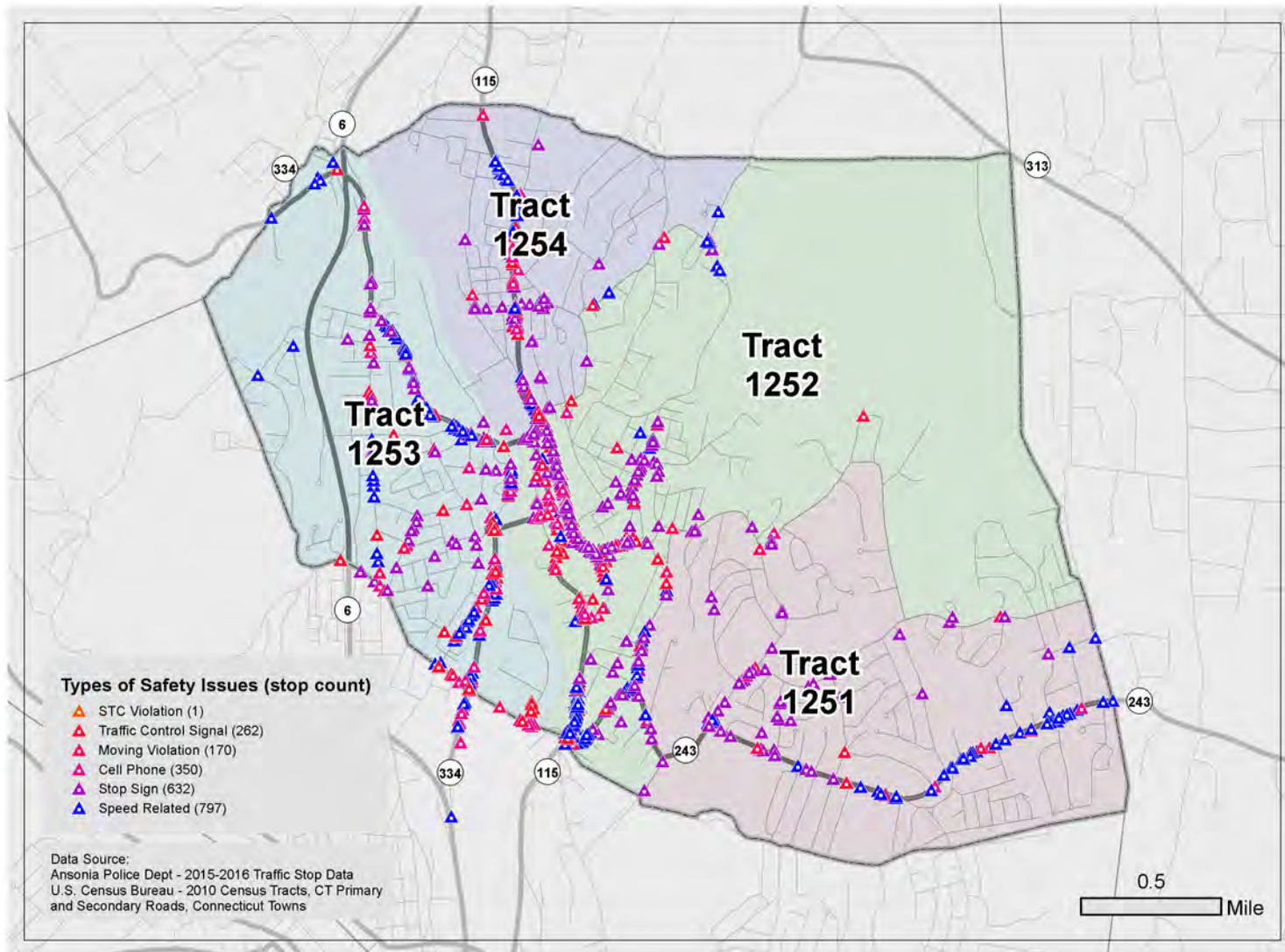A.3: Hotspot Map of Hispanic Driver Stops
A.4: Map of Equipment-Related Motor Vehicle Stops
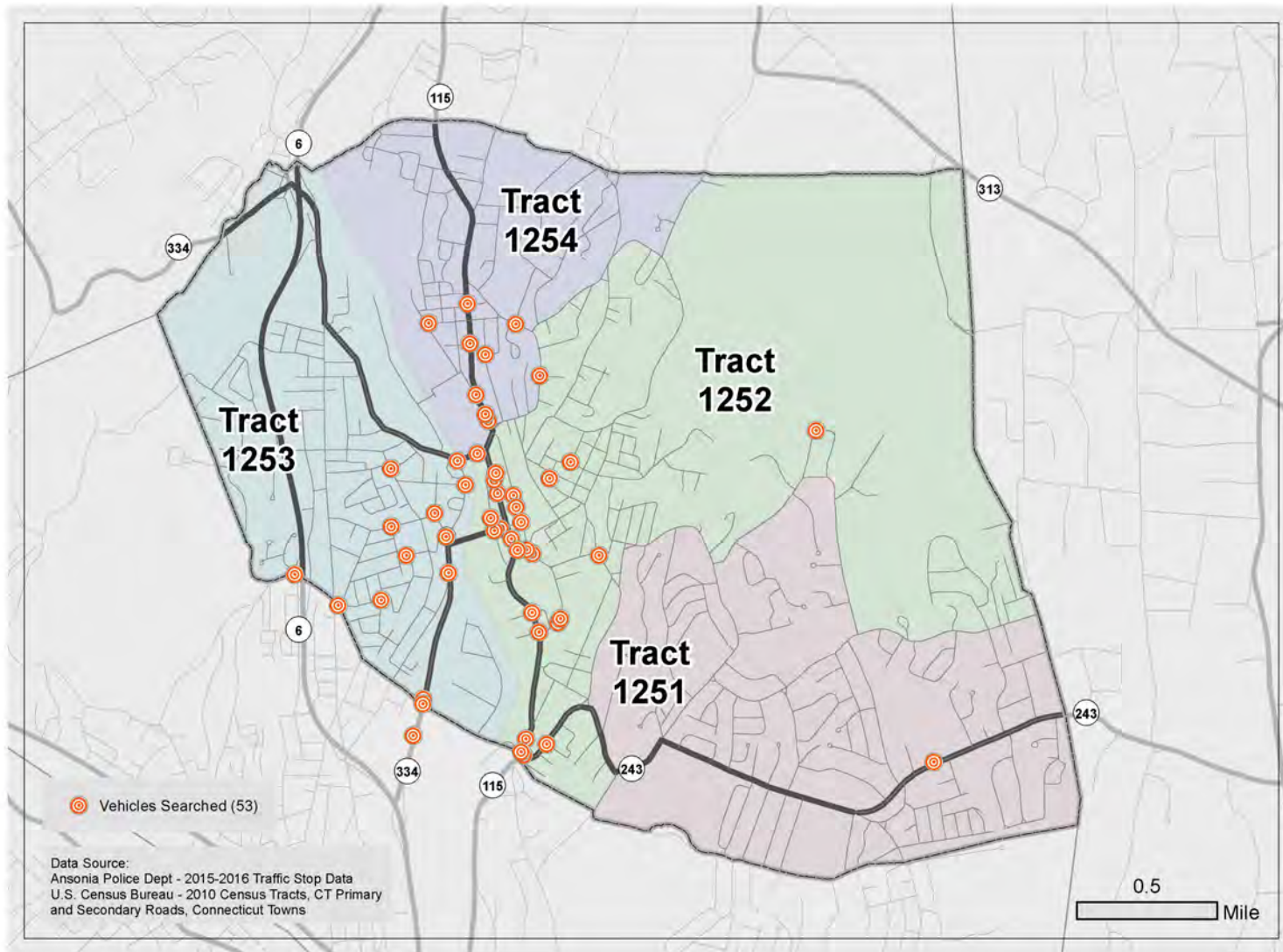A.5: Map of Safety-Related Motor Vehicle Stops
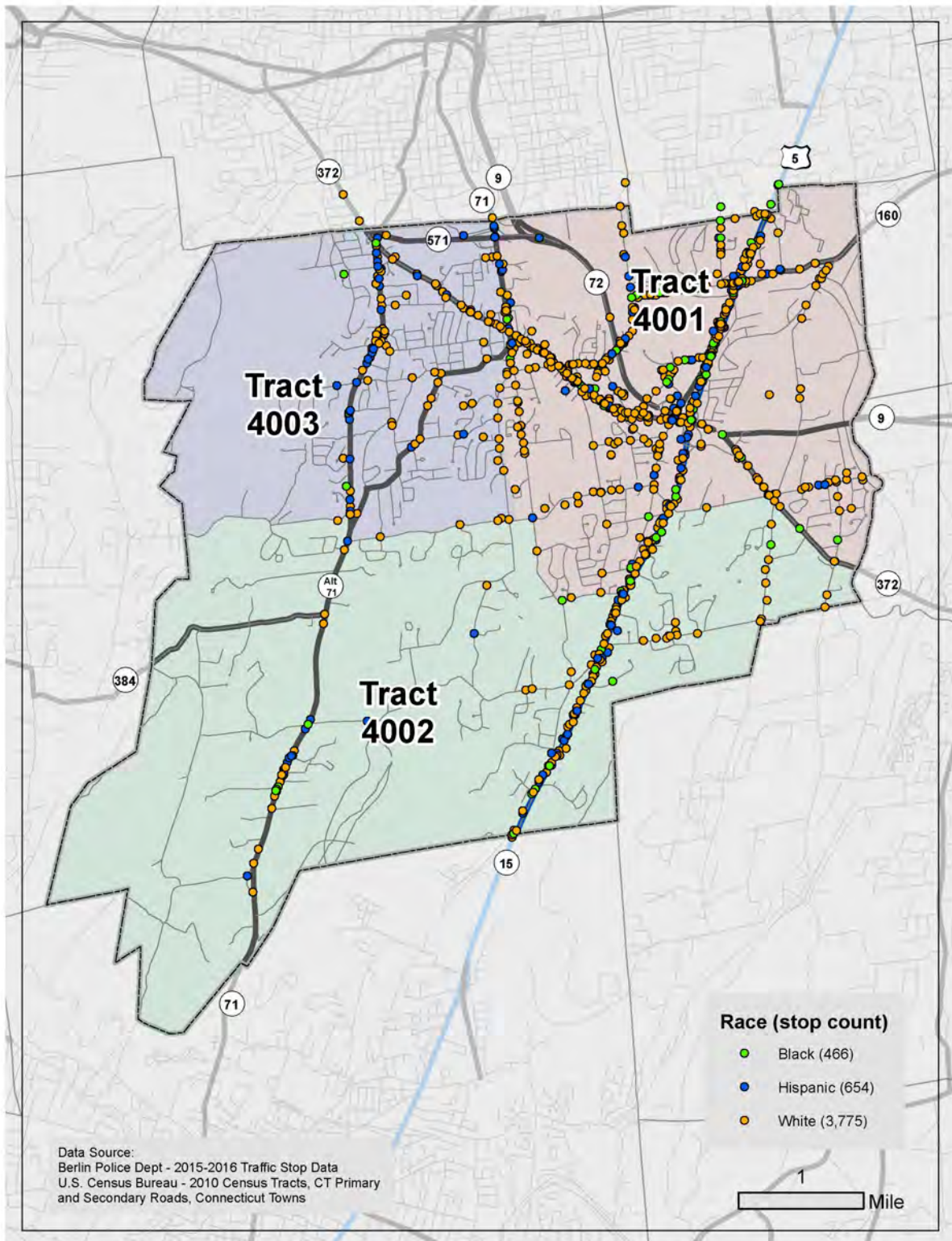A.6: Map of Motor Vehicle Searches
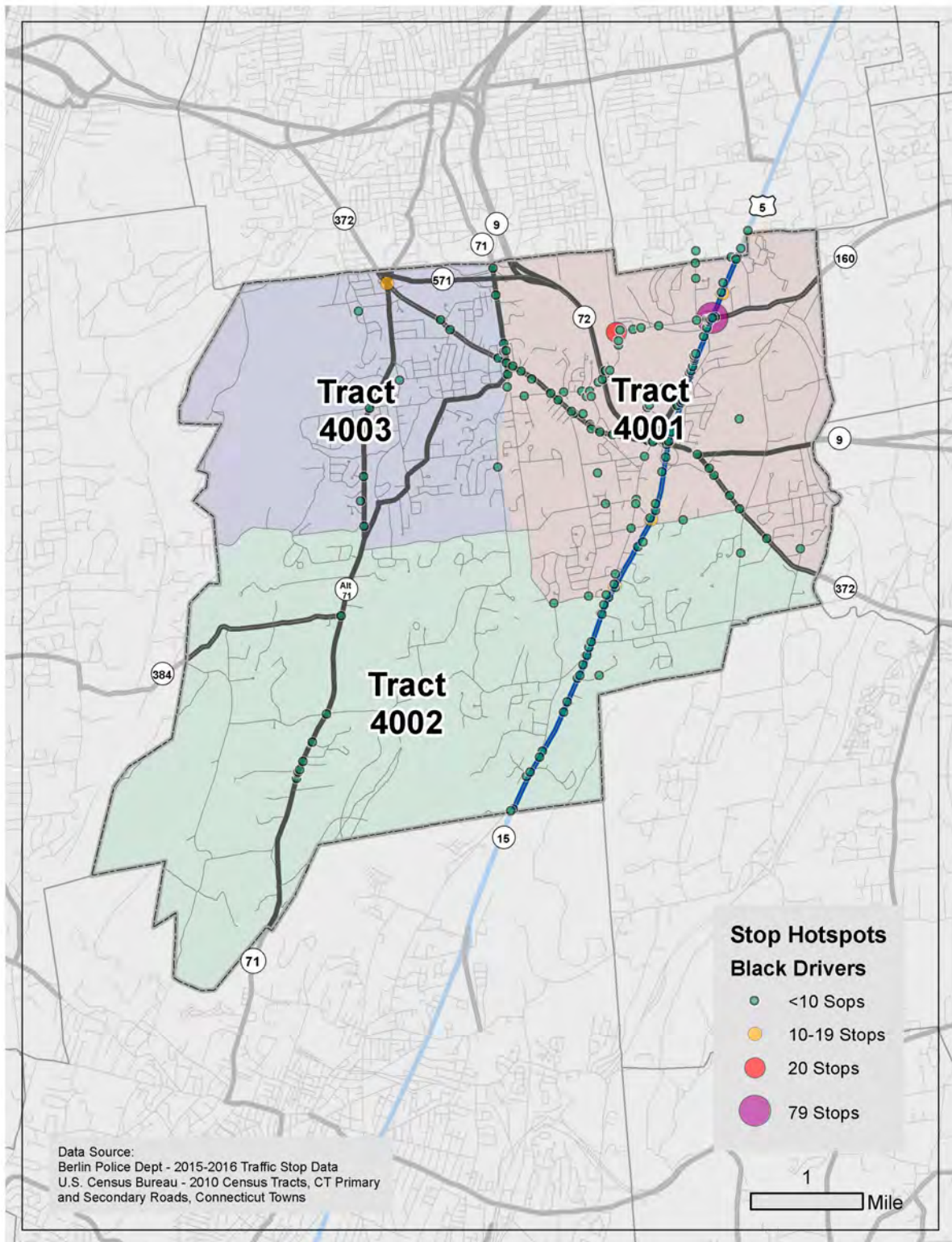
Appendix B: Berlin Police Department Maps

B.1: Map of Traffic Stops by Census Tract
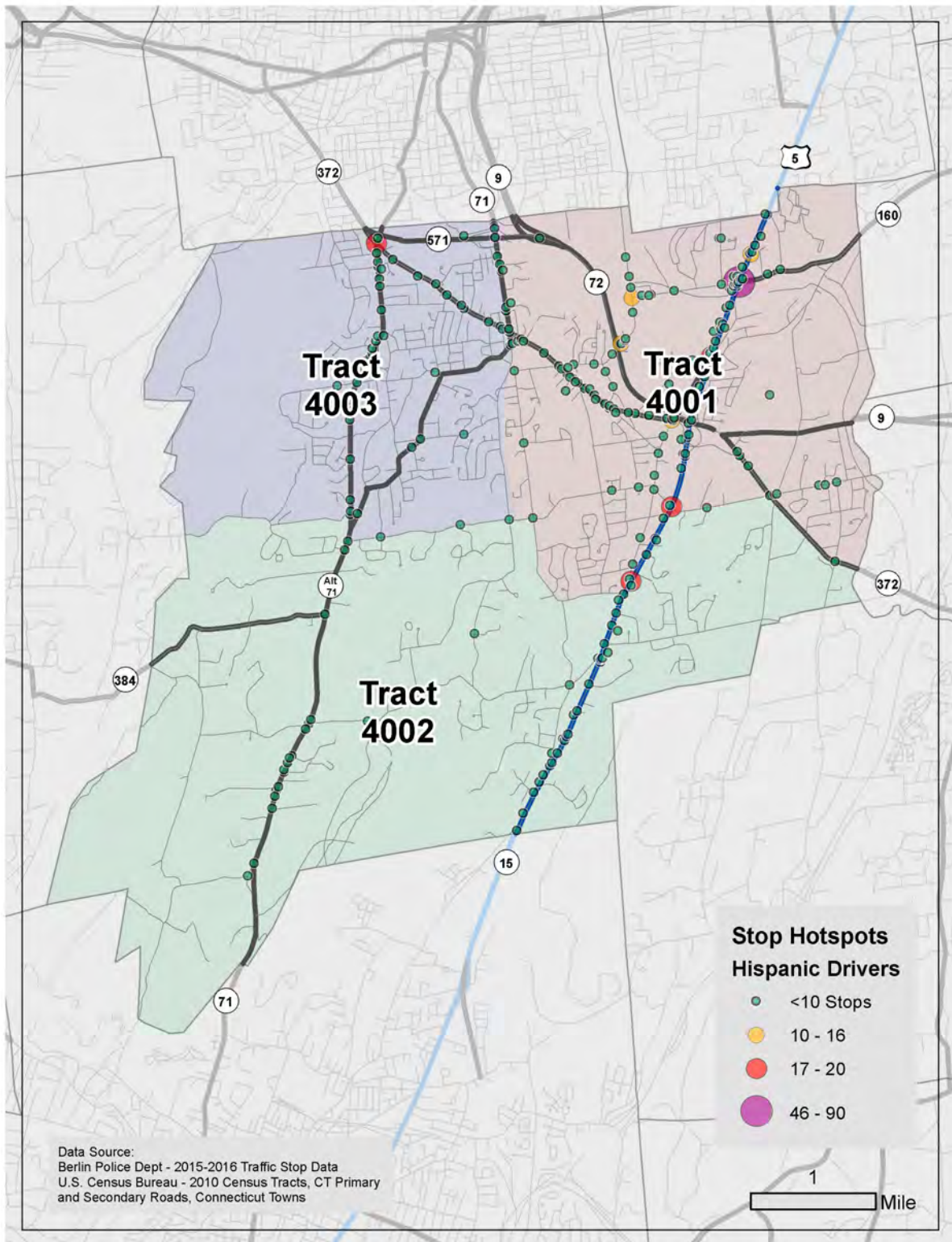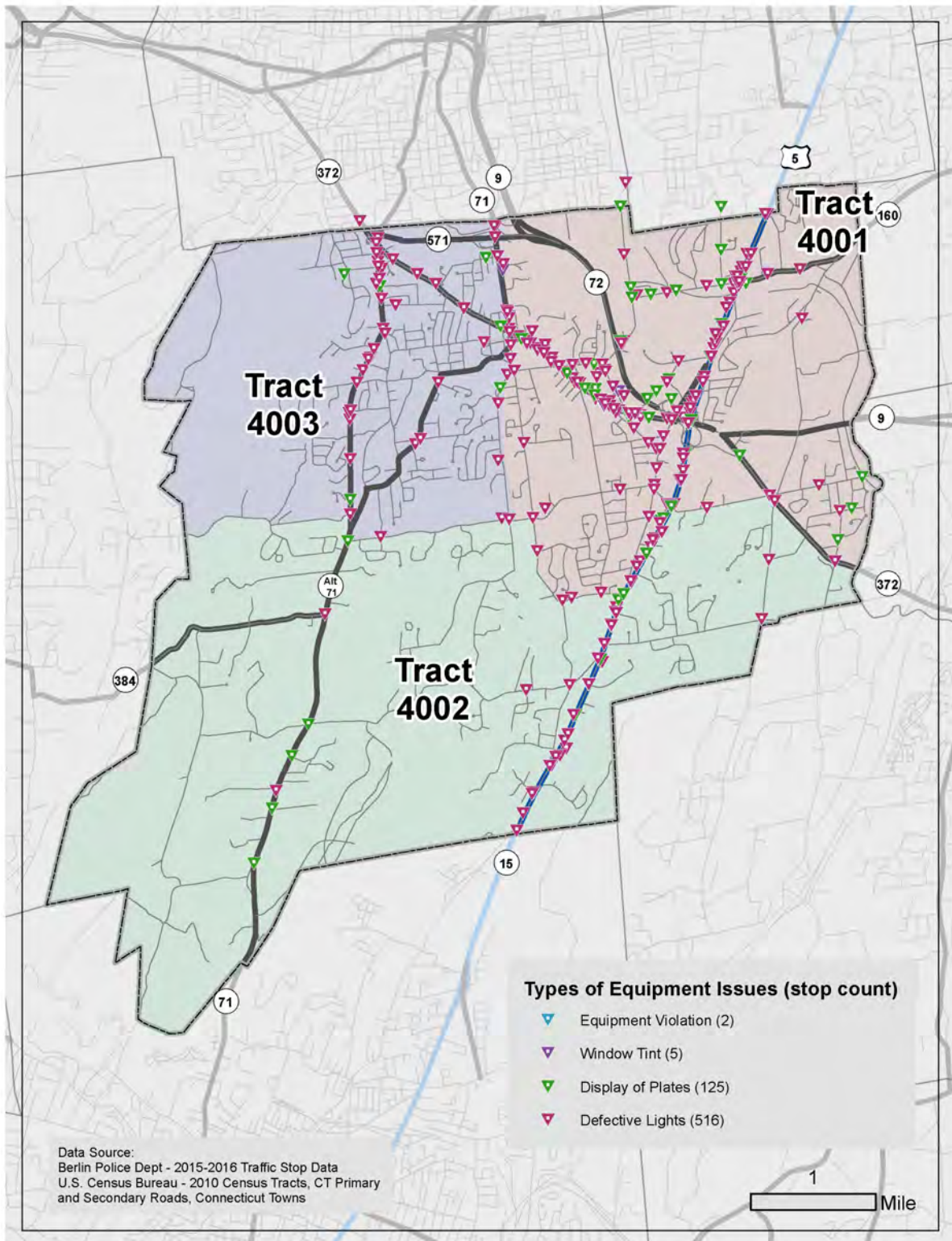B.2: Hotspot Map of Black Driver Stops
B.3: Hotspot Map of Hispanic Driver Stops
B.4: Map of Equipment-Related Motor Vehicle Stops
B.5: Map of Safety-Related Motor Vehicle Stops
B.6: Map of Motor Vehicle Searches

Appendix C: Darien Police Department Maps

C.1: Map of Traffic Stops by Census Tract
C.2: Hotspot Map of Black Driver Stops
C.3: Hotspot Map of Hispanic Driver Stops
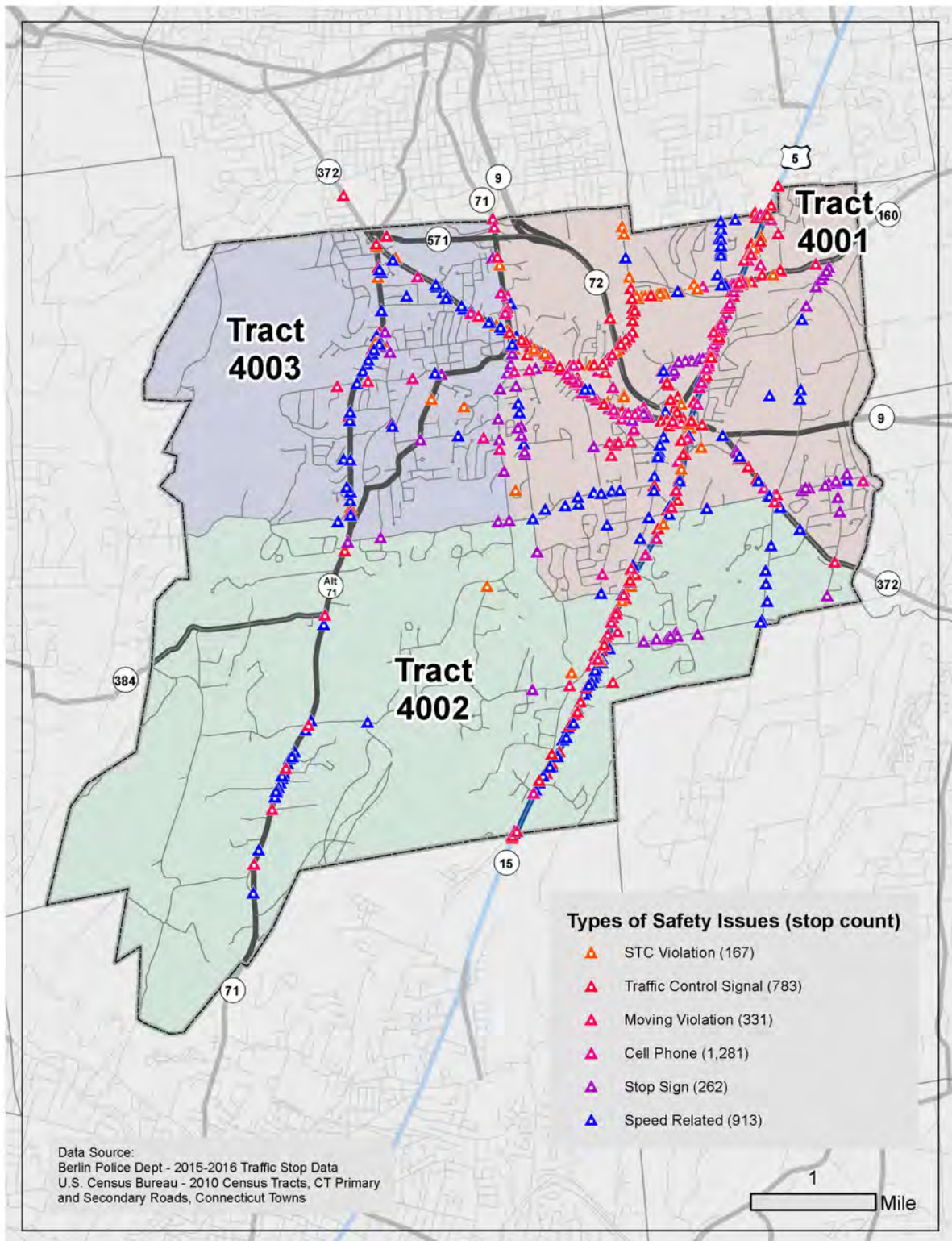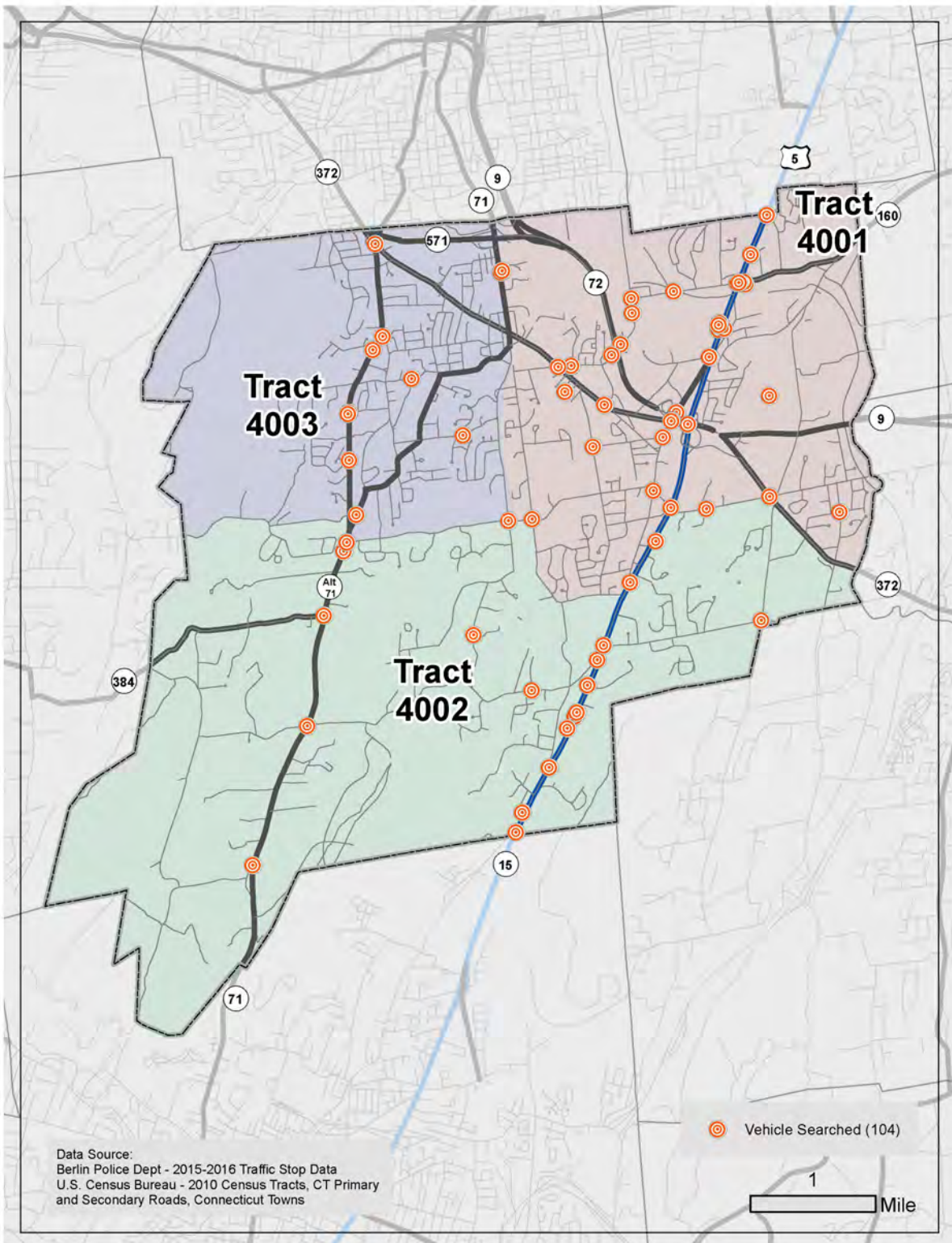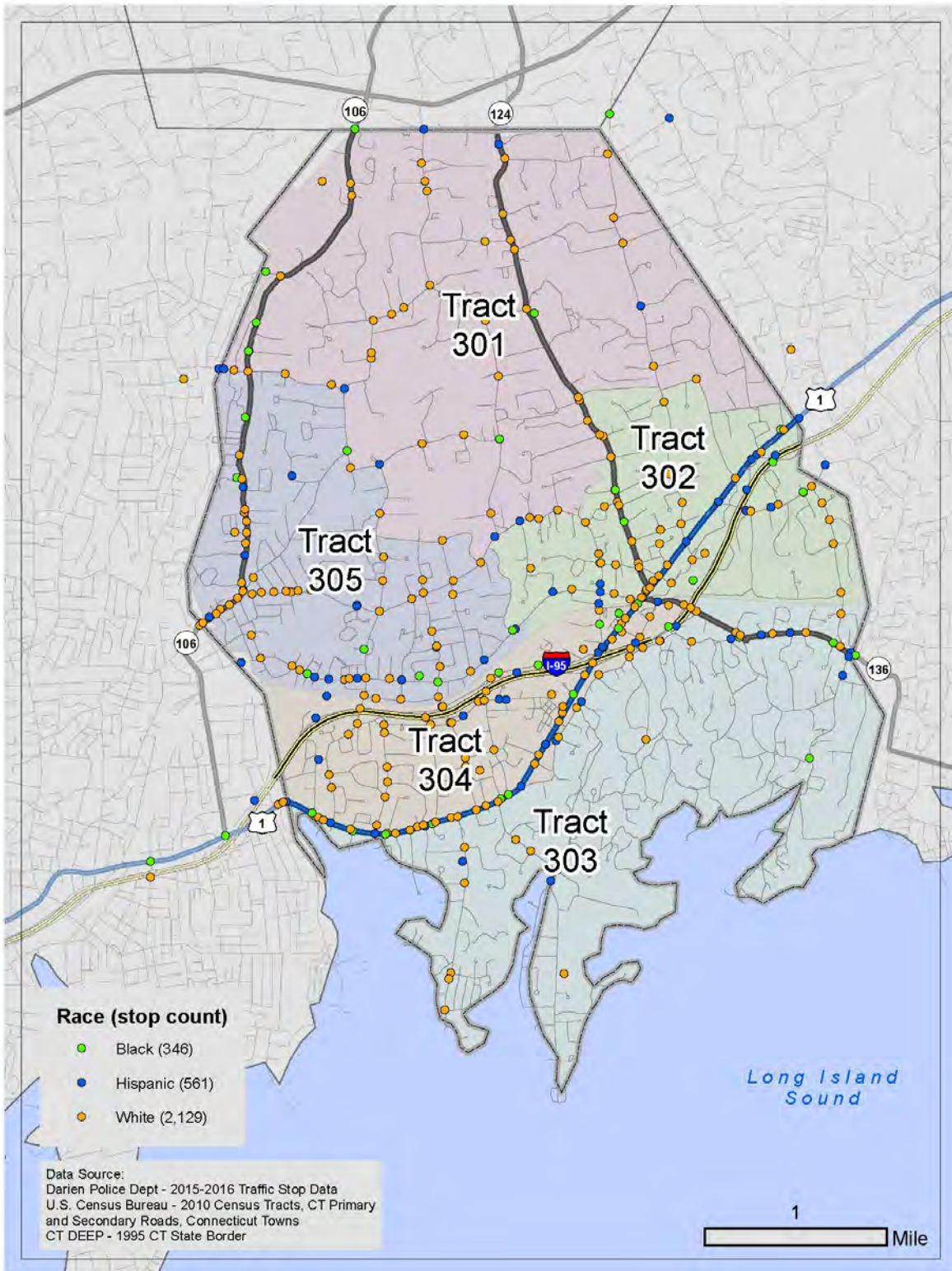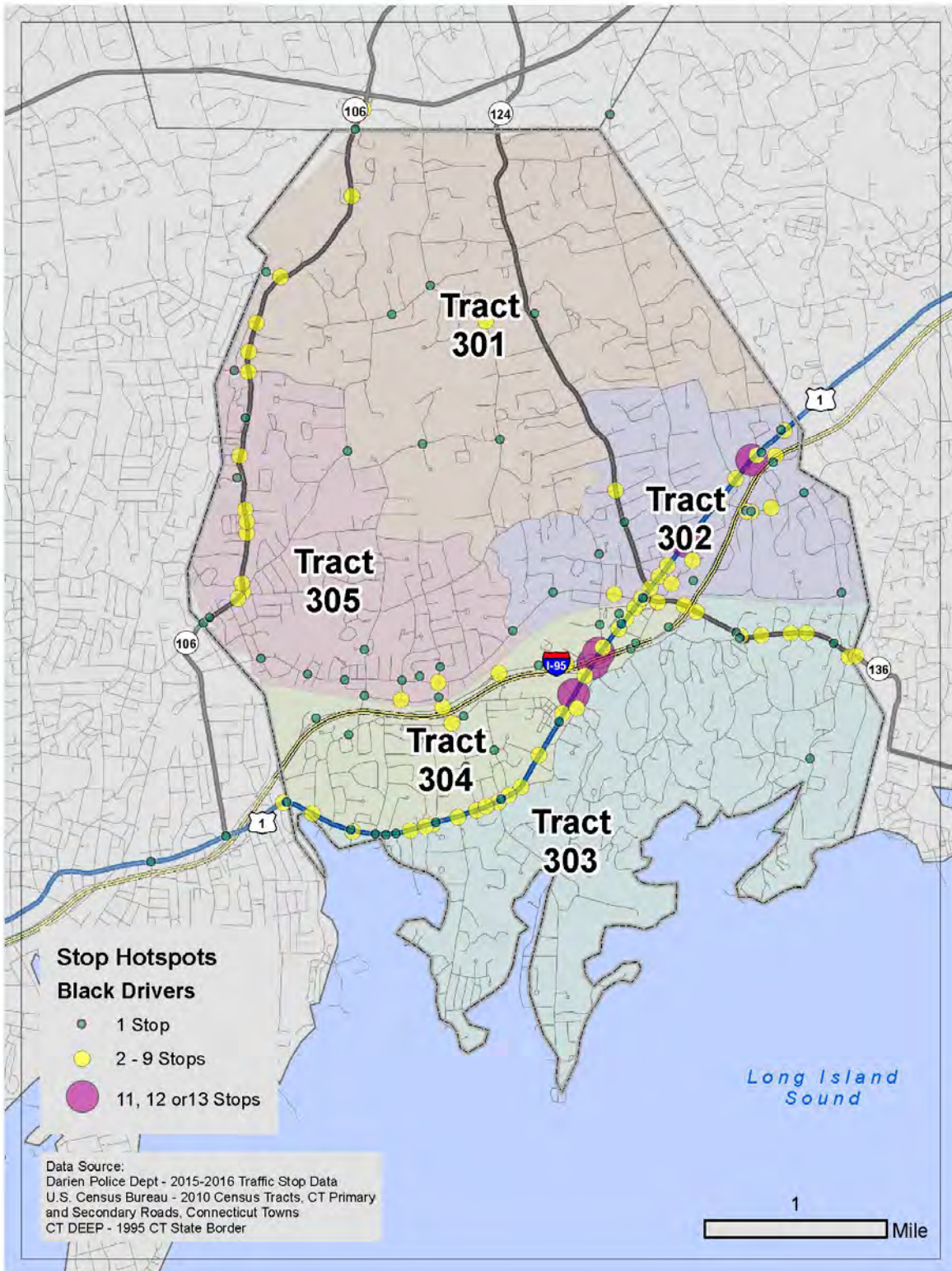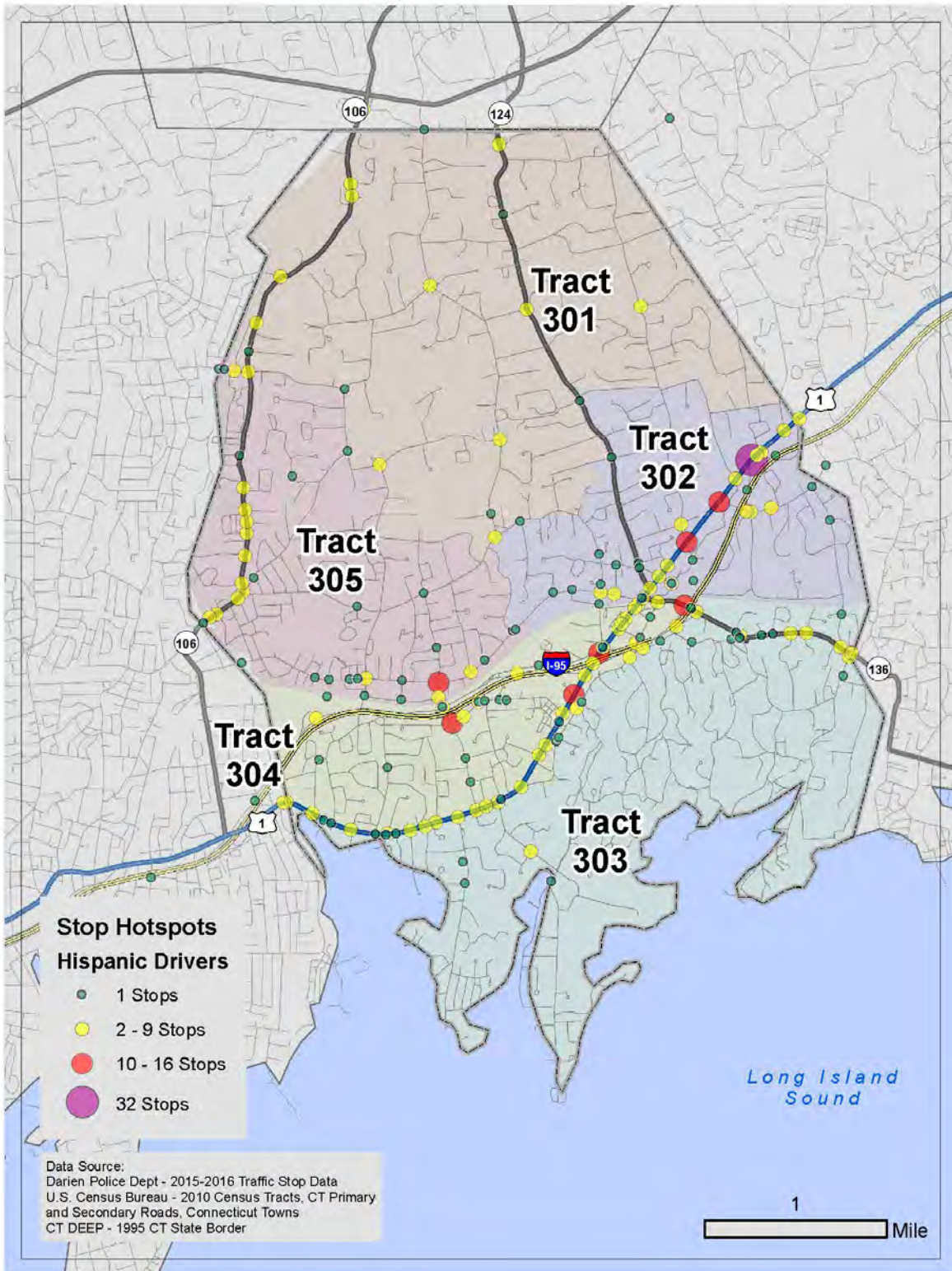C.4: Map of Equipment-Related Motor Vehicle Stops
C.5: Map of Safety-Related Motor Vehicle Stops
C.6: Map of Motor Vehicle Searches

Appendix D: Madison Police Department Maps
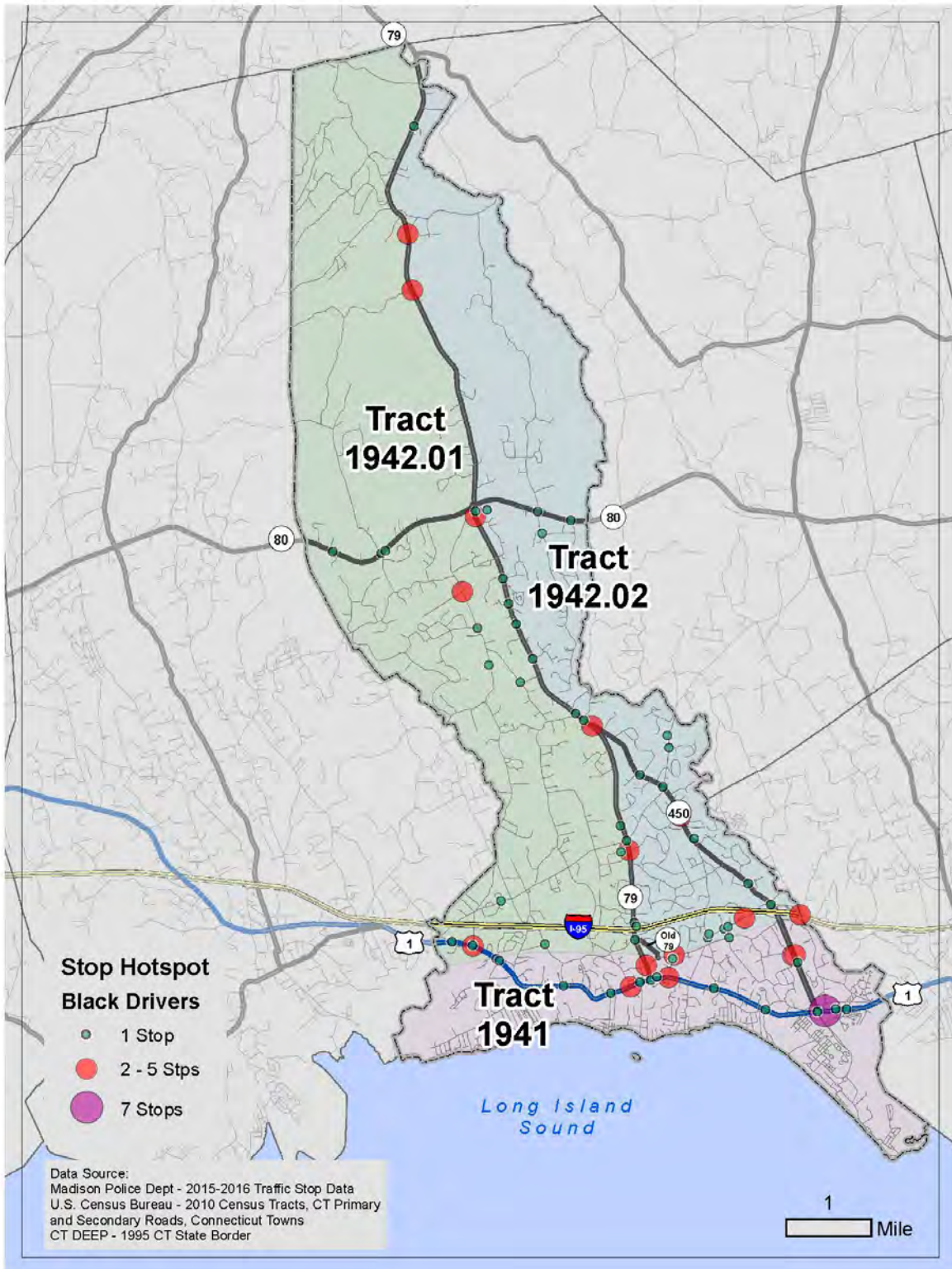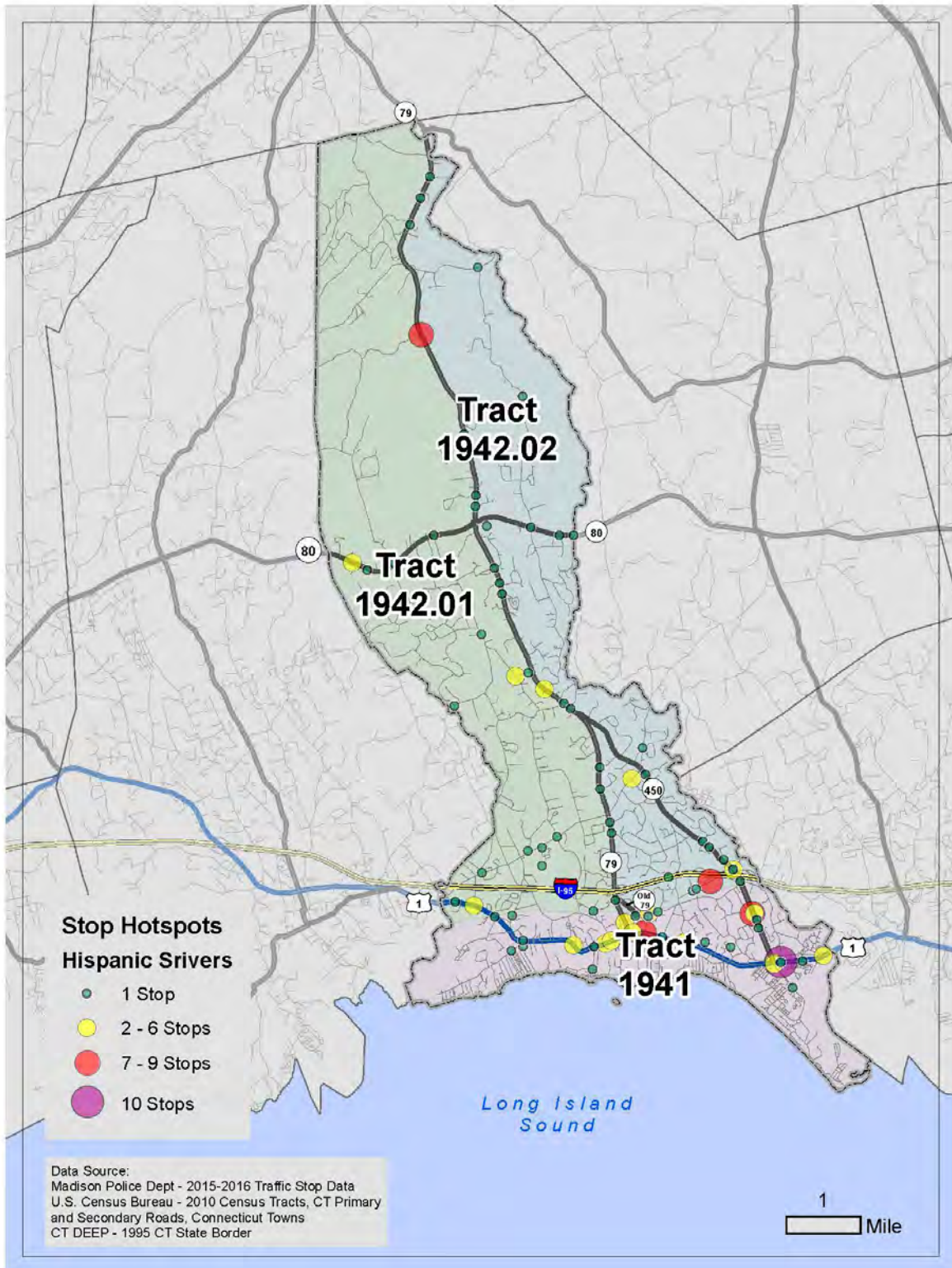
D.1: Map of Traffic Stops by Census Tract
D.2: Hotspot Map of Black Driver Stops
D.3: Hotspot Map of Hispanic Driver Stops
D.4: Map of Equipment-Related Motor Vehicle Stops
D.5: Map of Safety-Related Motor Vehicle Stops
D.6: Map of Motor Vehicle Searches

Appendix E: Monroe Police Department Maps

E.1: Map of Traffic Stops by Census Tract
E.2: Hotspot Map of Black Driver Stops
E.3: Hotspot Map of Hispanic Driver Stops
E.4: Map of Equipment-Related Motor Vehicle Stops
E.5: Map of Safety-Related Motor Vehicle Stops
E.6: Map of Motor Vehicle Searches

Appendix F: Newtown Police Department Maps

F.1: Map of Traffic Stops by Census Tract

APPENDIX A: ANSONIA POLICE DEPARTMENT MAPS

A.1: Map of Traffic Stops by Census Tract
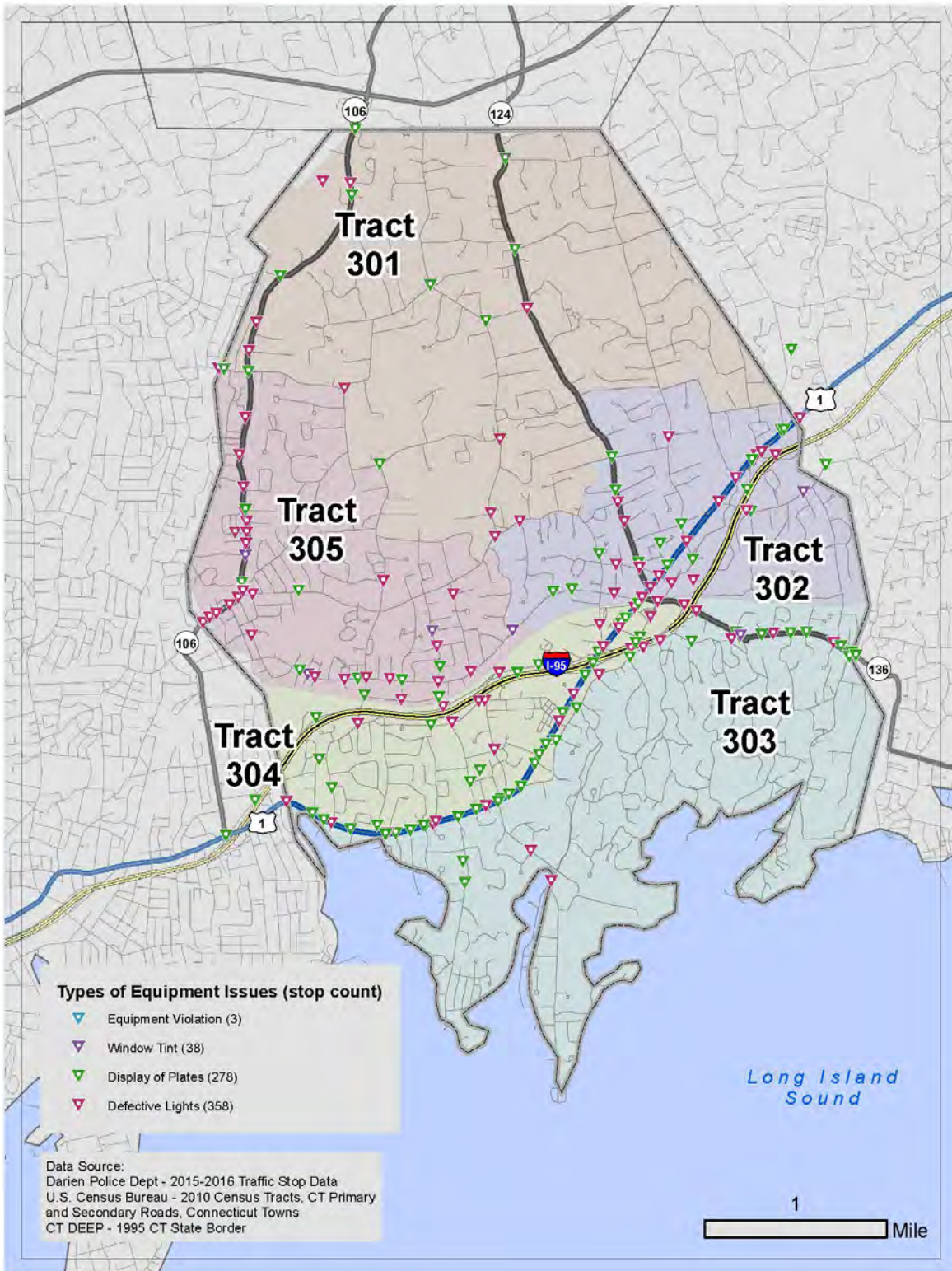
A.2: Hotspot Map of Black Driver Stops
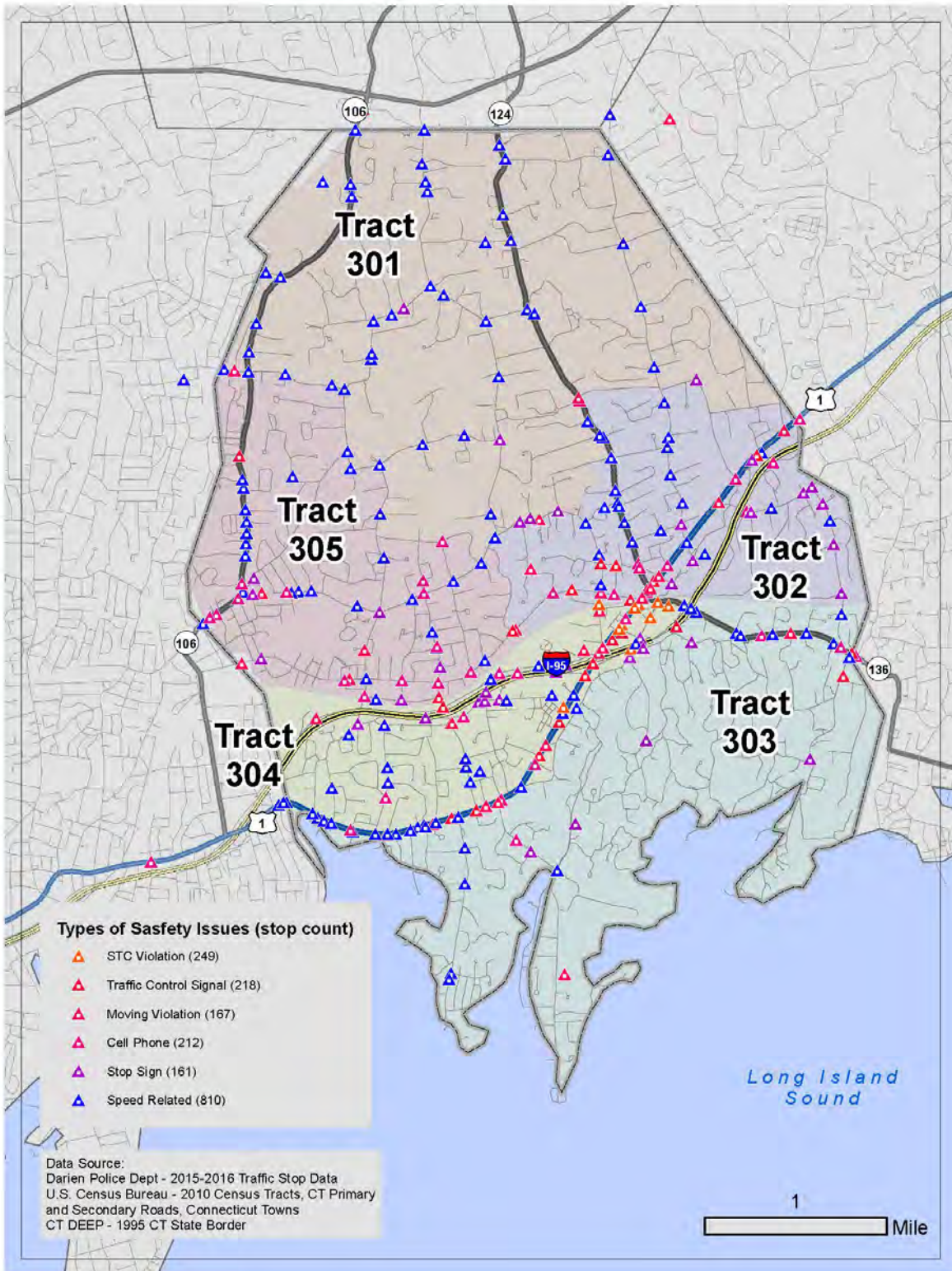
A.3: Hotspot Map of Hispanic Driver Stops
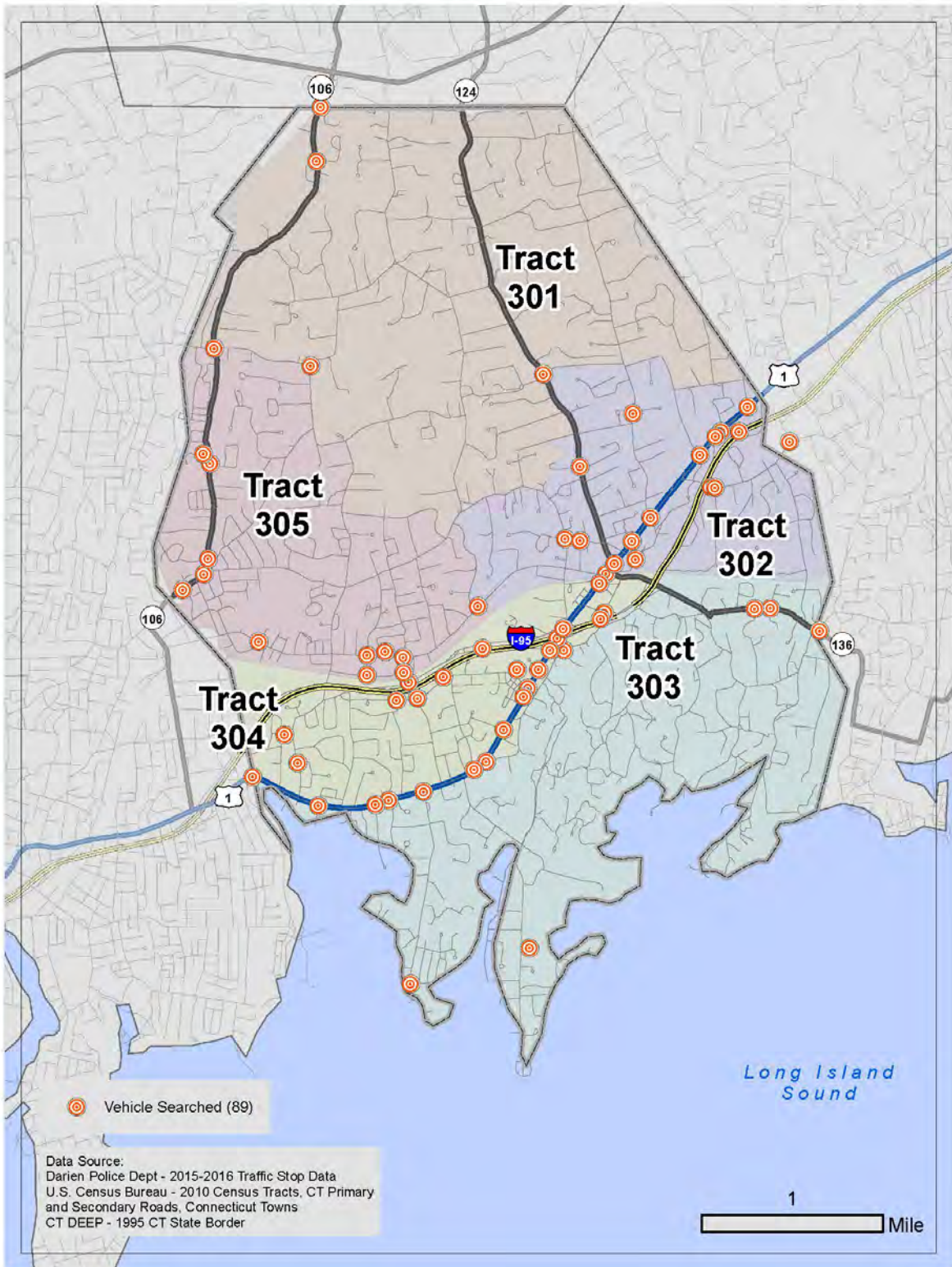
A.4: Map of Equipment-Related Motor Vehicle Stops

A.5: Map of Safety-Related Motor Vehicle Stops

Types of Safety Issues (stop count)
- STC Violation (1)
- Traffic Control Signal (262)
- Moving Violation (170)
- Cell Phone (350)
- Stop Sign (632)
- Speed Related (797)

Data Source:
Ansonia Police Dept - 2015-2016 Traffic Stop Data
U.S. Census Bureau - 2010 Census Tracts, CT Primary
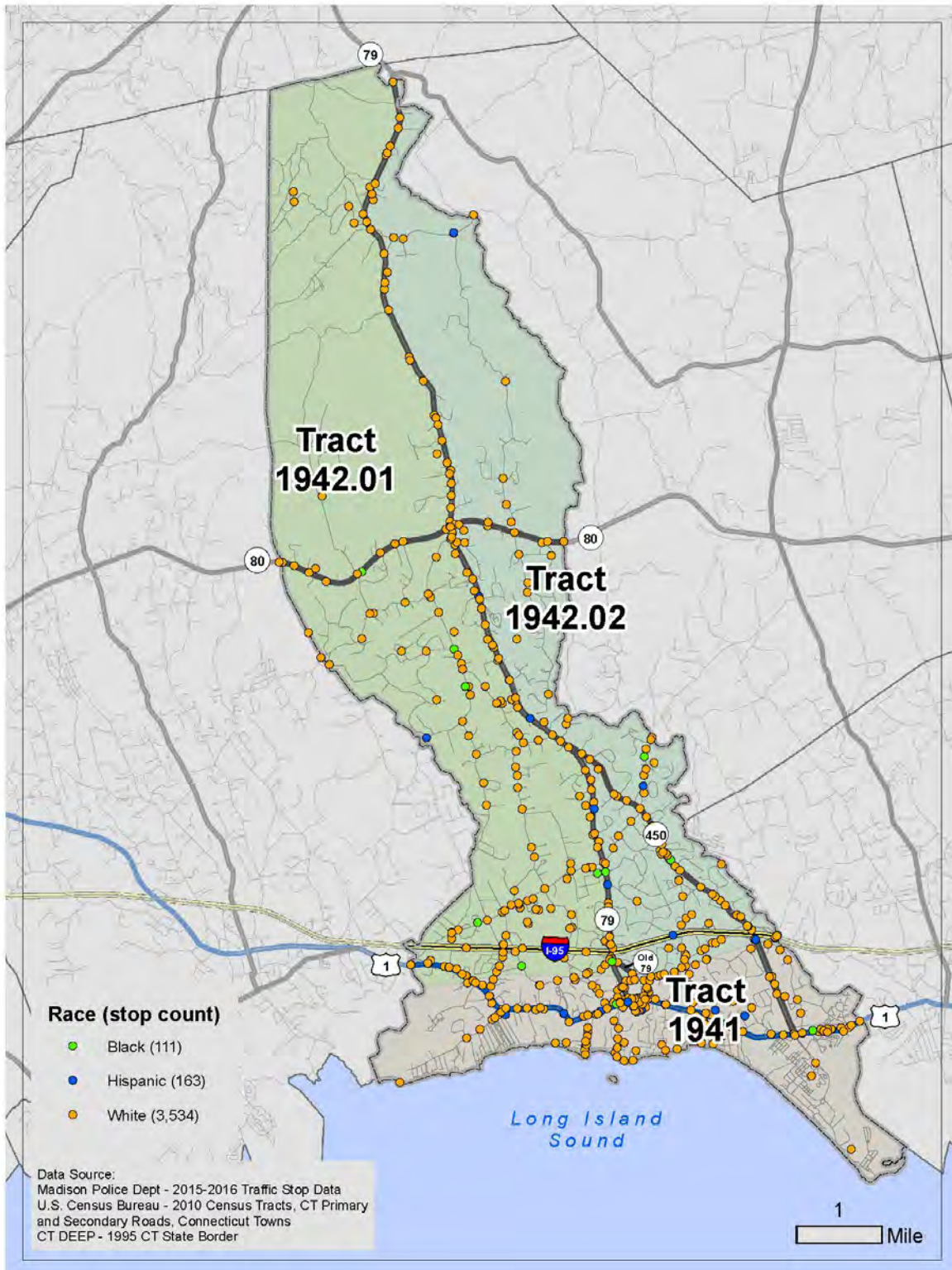and Secondary Roads, Connecticut Towns

0.5 Mile

151

A.6: Map of Motor Vehicle Searches

APPENDIX B: BERLIN POLICE DEPARTMENT MAPS

B.1: Map of Traffic Stops by Census Tract

B.2: Hotspot Map of Black Driver Stops

Stop Hotspots
Black Drivers
- <10 Sops
- 10-19 Stops
- 20 Stops
- 79 Stops

Data Source:
Berlin Police Dept - 2015-2016 Traffic Stop Data
U.S. Census Bureau - 2010 Census Tracts, CT Primary
and Secondary Roads, Connecticut Towns

1 Mile

B.3: Hotspot Map of Hispanic Driver Stops

Stop Hotspots
Hispanic Drivers

- ○ <10 Stops
- ○ 10 - 16
- ● 17 - 20
- ● 46 - 90

Data Source:
Berlin Police Dept - 2015-2016 Traffic Stop Data
U.S. Census Bureau - 2010 Census Tracts, CT Primary
and Secondary Roads, Connecticut Towns

1 Mile

B.4: Map of Equipment-Related Motor Vehicle Stops

Types of Equipment Issues (stop count)
- Equipment Violation (2)
- Window Tint (5)
- Display of Plates (125)
- Defective Lights (516)

Data Source:
Berlin Police Dept - 2015-2016 Traffic Stop Data
U.S. Census Bureau - 2010 Census Tracts, CT Primary
and Secondary Roads, Connecticut Towns

B.5: Map of Safety-Related Motor Vehicle Stops

B.6: Map of Motor Vehicle Searches

APPENDIX C: DARIEN POLICE DEPARTMENT MAPS

C.1: Map of Traffic Stops by Census Tract
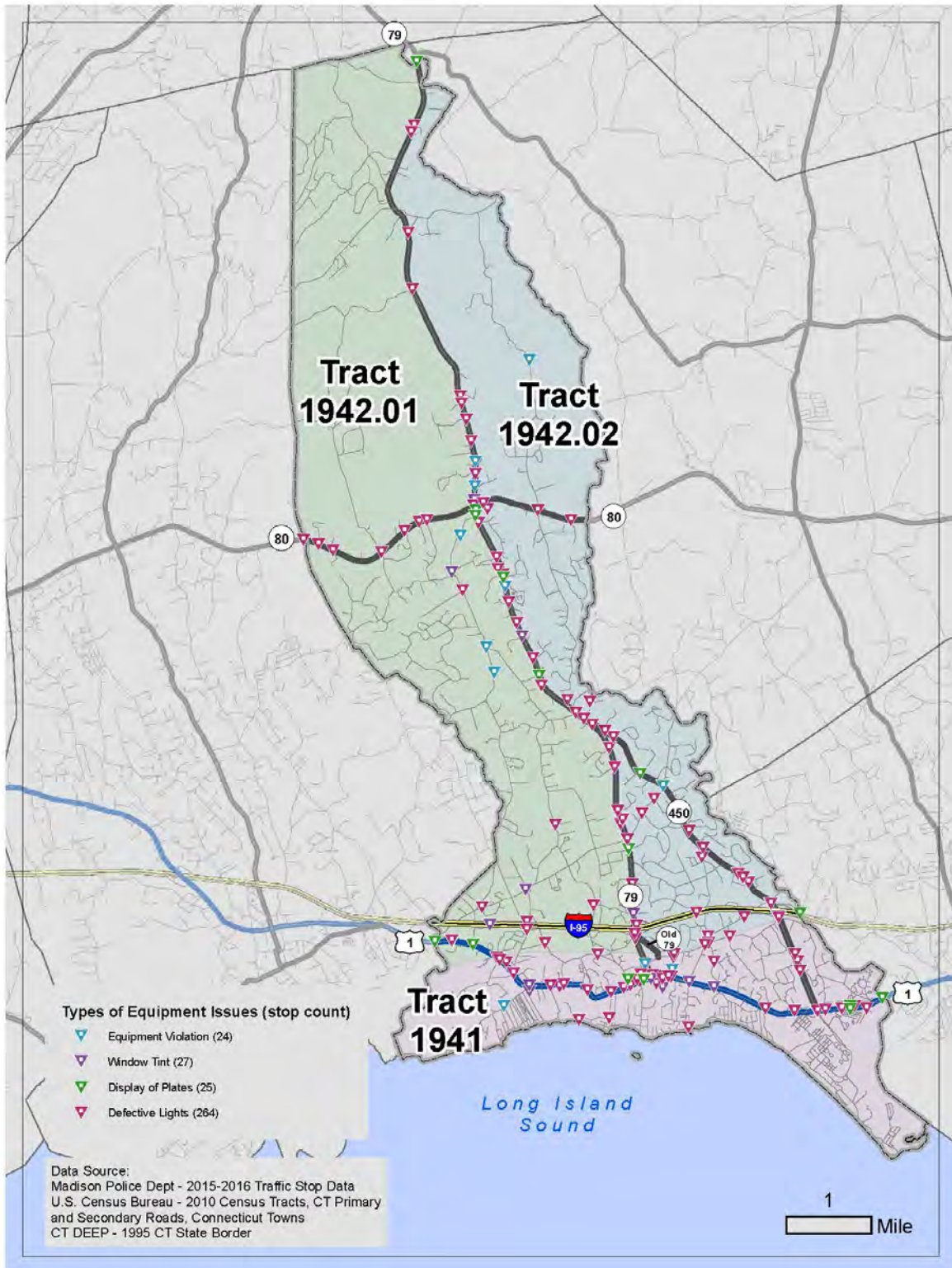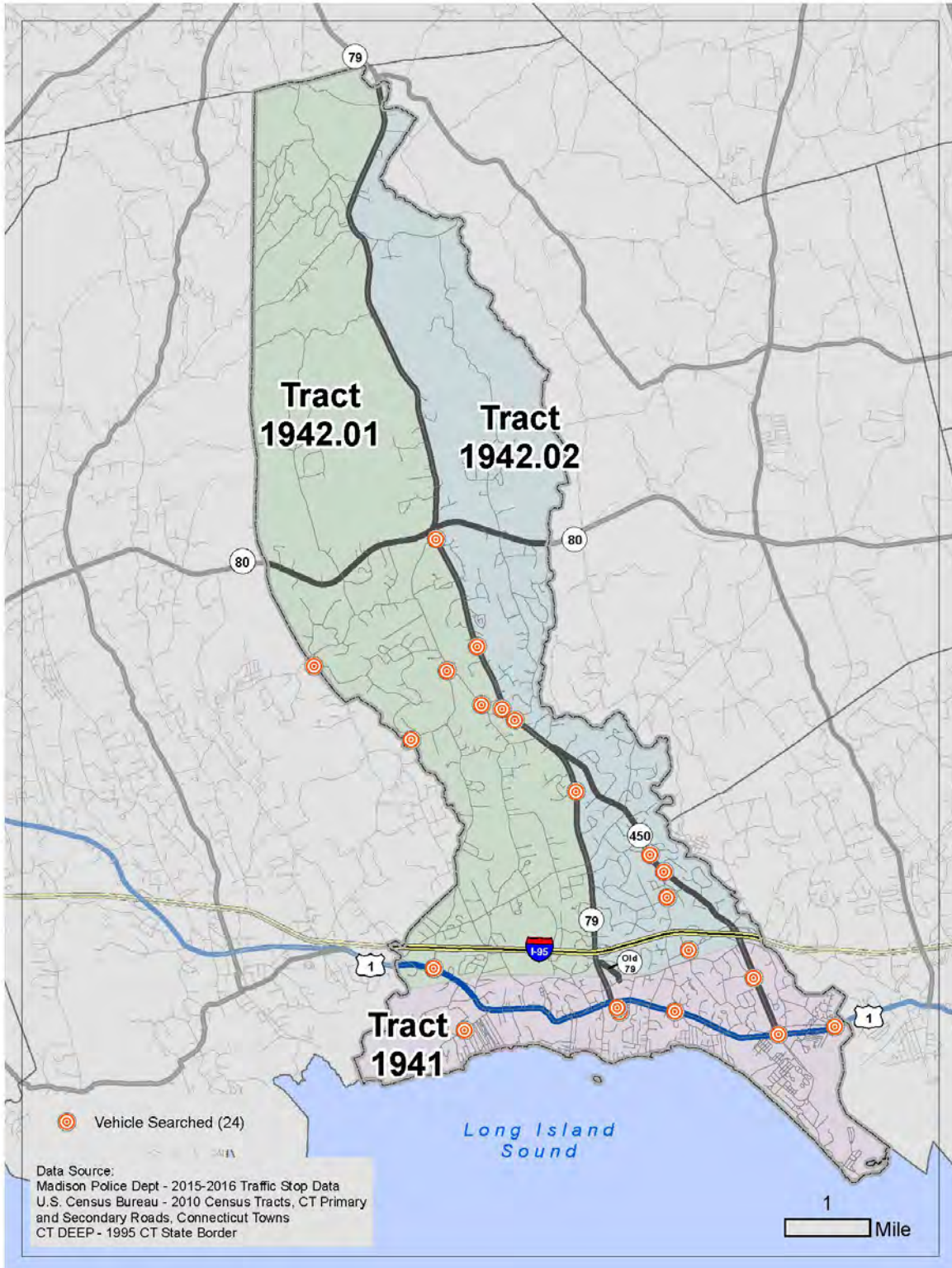
C.2: Hotspot Map of Black Driver Stops

Tract 301

Tract 302

Tract 305

I-95

Tract 304

Tract 303

Long Island Sound

Stop Hotspots
Black Drivers

- 1 Stop
- 2 - 9 Stops
- 11, 12 or 13 Stops

Data Source:
Darien Police Dept - 2015-2016 Traffic Stop Data
U.S. Census Bureau - 2010 Census Tracts, CT Primary
and Secondary Roads, Connecticut Towns
CT DEEP - 1995 CT State Border

1 Mile

C.3: Hotspot Map of Hispanic Driver Stops

C.4: Map of Equipment-Related Motor Vehicle Stops
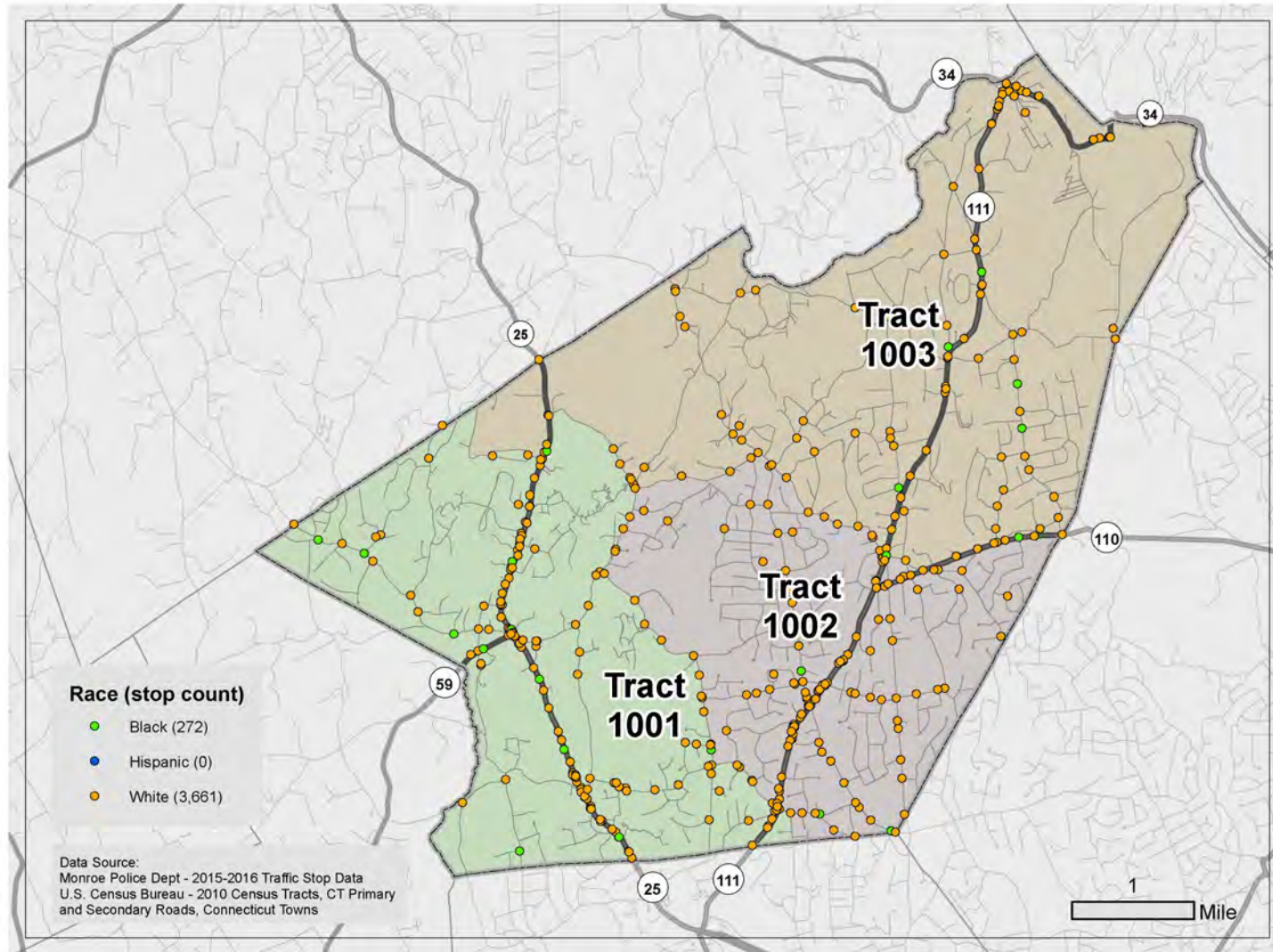
C.5: Map of Safety-Related Motor Vehicle Stops

Types of Sasfety Issues (stop count)

△ STC Violation (249)
△ Traffic Control Signal (218)
△ Moving Violation (167)
△ Cell Phone (212)
△ Stop Sign (161)
△ Speed Related (810)

Data Source:
Darien Police Dept - 2015-2016 Traffic Stop Data
U.S. Census Bureau - 2010 Census Tracts, CT Primary
and Secondary Roads, Connecticut Towns
CT DEEP - 1995 CT State Border

C.6: Map of Motor Vehicle Searches

APPENDIX D: MADISON POLICE DEPARTMENT MAPS
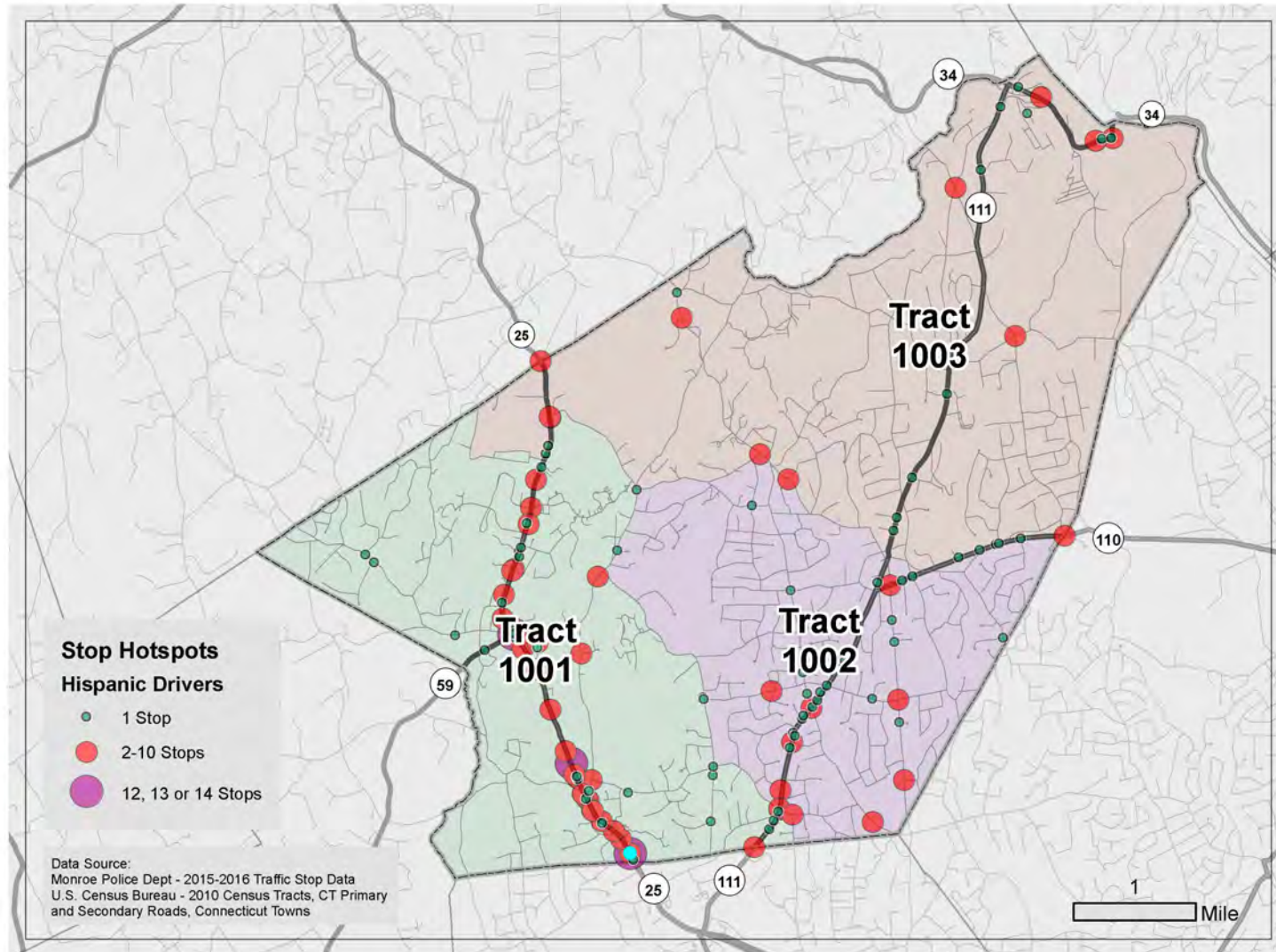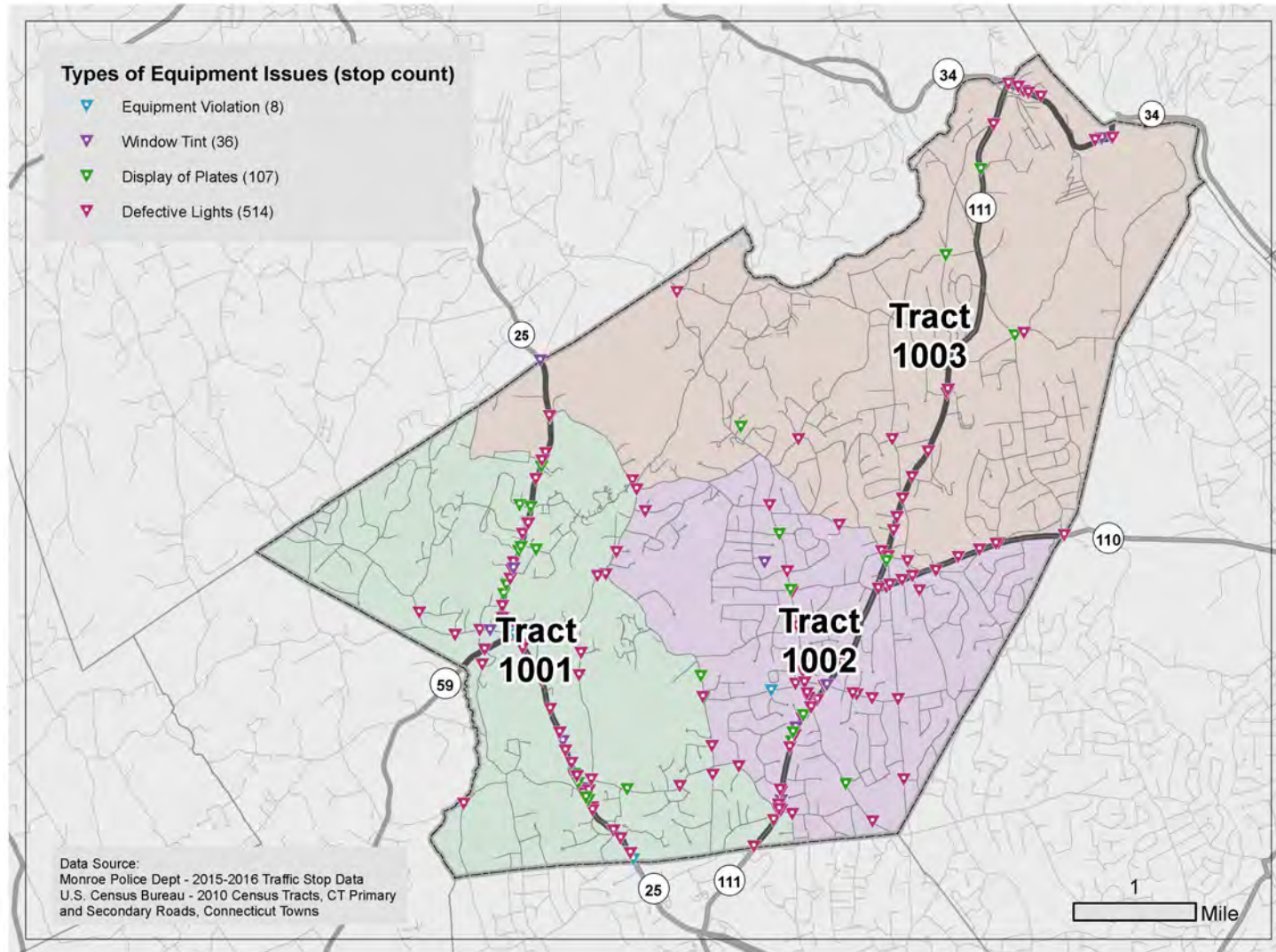
D.1: Map of Traffic Stops by Census Tract

D.2: Hotspot Map of Black Driver Stops
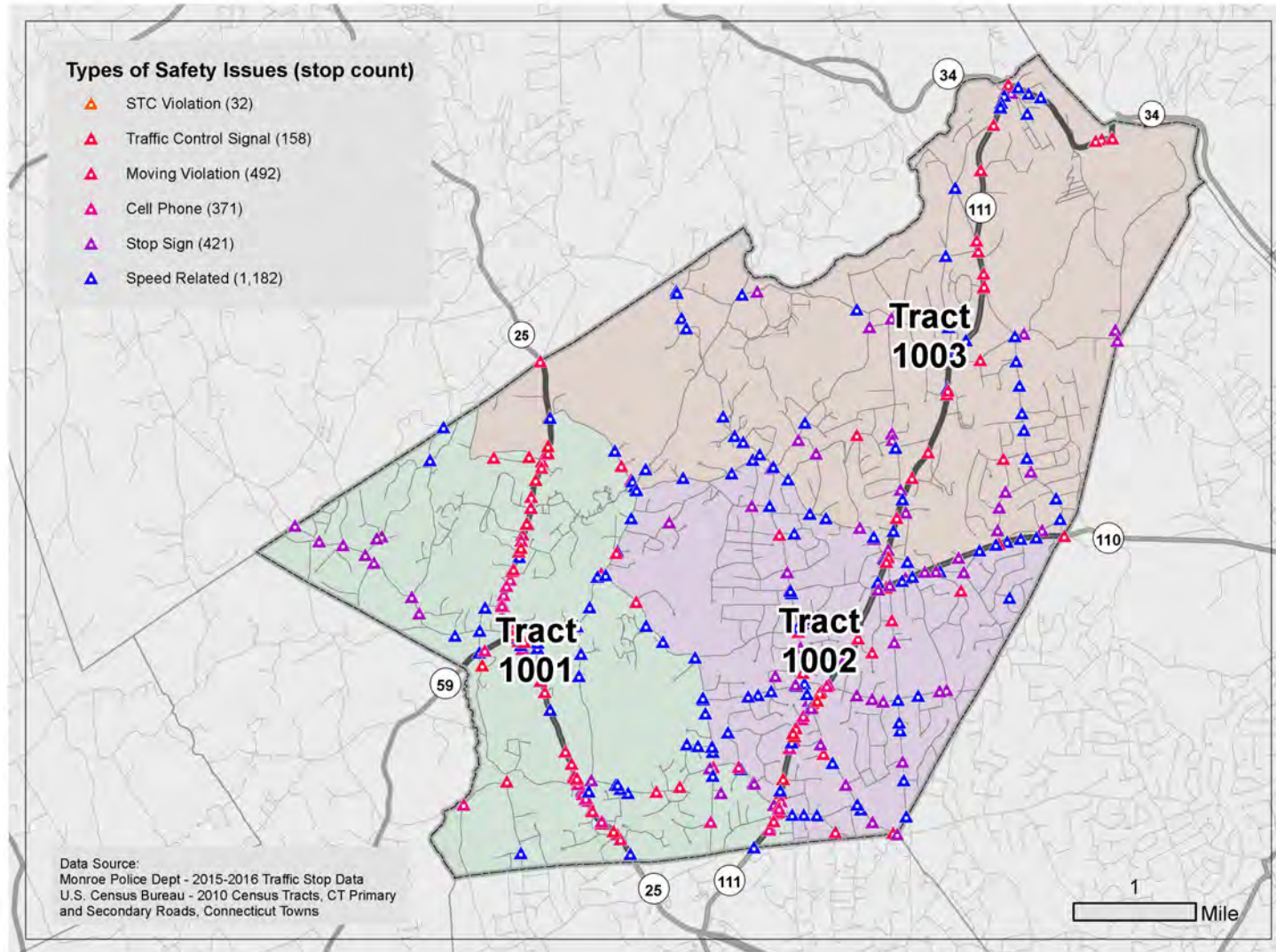
D.3: Hotspot Map of Hispanic Driver Stops
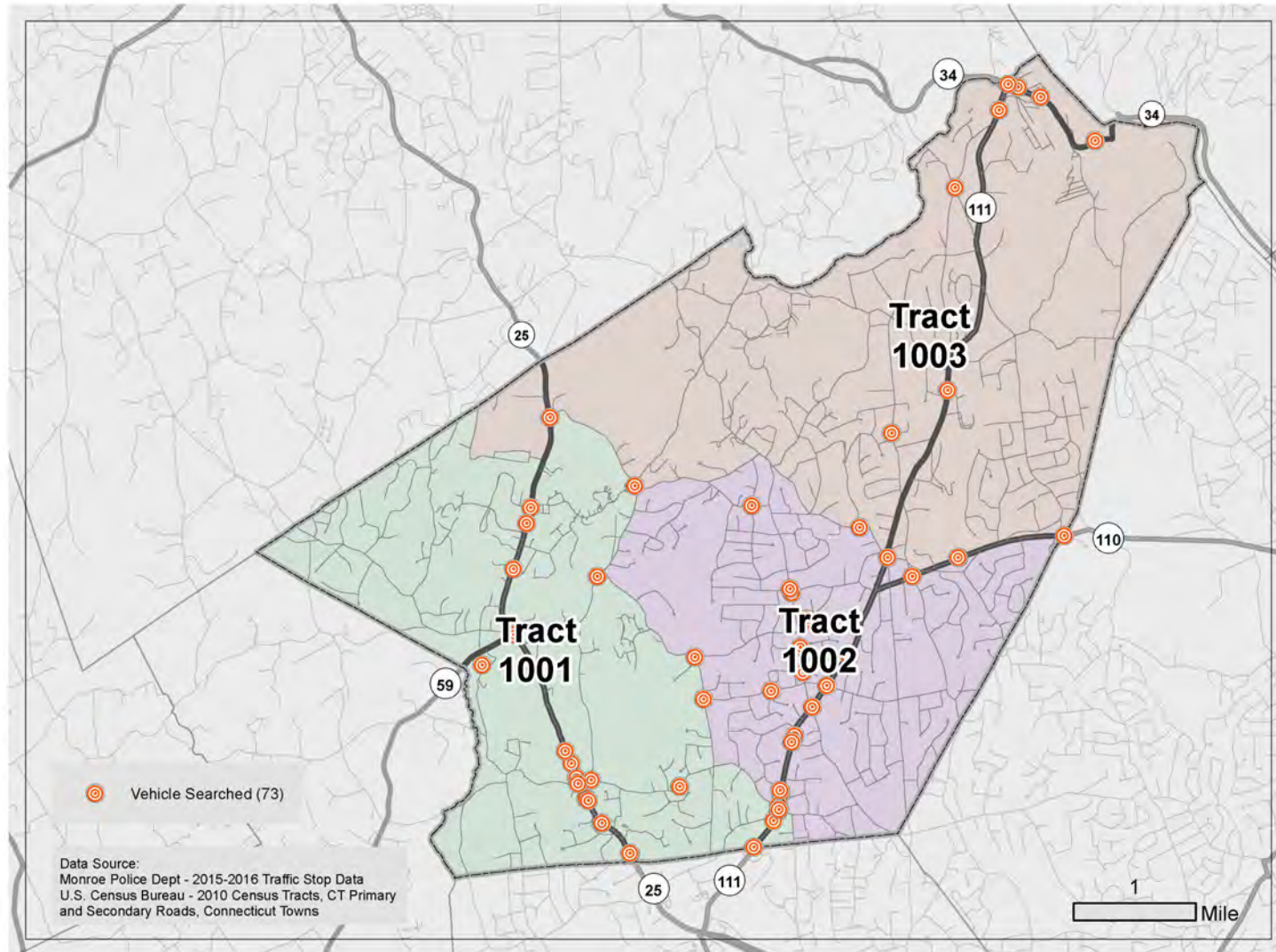
D.4: Map of Equipment-Related Motor Vehicle Stops

Types of Equipment Issues (stop count)
▽ Equipment Violation (24)
▽ Window Tint (27)
▽ Display of Plates (25)
▽ Defective Lights (264)

Data Source:
Madison Police Dept - 2015-2016 Traffic Stop Data
U.S. Census Bureau - 2010 Census Tracts, CT Primary
and Secondary Roads, Connecticut Towns
CT DEEP - 1995 CT State Border

Tract 1942.01

Tract 1942.02

Tract 1941

Long Island Sound

1 Mile

D.5: Map of Safety-Related Motor Vehicle Stops

D.6: Map of Motor Vehicle Searches

APPENDIX E: MONROE POLICE DEPARTMENT MAPS

E.1: Map of Traffic Stops by Census Tract

E.2: Hotspot Map of Black Driver Stops

E.3: Hotspot Map of Hispanic Driver Stops

E.4: Map of Equipment-Related Motor Vehicle Stops
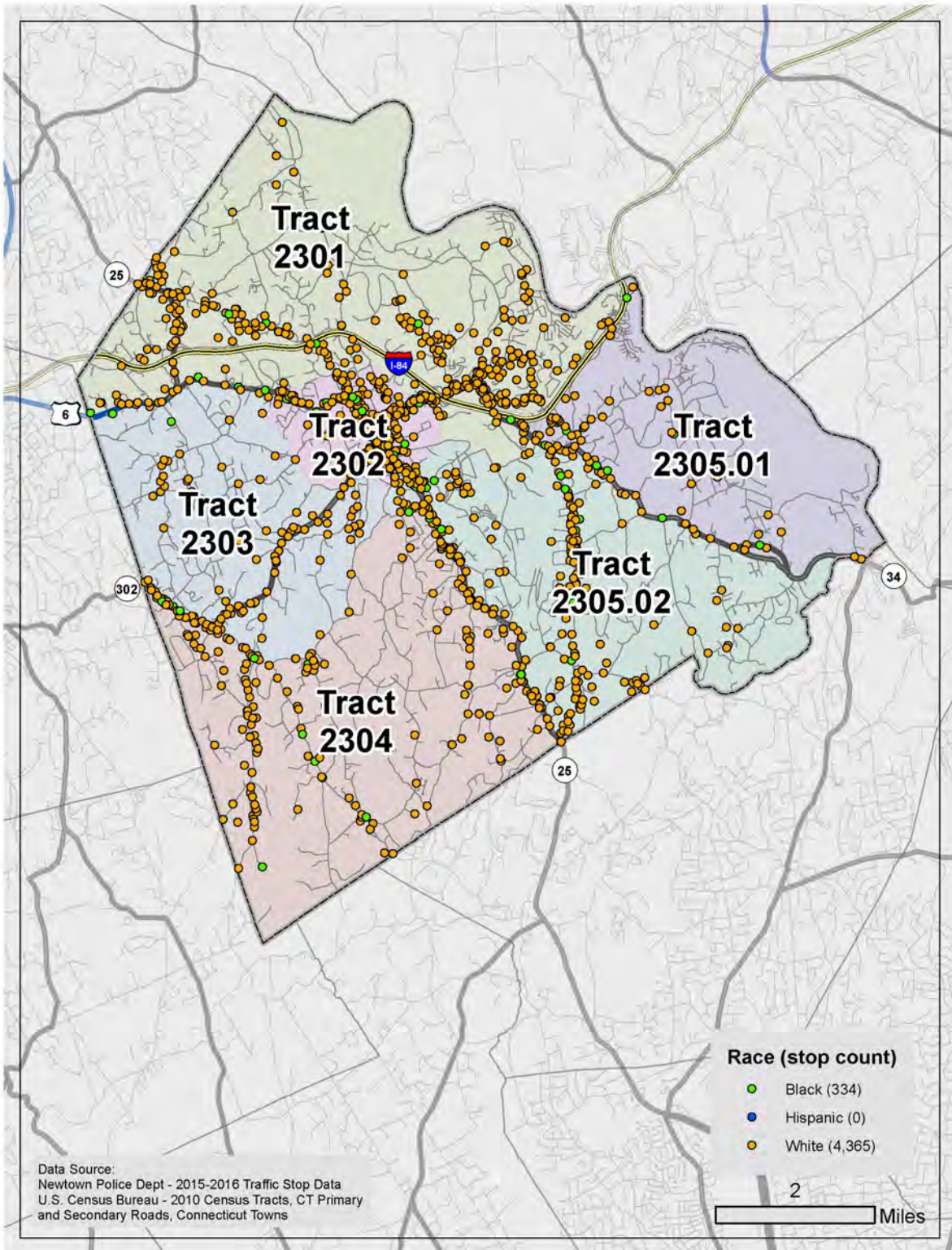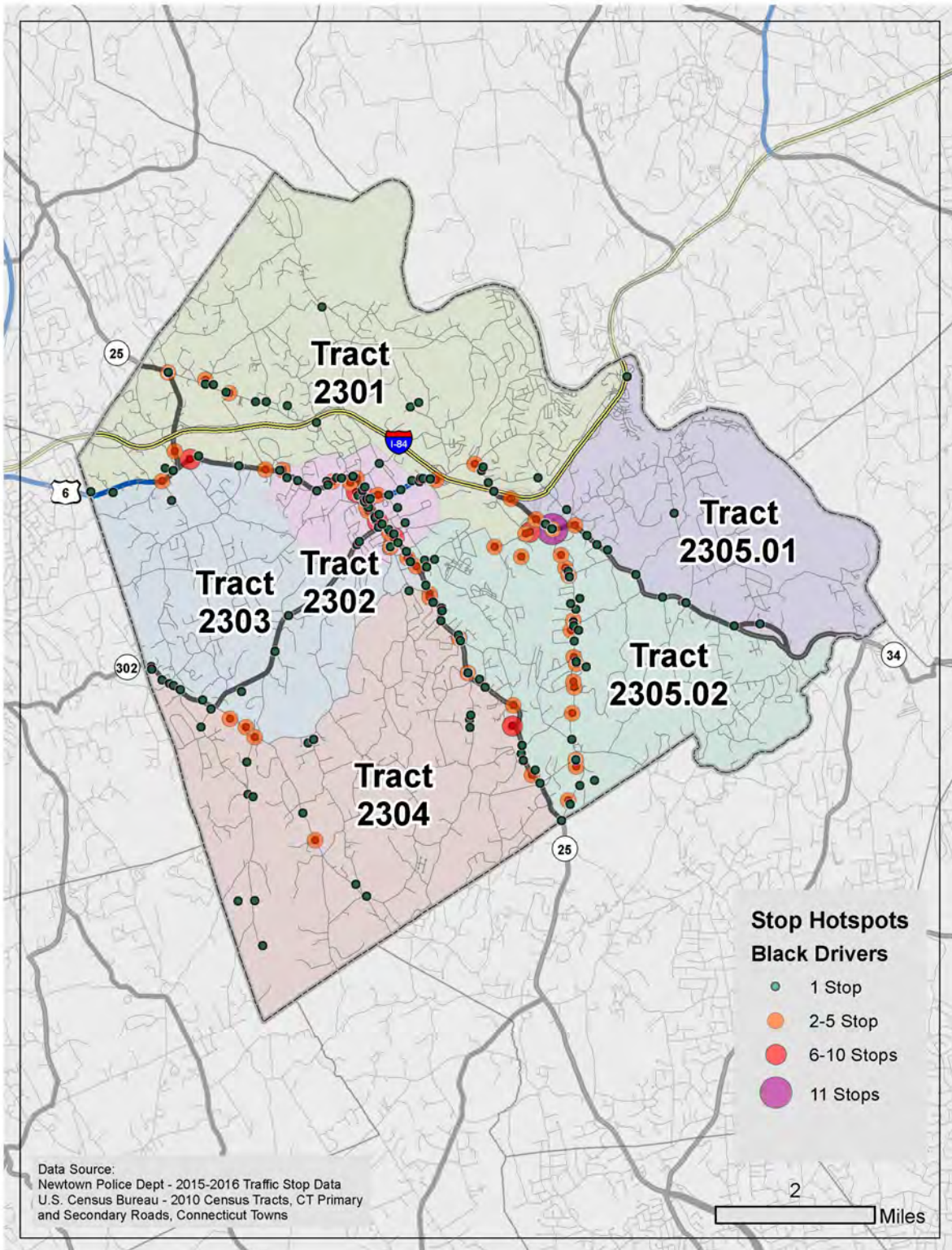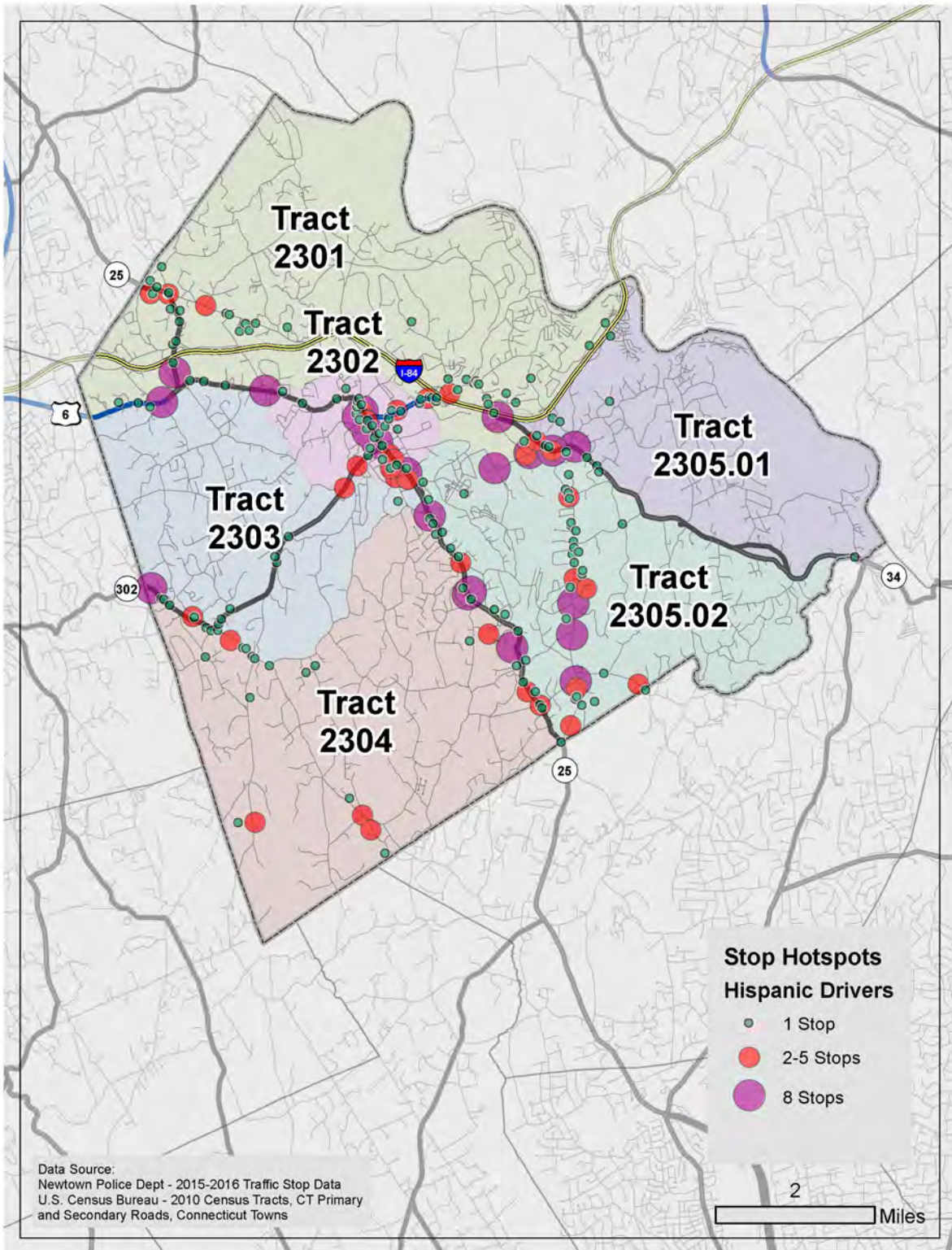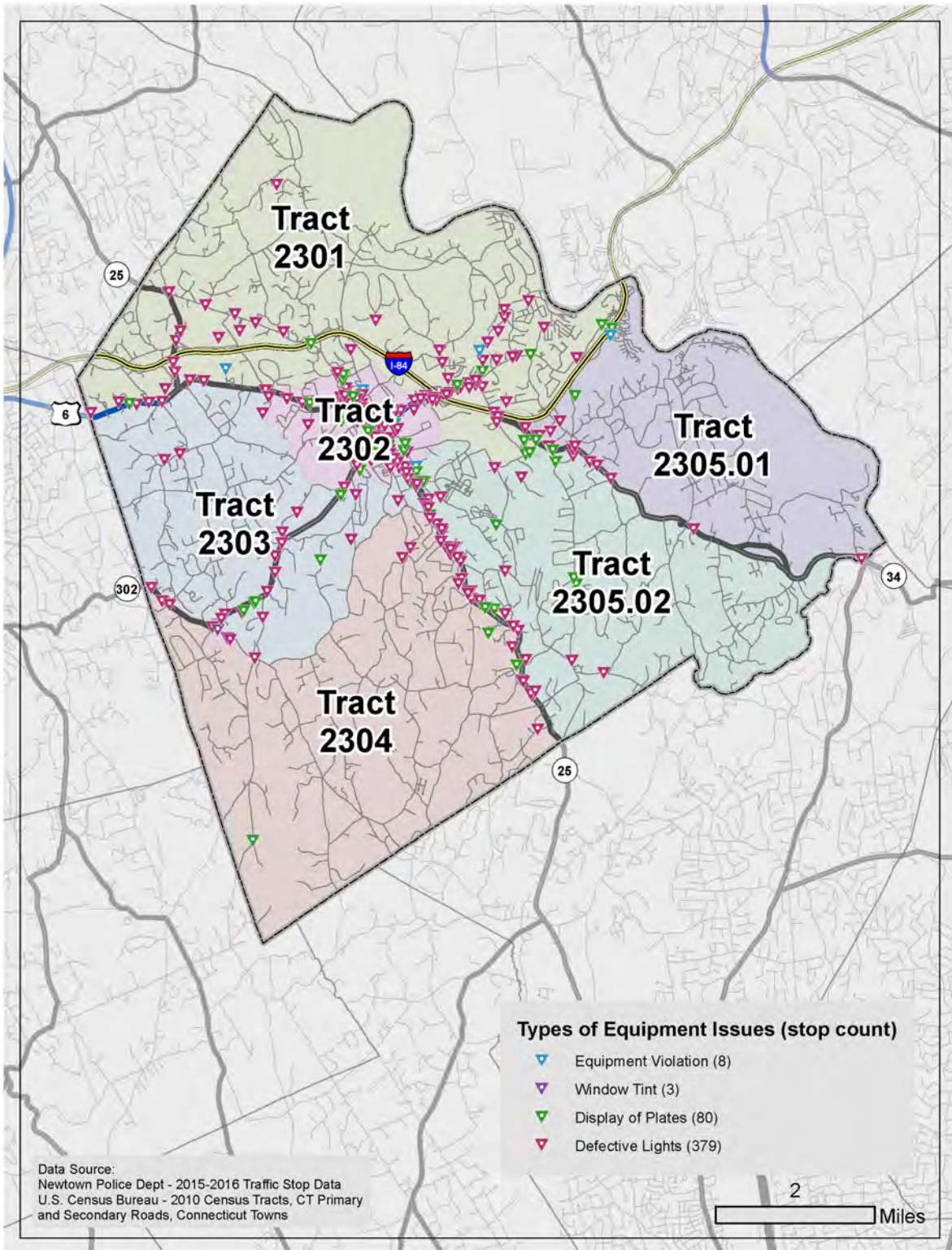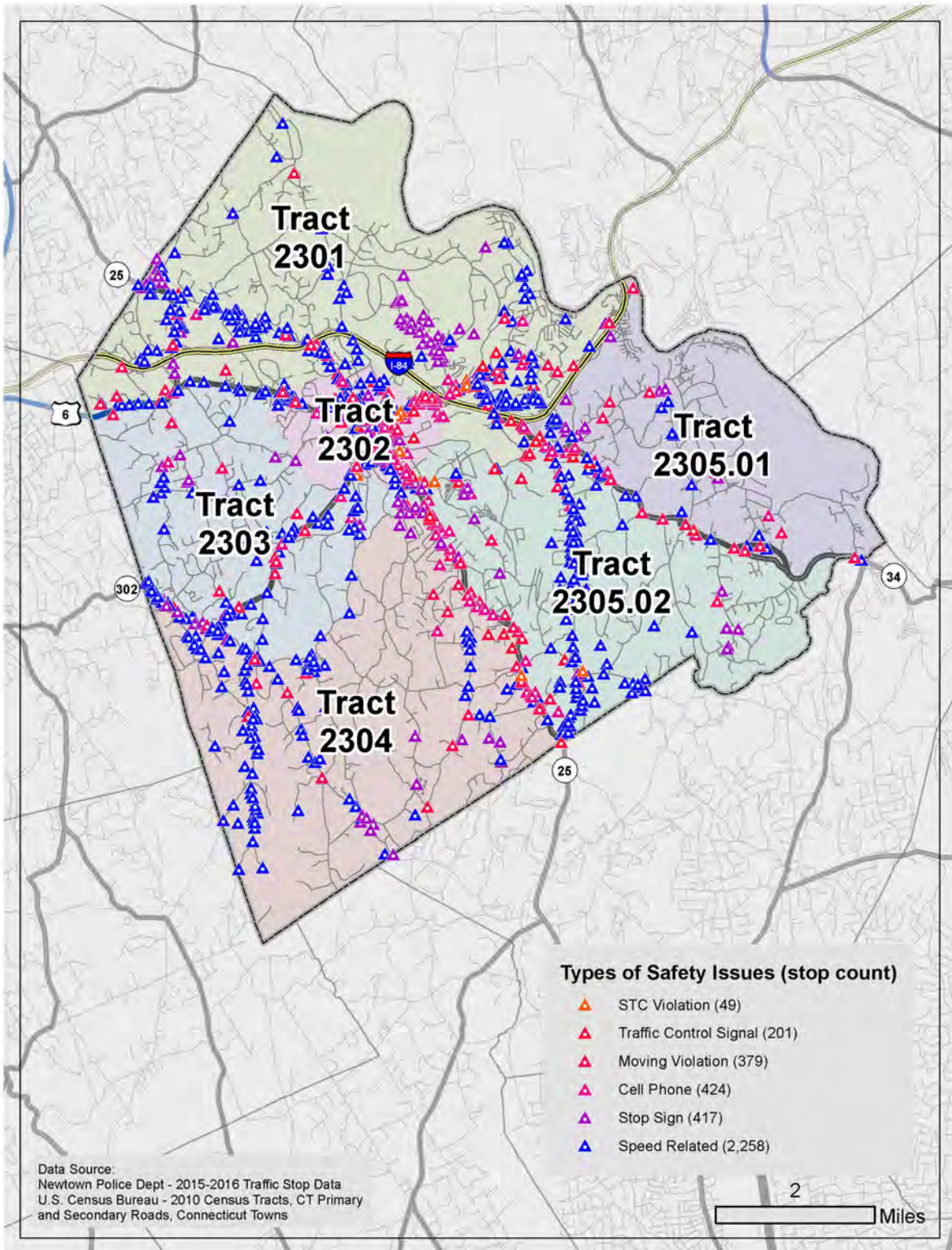
E.5: Map of Safety-Related Motor Vehicle Stops

E.6: Map of Motor Vehicle Searches

APPENDIX F: NEWTOWN POLICE DEPARTMENT MAPS

F.1: Map of Traffic Stops by Census Tract

F.2: Hotspot Map of Black Driver Stops

F.3: Hotspot Map of Hispanic Driver Stops
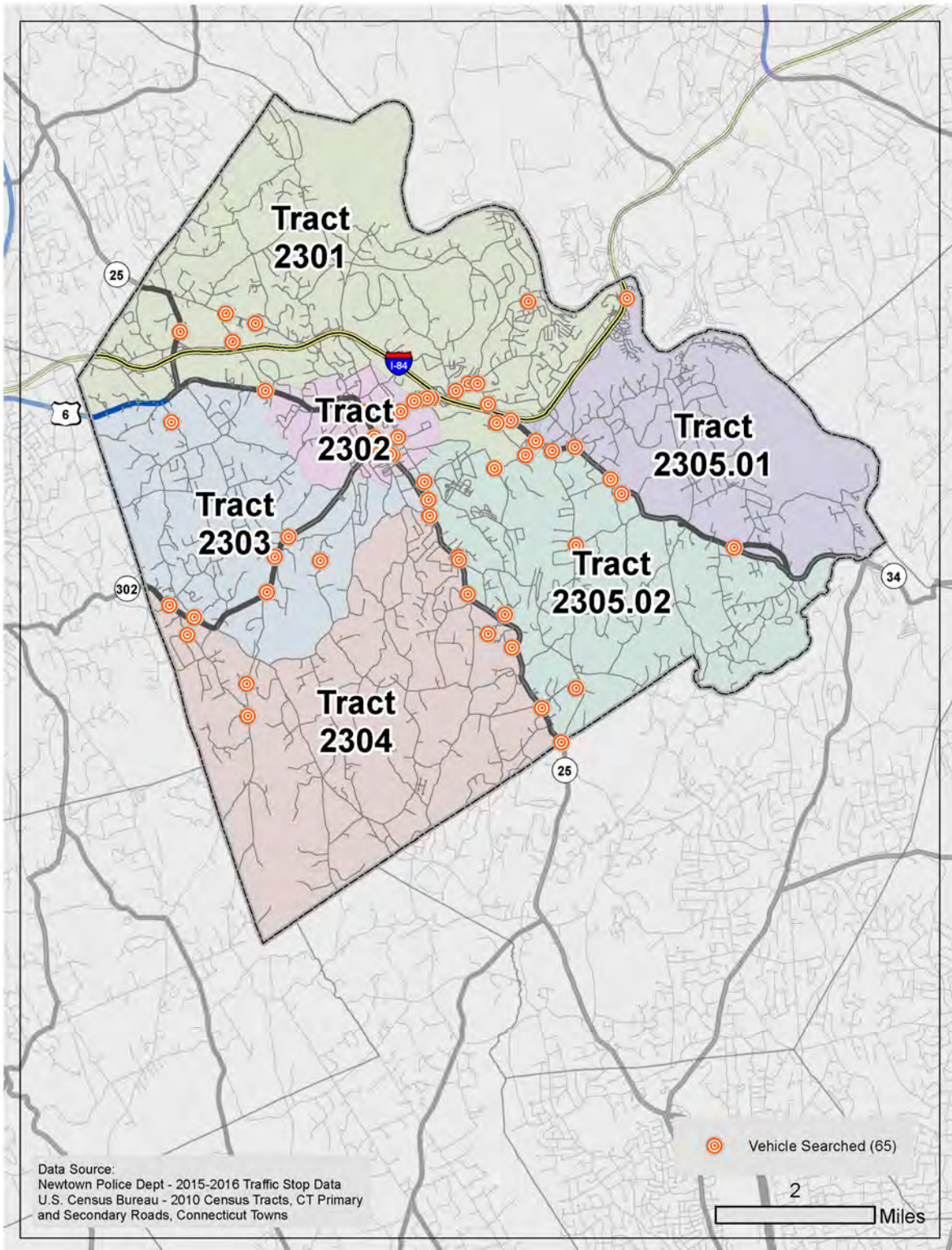
F.4: Map of Equipment-Related Motor Vehicle Stops

Types of Equipment Issues (stop count)
- ▽ Equipment Violation (8)
- ▽ Window Tint (3)
- ▽ Display of Plates (80)
- ▽ Defective Lights (379)

Data Source:
Newtown Police Dept - 2015-2016 Traffic Stop Data
U.S. Census Bureau - 2010 Census Tracts, CT Primary
and Secondary Roads, Connecticut Towns

2 Miles

185

F.5: Map of Safety-Related Motor Vehicle Stops

Types of Safety Issues (stop count)
- STC Violation (49)
- Traffic Control Signal (201)
- Moving Violation (379)
- Cell Phone (424)
- Stop Sign (417)
- Speed Related (2,258)

Data Source:
Newtown Police Dept - 2015-2016 Traffic Stop Data
U.S. Census Bureau - 2010 Census Tracts, CT Primary
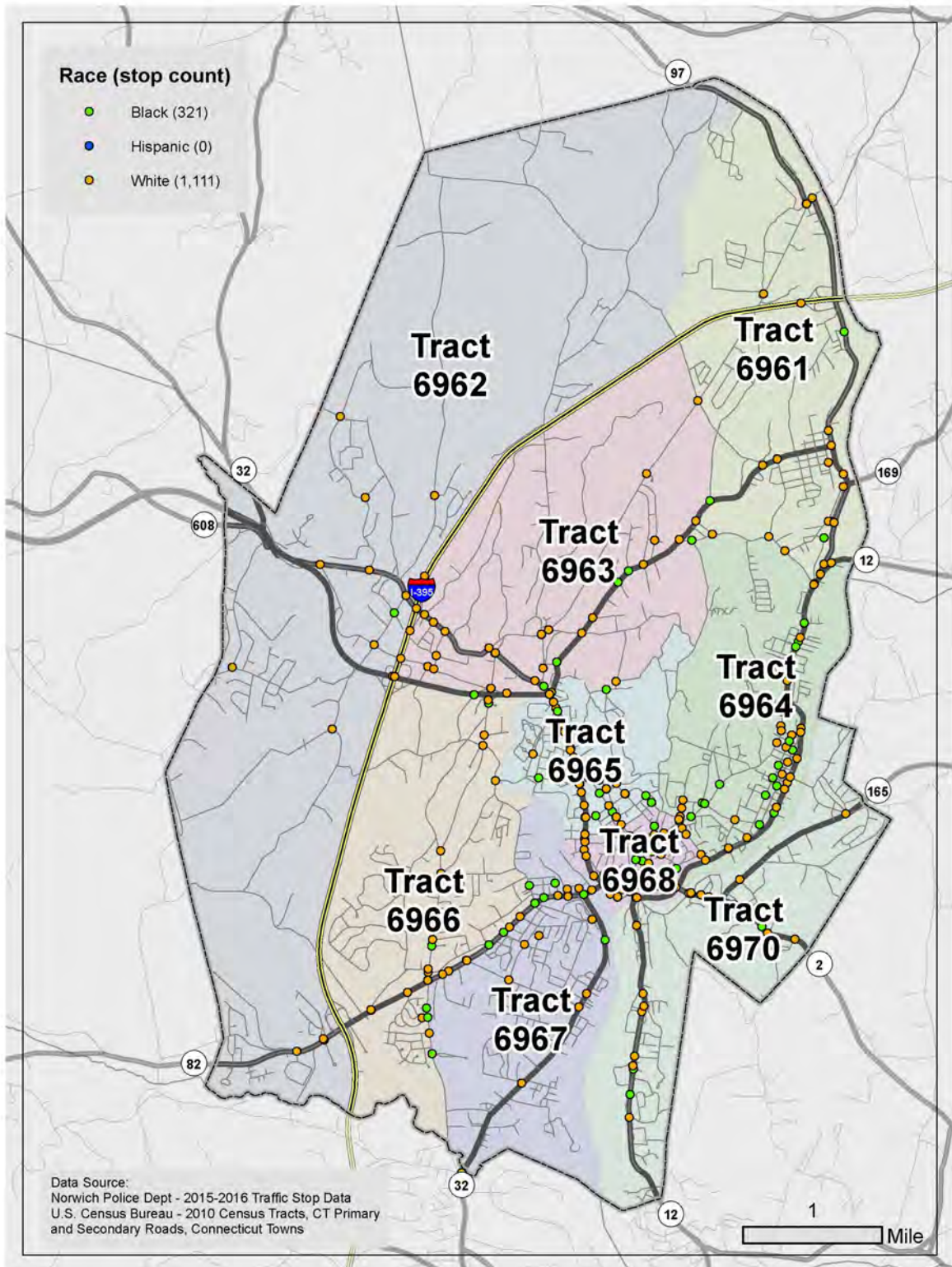and Secondary Roads, Connecticut Towns
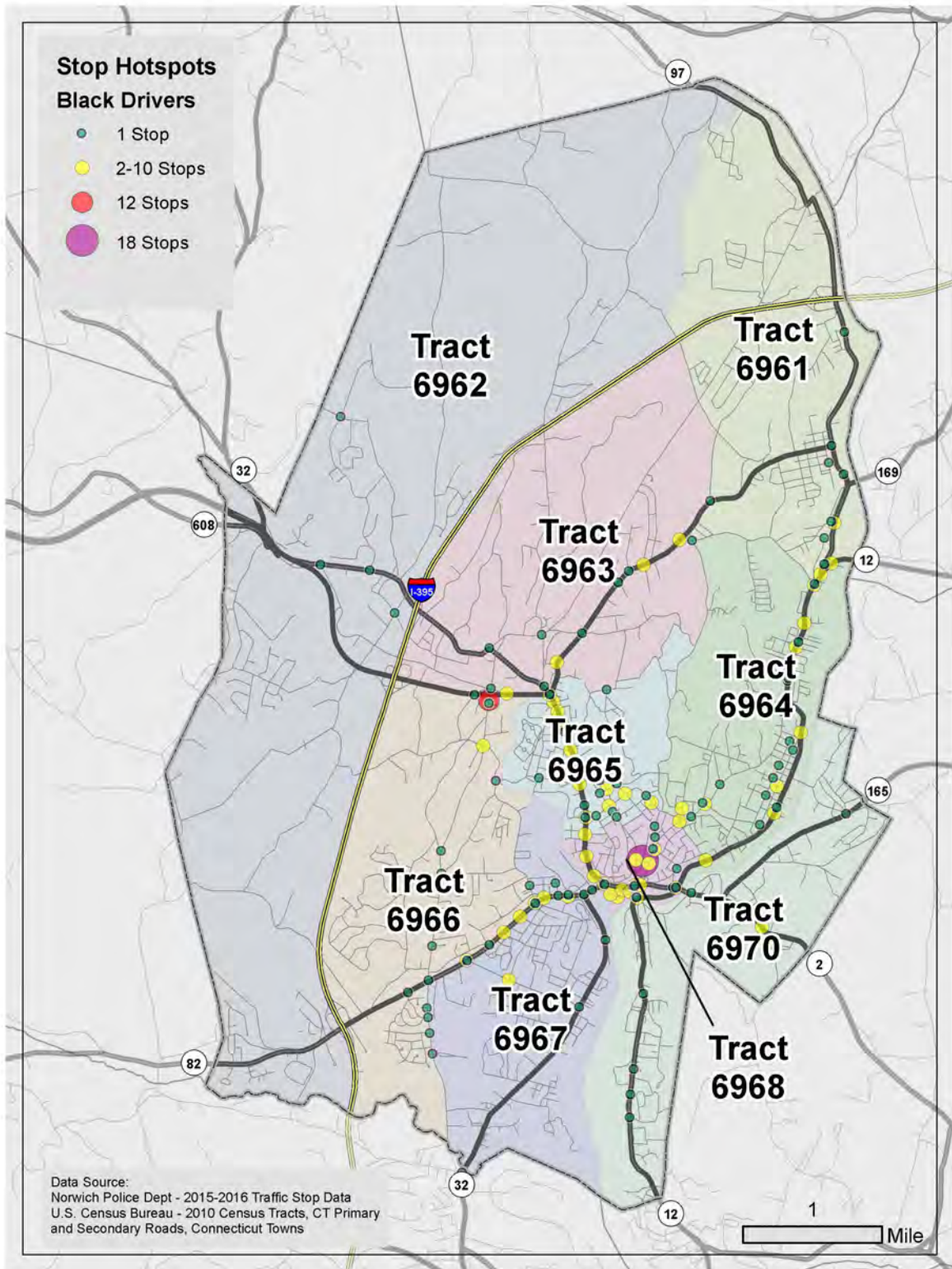
F.6: Map of Motor Vehicle Searches

APPENDIX G: NORWICH POLICE DEPARTMENT MAPS
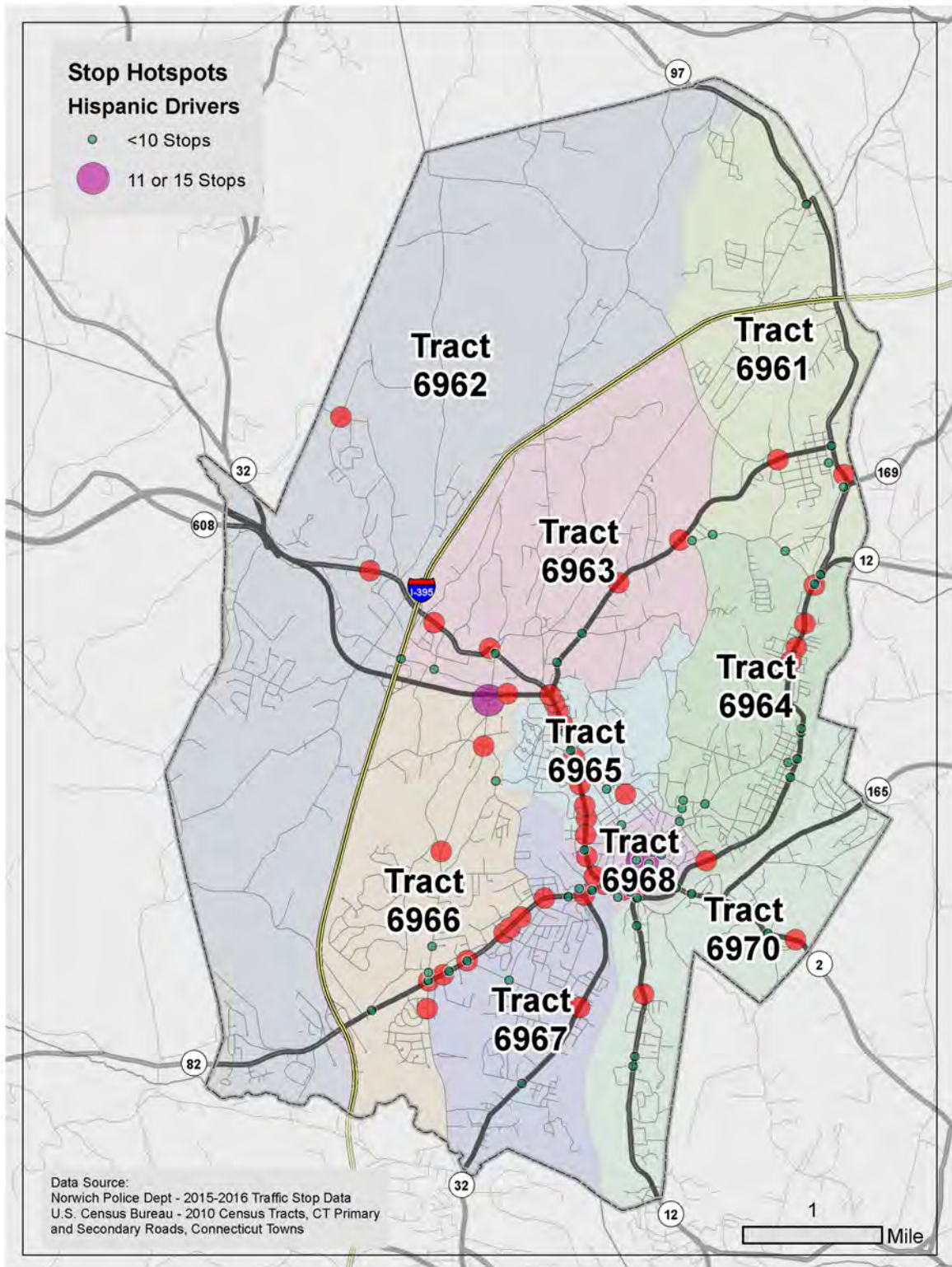
F.1: Map of Traffic Stops by Census Tract
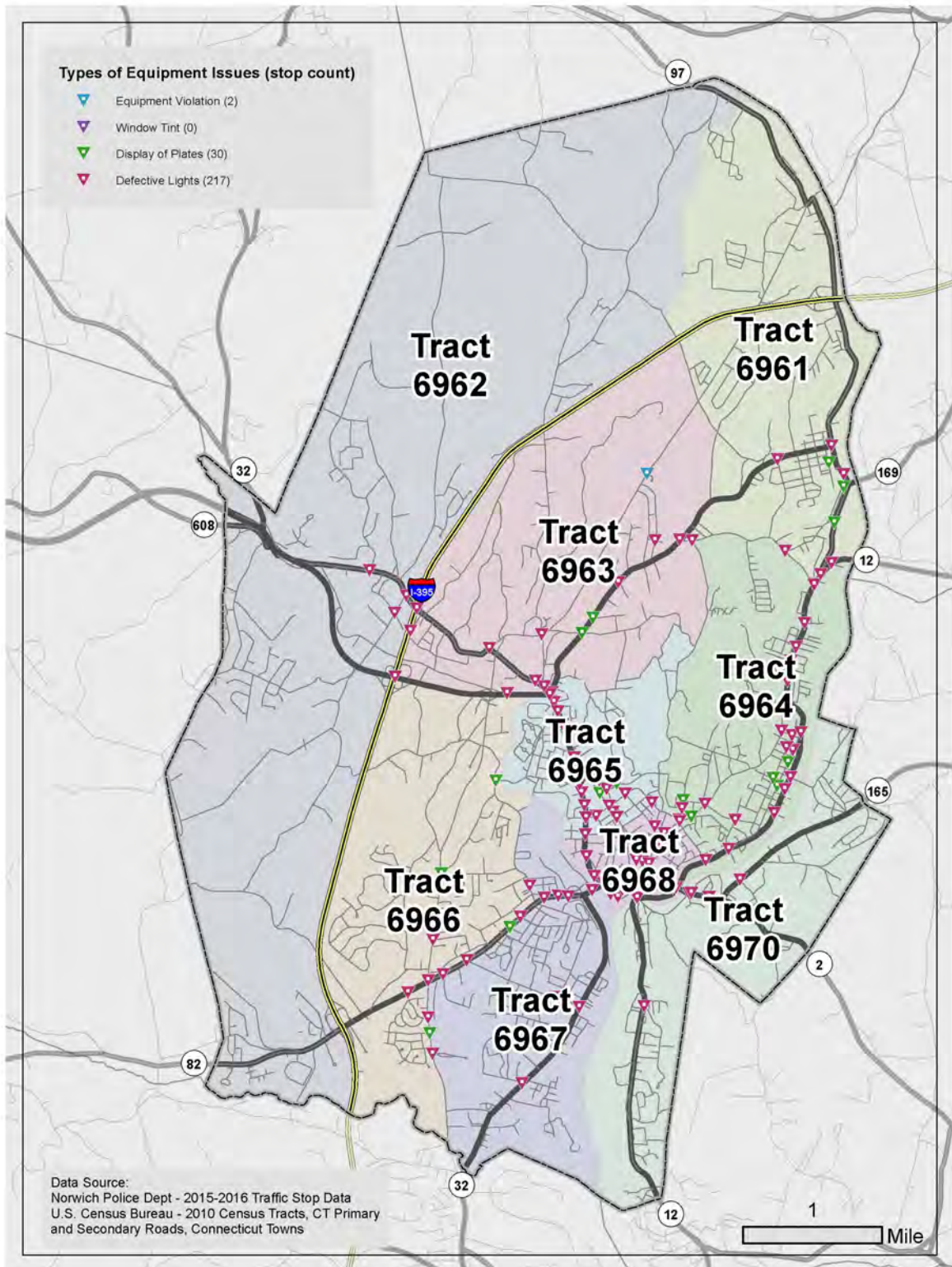
F.2: Hotspot Map of Black Driver Stops

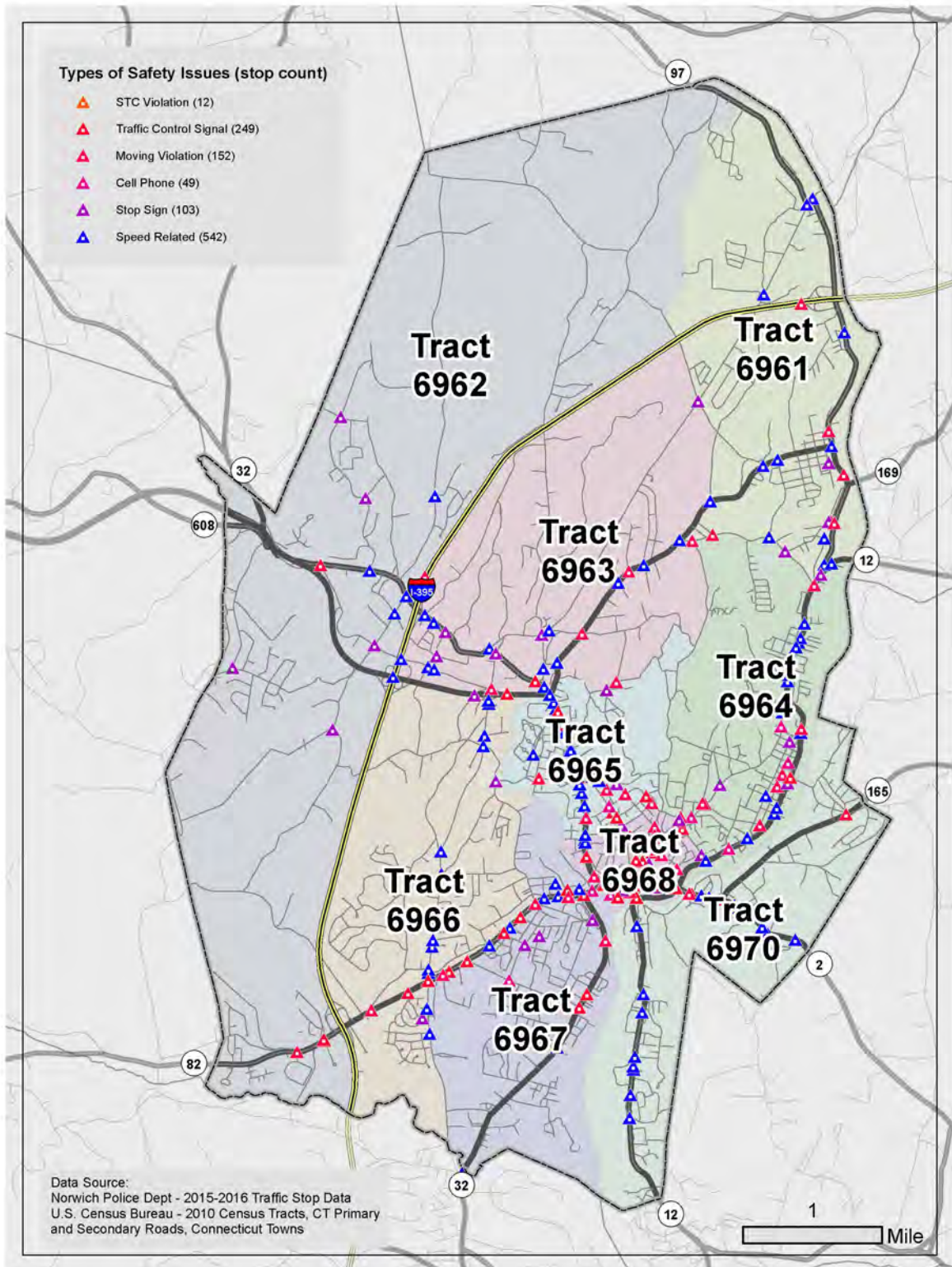**F.3: Hotspot Map of Hispanic Driver Stops**

F.4: Map of Equipment-Related Motor Vehicle Stops

Types of Equipment Issues (stop count)
- ▽ Equipment Violation (2)
- ▽ Window Tint (0)
- ▽ Display of Plates (30)
- ▽ Defective Lights (217)

Tract 6962
Tract 6961
Tract 6963
Tract 6964
Tract 6965
Tract 6968
Tract 6966
Tract 6970
Tract 6967

Data Source:
Norwich Police Dept - 2015-2016 Traffic Stop Data
U.S. Census Bureau - 2010 Census Tracts, CT Primary
and Secondary Roads, Connecticut Towns

1 Mile

F.5: Map of Safety-Related Motor Vehicle Stops

Types of Safety Issues (stop count)
- STC Violation (12)
- Traffic Control Signal (249)
- Moving Violation (152)
- Cell Phone (49)
- Stop Sign (103)
- Speed Related (542)

Tract 6962
Tract 6961
Tract 6963
Tract 6964
Tract 6965
Tract 6968
Tract 6966
Tract 6970
Tract 6967

Data Source:
Norwich Police Dept - 2015-2016 Traffic Stop Data
U.S. Census Bureau - 2010 Census Tracts, CT Primary
and Secondary Roads, Connecticut Towns

1 Mile

F.6: Map of Motor Vehicle Searches

APPENDIX H: RIDGEFIELD POLICE DEPARTMENT MAPS

H.1: Map of Traffic Stops by Census Tract

H.2: Hotspot Map of Black Driver Stops

H.3: Hotspot Map of Hispanic Driver Stops
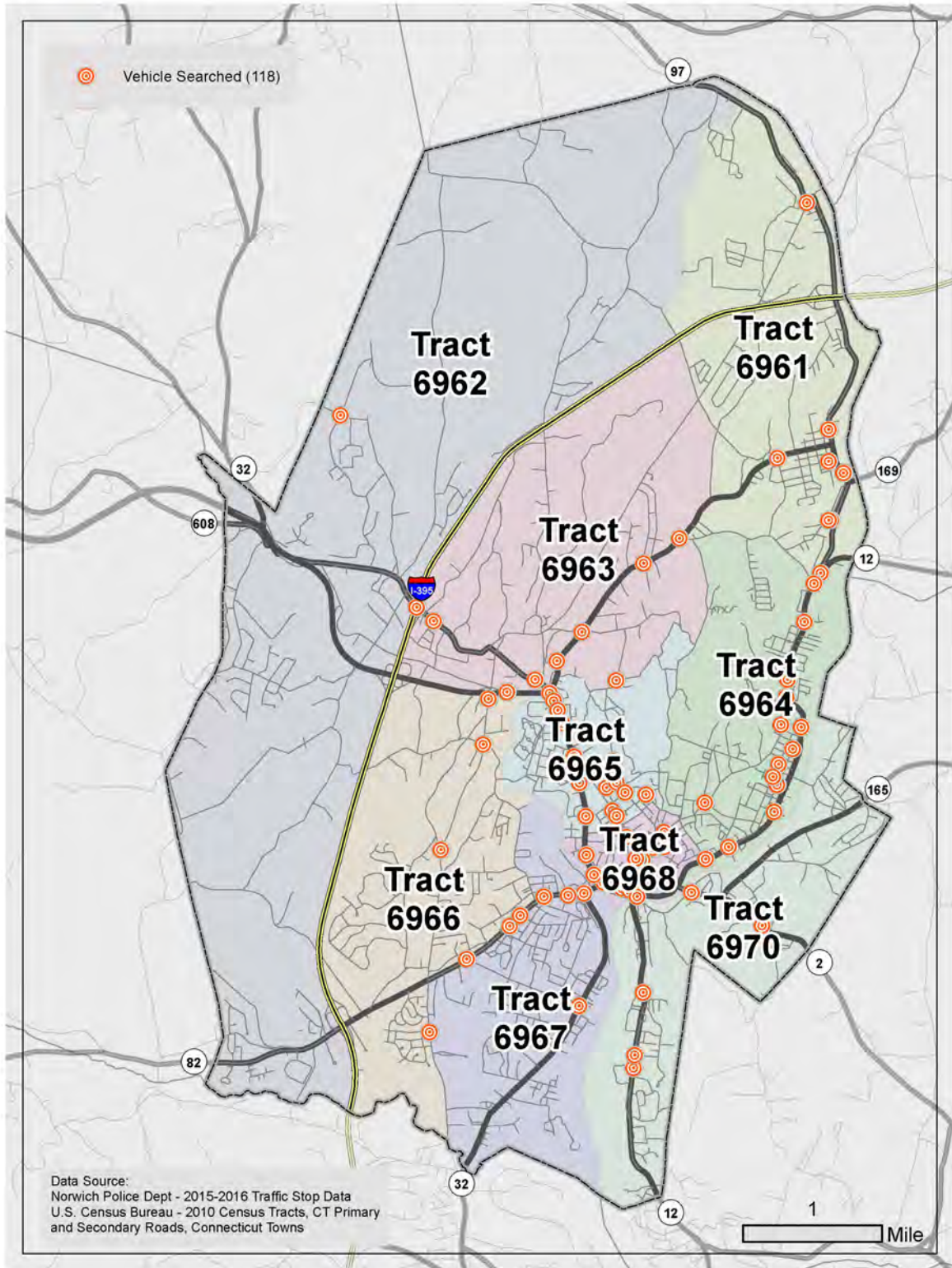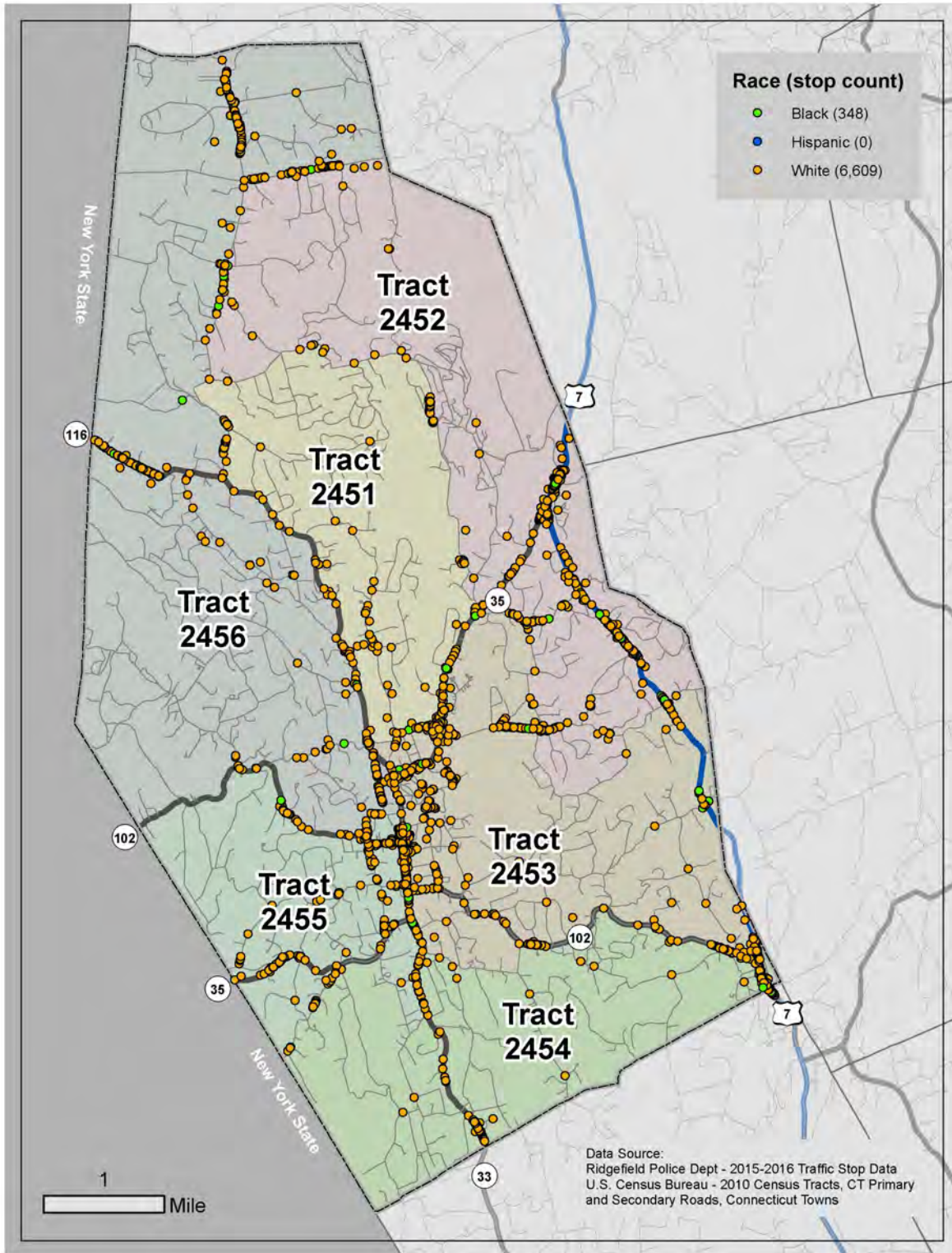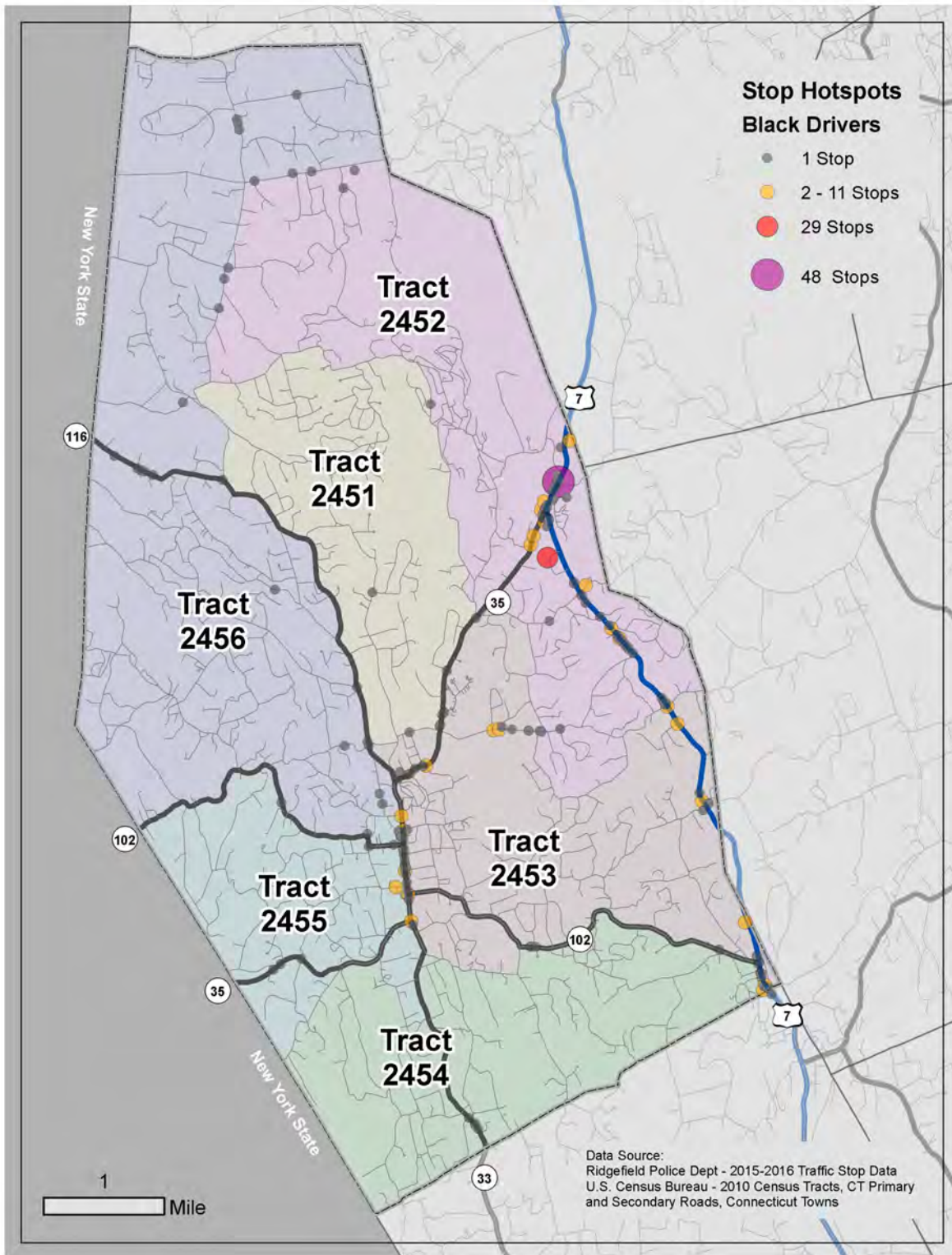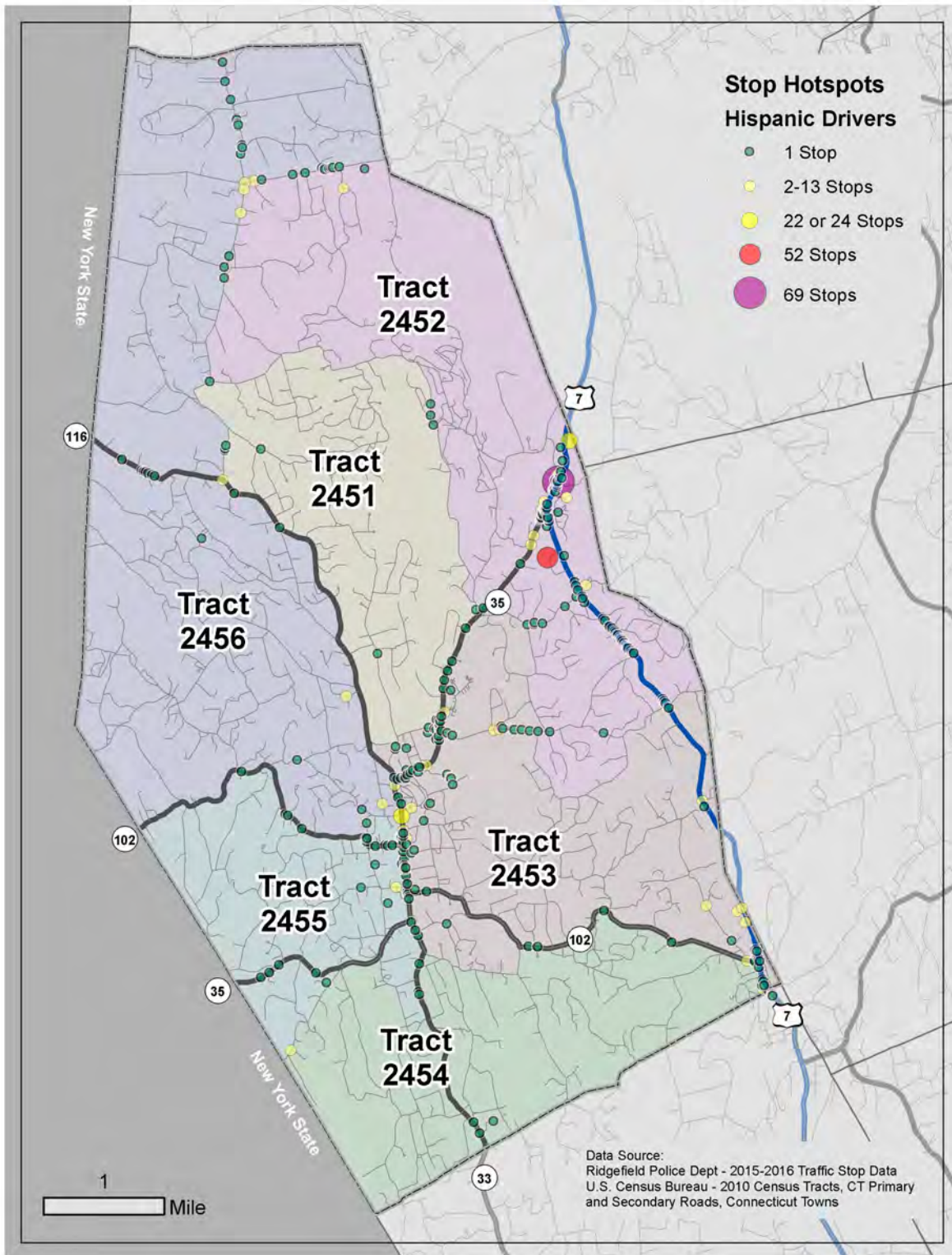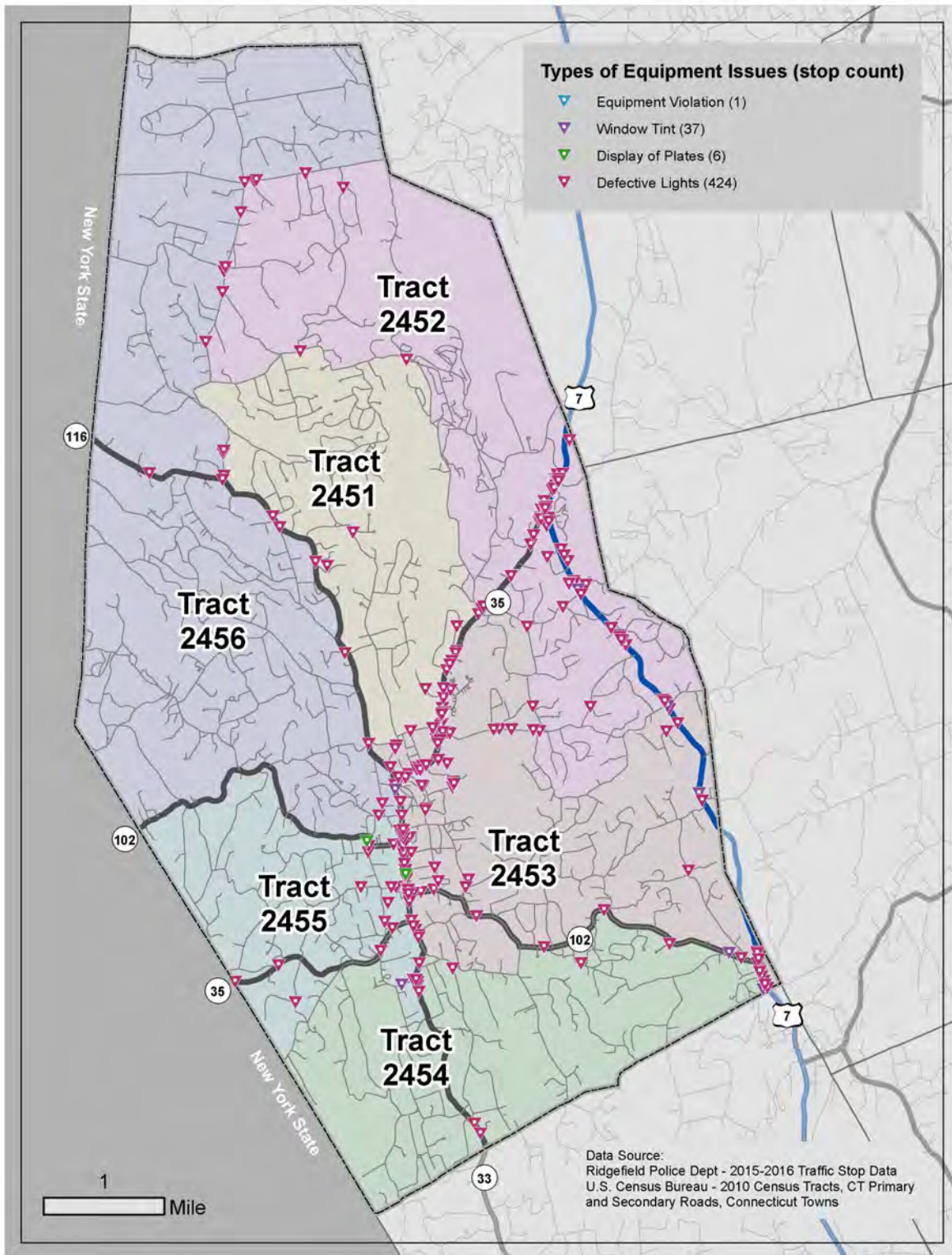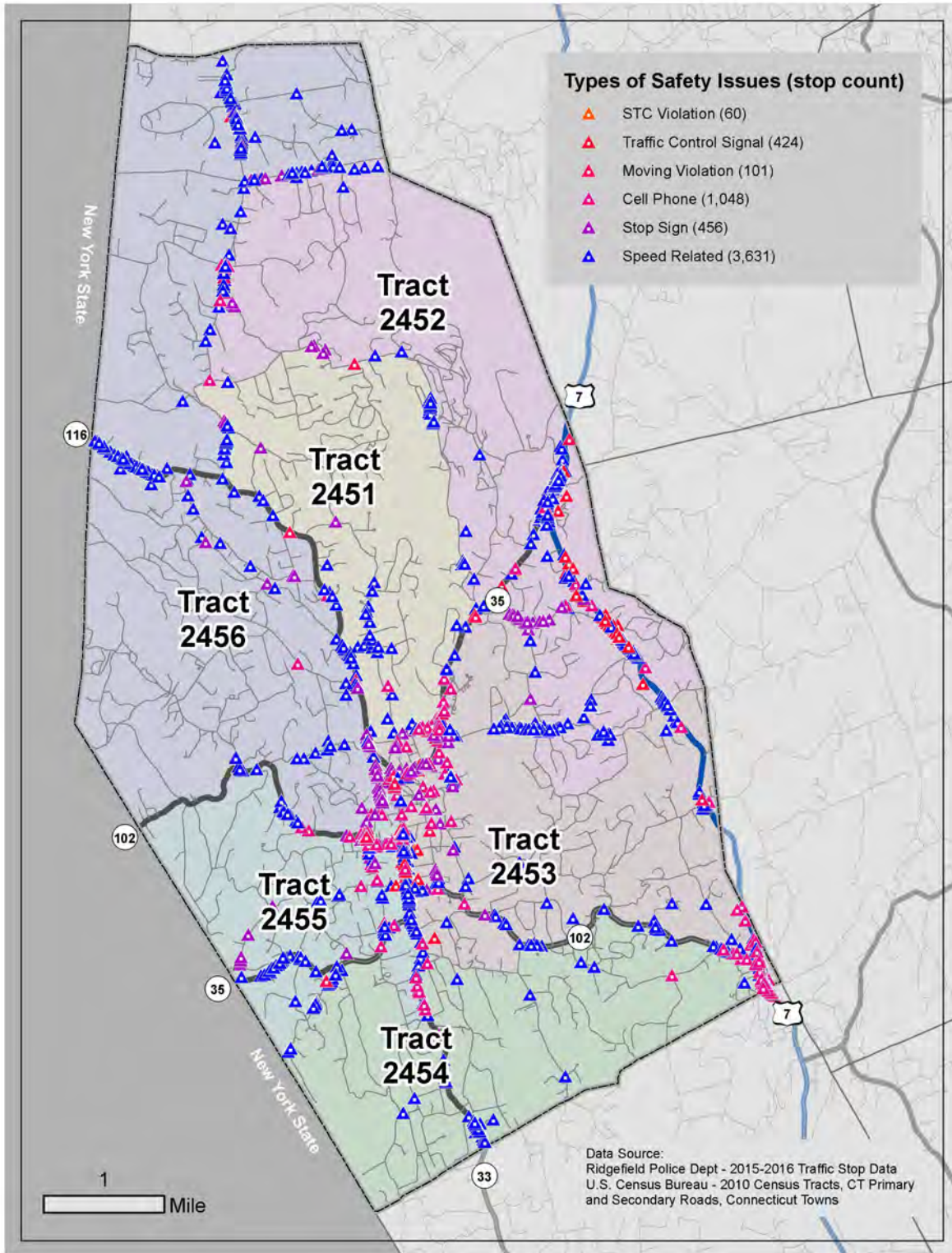
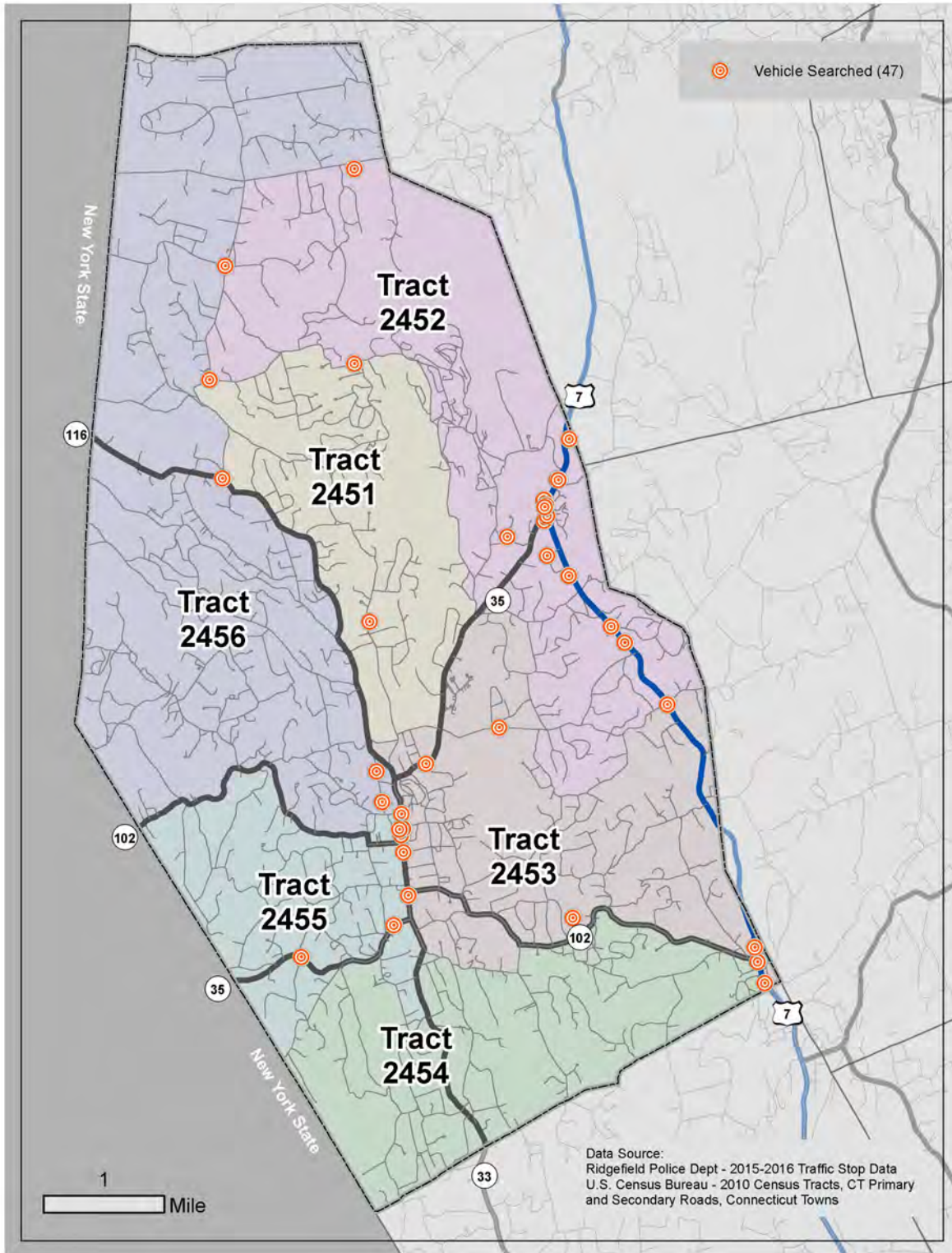## H.4: Map of Equipment-Related Motor Vehicle Stops

H.5: Map of Safety-Related Motor Vehicle Stops

H.6: Map of Motor Vehicle Searches

APPENDIX I: OFFICER LEVEL ANALYSIS DETAILED METHODOLOGICAL OVERVIEW

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 seven departments. These policing agencies were selected for inclusion in this analysis based on the findings from the *Traffic Stop Data Analysis and Findings, 2015-16*. 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.[16] 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 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

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[16] 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 658 distinct officers across eight departments and one police troop using three 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.

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:

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

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, time of the day, an indicator of a Rhode Island license plate, an indicator that the stop was made of a local resident time of day, and the location of the stop (in terms of latitude and longitude).

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, the training sample was set to 50 percent of the residual at each iteration.

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:

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

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 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 helps to remove this potential bias by controlling for these features, resulting in a much more accurate officer effect.