

ANALYSIS OF POLICE STOPS AND SEARCHES

CITY OF ERIE, PA



MERCYHURST COLLEGE
CIVIC INSTITUTE

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PREPARED ON BEHALF OF THE CITY OF ERIE

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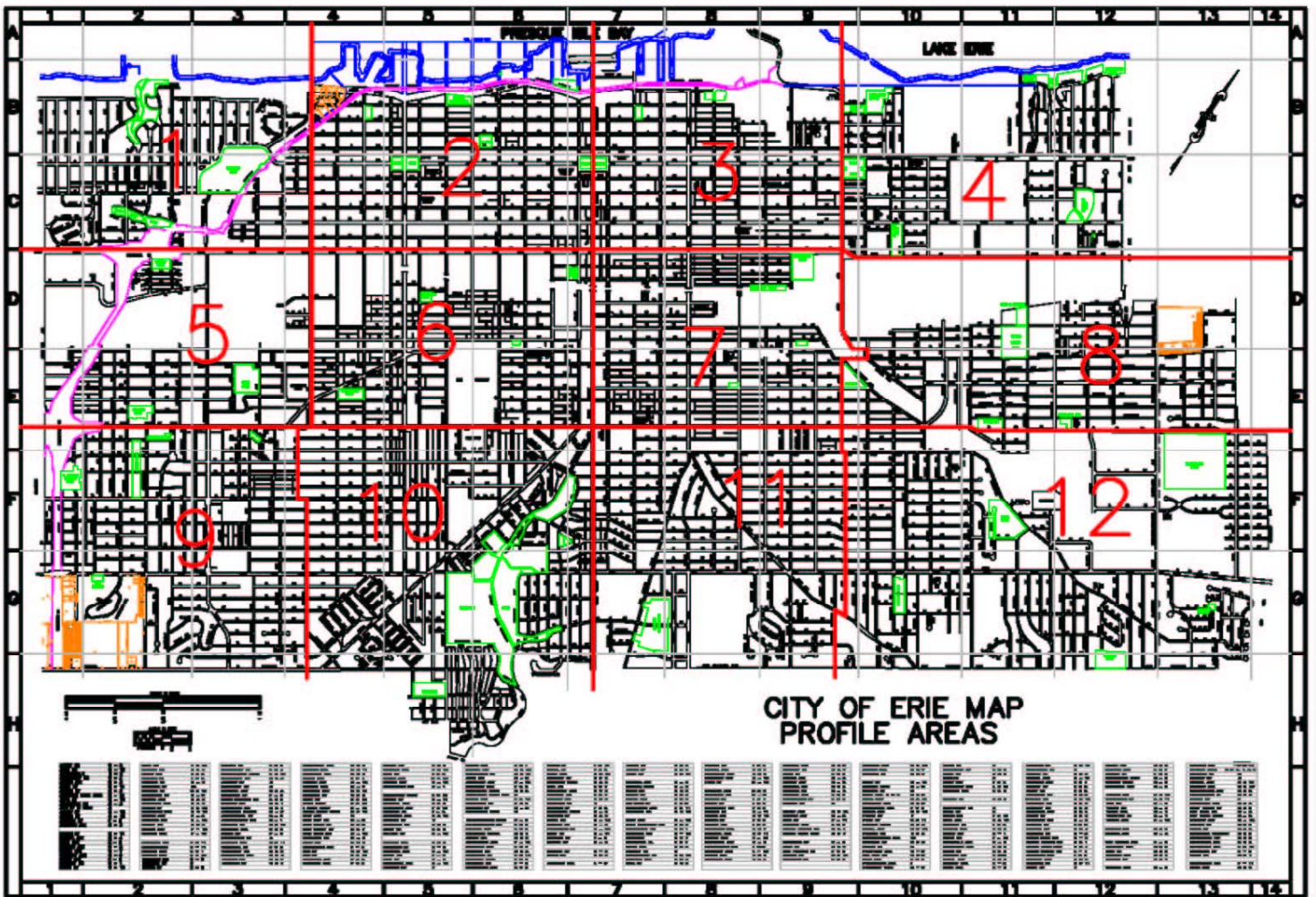
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Introduction and Background

It is noteworthy that the City of Erie and the Bureau of Police decided to voluntarily examine statistics related to police stops and searches of citizens. The Bureau of Police has been very cooperative and supportive of this data collection and analysis project. This initiative reflects a good faith effort to determine the extent of any problems that may exist and a willingness to meet any challenges the data present.

This study is based on police officer reports of officer-initiated vehicle and pedestrian stops in the City of Erie during the period of September 1, 2001 to February 28, 2002. The analysis involves only officer-initiated stops of vehicles and pedestrians because deployment of officers by police headquarters does not involve officer discretion. As a result, externally generated police contacts are not informative as to whether officers exercise discretion in a manner that may lead to racial or ethnic disparity. The study was designed to ascertain the presence or absence of racial or ethnic disparity in police-citizen contacts. Specifically, the study examines officer-initiated vehicle stops, pedestrian stops and searches.

To collect the data, officers completed machine-scannable data collection forms after each officer-initiated traffic or pedestrian stop. These forms were then directly scanned into a database and electronically transmitted to the Civic Institute. Prior to analysis, data from incomplete forms were removed from the database. Final analysis was based upon the resulting data files, which included 2162 vehicle stops and 94 pedestrian stops.

Local Background and Study Purpose

Though minority complaints about police treatment have a long history, the visibility of the racial profiling issue increased during the 1990s with complaints of racial profiling being used in decisions to stop motorists and with the first analyses of New Jersey and Maryland State Police data showing dramatic racial disparity in stops and searches. By 1999, racial profiling had become a national issue and was addressed at both the Republican and Democratic National Conventions in 2000. The 2000 annual convention of the National Association for the Advancement of Colored People (NAACP) also made racial profiling a priority issue, advising state and local chapters to explore the issue on the local level. The American Civil Liberties Union (ACLU) has also been very active in opposing racial profiling and has been actively involved in many legal cases related to racial profiling.

According to local minority leaders, it was only natural for the local chapter of the NAACP to respond to this national issue. The local NAACP created a discussion forum for local racial profiling issues. At that time, the local media also took an interest in this issue and provided coverage on Erie area cases of alleged racial profiling.

At the same time, the Erie Concerned African American Clergy (Concerned Clergy), who were meeting with Mayor Savocchio on a regular basis, brought to her attention their concerns about potential racial profiling by the City of Erie's Police Department. Following the NAACP State Convention hosted in Erie, a coalition was developed to address this issue, which included the Mayor's office, the Erie Police Department, the local NAACP and the Concerned Clergy; this coalition was later referred to as the Alliance.

According to Mayor Joyce Savocchio, the Alliance held meetings over a six-month period, during which city administration insisted racial profiling did not exist in the City of Erie, but the NAACP and the Concerned Clergy insisted racial profiling not only existed, it was a common practice. Though these differences of opinion existed between the groups, all agreed it was essential to send a message rejecting the practice of racial profiling in the City of Erie. While the Concerned Clergy wanted a third party, such as a Citizen's Review Board, to investigate and review the issue, the Mayor felt that more formal data gathering was necessary to address the issue of racial disparity in police stops. The Mayor then approached Mercyhurst College, requesting the Civic Institute's assistance in conducting this study to clarify the issues, thus moving the racial profiling issue from anecdotal attacks to information-based discussions. The NAACP and the Concerned Clergy recognized this need to move forward and accepted the Mayor's proposal.

In the view of some of the minority leadership, the Erie community has already benefited from the initiation of this study because it demonstrates the City's commitment to addressing this issue. It is the hope of the minority leadership that, regardless of this study's findings, the programs and initiatives recommended by the study may improve relations between the police and minority community.

Mercyhurst Civic Institute Involvement

In May 2001, the Civic Institute agreed to participate in this study and, by August, a contract existed between the City and the Institute to conduct the analysis. The Institute established a research team to conduct this analysis. Members of this team include Professors Thomas Gamble and Peter Benekos as principal investigators; Bill Hale, a

former officer with the Millcreek Police Department, as liaison with the City of Erie Bureau of Police; Paul Gambill, of the Central City Neighborhood Watch, as liaison to the minority community; Julie Bush-Miller, Karel Exner and J.D. Haltigan, for background research; and Amy Danzer for database management. As an outside consultant, the Institute identified Captain Ron Davis of the National Organization of Black Law Enforcement Officers (NOBLE) and the Oakland Police Department. Captain Davis is seen as uniquely qualified because he is a national spokesman on this issue, is a veteran police officer and is a minority. As a result he can provide multiple perspectives on racial profiling.

The Institute completed a thorough review of the nationwide literature on racial profiling to help focus this analysis. This review established relevant conceptual and methodological issues and identified the variables for which data must be collected to effectively analyze the evidence for any racial disparity. Subsequent to this review, the Institute also consulted about the variable list with Amy Farrell of Northeastern University, who co-authored *A Resource Guide on Racial Profiling Data Collection Systems: Promising Practices and Lessons Learned* in 2000 on behalf of the U.S. Department of Justice.

The Institute's team met several times with representatives from the Bureau of Police and the Mayor's office to discuss the variables to be collected for this analysis, along with the precise definition of each variable. The Institute then presented its analysis of racial profiling issues to the Alliance, along with recommendations for variables to collect, which were agreed upon by the Alliance.

With the variables specified, the Institute worked with the Bureau of Police and representatives from Scanning Systems of Columbus, Ohio to develop the format of both the machine-scannable data entry forms and the electronic database system. Once the final instrument was completed, the Institute developed a training manual and conducted training sessions for all members of the City of Erie Police Department, including sessions conducted during a week of patrol division roll calls. Beyond providing details of this study, these meetings were designed to explain the use of the data collection instrument and overall data collection process.

To prepare for a more precise zonal analysis, the Institute worked in conjunction with the Bureau of Police and Mayor's Office to establish geographic zones, based on existing police beats. This zonal analysis was meant to assist in controlling for crime rate differences and for police surveillance differences in various city sectors, as explained below. The six city beats were divided into twelve zones. Using the *2000 United States Census Tract Data*, the Institute calculated the racial and ethnic populations for each geographic zone. For the vehicle stops analysis, Census data for individuals aged 16 years and older were calculated for each zone, then separated by race and ethnicity; this was the *expected proportion* of vehicle stops in a given zone for each racial and ethnic group. For example in a zone in which blacks make up 30% of the driving age population, the expected percent of vehicle stops for blacks would be 30%. In order for racial disparity to be indicated, the actual percent of blacks stopped in that zone would have to be significantly higher than the 30% expected level.

For pedestrian stops analysis, Census data for individuals aged 10 years and older were calculated for each zone, then separated by race and ethnicity; similarly, this was

the *expected* proportion of pedestrian stops by race for each zone. For most analyses in the study, observed proportions of stops and searches were compared to expected values and statistical tests were performed to determine the statistical significance of the findings.

A copy of the zonal boundaries and the preliminary review of analyses were provided to the Alliance for review and discussion. In addition, the Civic Institute arranged a visit from Captain Davis of NOBLE in October 2001 to meet with members of the Alliance, the local media and the Institute's research team to discuss this project's relevance and value.

Actual data collection commenced September 1, 2002 by the City of Erie Bureau of Police and, per the data collection plan, continued for six months. As officers submitted their completed surveys, a representative from the Department's Records Section scanned the forms and electronically forwarded the data files to the Institute for tabulation. Throughout the duration of this project, forms were randomly reviewed for completeness and compared to the electronic data file as a quality control measure.

Conceptualizing Racial Profiling

There is no universally agreed upon definition of *racial profiling*, in fact some believe the phrase is so difficult to define that it should be replaced with the terminology *racially biased policing*. All concur that the term is difficult to define, but an effort is made here to delineate what individuals may mean by racial profiling, since it is the impetus for this study.

Essentially, everyone agrees on two factors in profiling activities. First, when a crime has been committed and the suspect's race is known, then race is clearly relevant to

an officer's decisions to stop and question individuals in connection with this crime. No one expects police to ignore relevant descriptive information. Second, almost everyone agrees, in a nation committed to freedom and equality, race should never be the sole basis for an officer's decision to stop or search individuals. Somewhere between these two extremes is the delicate balance between appropriately vigorous policing and individual judgment and discretion resulting in racial disparity. Finding this balance can be difficult to identify with precision, and for any given case, well-meaning and informed individuals may differ. It is, therefore, necessary to look beyond an individual case to the aggregate. If, over thousands of contacts, a pattern of unexplained disparity exists, this may provide the basis for reviewing how stop and search decisions are made.

For the purpose of this study, the Alliance adopted the following definition of racial profiling developed by Ramirez, McDevitt, and Farrell in 2000 for the U.S.

Department of Justice:

Racial profiling is defined as any police-initiated action that relies on the race, ethnicity, or national origin rather than the behavior of an individual or information that leads the police to a particular individual who has been identified as being, or having been, engaged in criminal activity (p. 3).

The phrase racial profiling is occasionally used in a very narrow sense, referring to law enforcement organizations issuing a policy, developing a procedure, or conducting training that explicitly or implicitly leads officers to use race as the underlying basis for stops or searches of citizens. However, the focus of this study is broader, examining whether or not racial or ethnic disparity exists, regardless of whether it arises from specific policies, procedures, or training.

Racial Bias and Social Cognition

The Institute’s research team does not interpret the data on racial or ethnic disparity found in this report as evidence of explicit racial bias or the use of an explicit racial profile to determine who to stop or search. It is important to clarify that racial bias may not derive from an explicit policy of racial profiling, nor from a conscious or malicious antipathy toward members of minority racial or ethnic groups. It may be unconscious and implicit, rather than conscious and explicit.

Current social psychological approaches to bias and stereotyping emphasize the similarity between the cognitive basis of categorization and stereotyping. Categorization is, of course, essential for all reasoning. From this perspective, stereotyping may be seen as a form of categorization. Categorizing people by race or ethnicity may well be as natural as other forms of categorization. The implication is that one need not be a racist to fall under the influence of stereotypes; in fact, one may need to make a concerted effort not to be so influenced. If, as the research suggests, being “color blind” is not really an option, then one must go further to avoid biased decision-making. In recent social psychological studies of implicit bias, people who report feeling “exactly the same” about minorities and non-minorities still show implicit preference favoring whites (Greenwald, McGhee, & Schwartz, 1998). Even more recently, Patricia Devine stated:

Over the last decade or so, a great many studies have revealed that prejudice and stereotypes can operate without the conscious intent or awareness of social perceivers. Even those who consciously renounce prejudice have been shown to have implicit or automatic biases that conflict with their nonprejudiced values (Devine, 2001, p. 757).

In sum, even explicitly renouncing bias and prejudice may not be sufficient to root out all effects on our behavior. Therefore, evidence of disparity cannot be taken as demonstrating the existence of explicitly biased attitudes against minorities.

Brief History of Racial Profiling Analyses Nationwide

Racial profiling studies began in the mid-1990s in response to increasing anecdotal evidence that pointed to unfair targeting of minority community members for both traffic stops and subsequent vehicle searches. Issue-advocacy groups, such as the ACLU and the NAACP, pioneered racial profiling studies to support lawsuits against police departments. These studies, like those conducted by John Lamberth and David Harris, either examined pre-existing data or attempted to study certain sections of highways. Early studies were either unable to account for many variables required of a thorough racial profiling study or, in the case of examining sections of highway, a study's methodology could not be applied at the municipality level.

As public awareness of racial profiling increased, state and local governments, as well as police departments, began conducting racial profiling studies of their own. The methodological advantage of studies conducted by departments themselves is that data collection options increase. While non-government organizations like the ACLU must rely on pre-existing data or data they can collect themselves, such as observing drivers on certain sections of highway, police departments and local governments are able to require that their officers record data for each traffic stop. Ideally, this ensures a large sample size, while also allowing collection of data on a wide range of variables.

Even when conducted internally, methodological problems exist for racial profiling studies, many of which will be discussed throughout this report. Though

problems exist regardless of study methodology, each study also provides further advances. In addition, many racial profiling studies are currently underway throughout the country; moreover, debate at both the state and federal levels centers around mandating racial profiling data collection.

Non-Governmental Racial Profiling Studies

Non-governmental organizations were among the first to conduct racial profiling studies. In particular, the ACLU and the NAACP were at the forefront of the racial profiling issue. Dr. John Lamberth, a Temple University professor, conducted the first racial profiling studies and, in 1994, wrote the unpublished *Revised Statistical Analysis of the Incidence of Police Stops and Arrests of Black Drivers/Travelers on the New Jersey Turnpike Between Exits or Interchanges 1 and 3 from 1988 through 1991*. In this study, Dr. Lamberth developed three methods for collecting data. The first method involved choosing a section of highway and observing driver race from the side of the road. The second method involved observation of drivers from inside a vehicle while traveling along the highway, allowing the vehicle's occupants to determine both the race of other drivers on the road, as well as any traffic law violations committed. The third method involved the examination of New Jersey State Police records to determine the race of all drivers stopped on this area of the turnpike from 1988-1991. This study is significant in that it was the first racial profiling study, which also attempted to compare the number of traffic law violators in each ethnic group to the number of drivers stopped from each ethnic group.

As the Government Accounting Office points out in a March 2000 report on racial profiling, the methodology in Dr. Lamberth's study is problematic for multiple reasons.

First, a traffic violator was anyone driving more than five miles per hour over the speed limit, thereby putting people driving six miles an hour over the speed limit in the same category as those driving thirty miles an hour over the speed limit. Second, the traffic observations and police records were not from the same time period, thereby making comparison difficult. Third, three-fourths of the police records in this study did not record driver race, thereby raising questions as to the data's validity. Dr. Lamberth used a similar methodology to study motorist stops on a Maryland highway for the ACLU.

David Harris, a University of Toledo law professor, conducted a study for Ohio in December 1999. In this study, Harris gathered pre-existing data from municipal court records in four Ohio cities: Akron, Toledo, Dayton, and Columbus. These data, which included the race of individuals ticketed, were then compared to the driving age population of different ethnic groups from the 1990 Census. Since a 1990 Department of Transportation survey found that 21% of African-American households did not own a car, this figure allowed for the calculation of the African-American population with vehicles in these cities. Harris's study found that African-Americans were more likely than whites to be given citations. This study is important because it attempts to examine racial profiling over a larger area than a single segment of highway and also attempts to calculate a comparison population by removing non vehicle-owning populations from the Census data. Yet, this study also contains methodological problems. Not only were the Census data and transportation data eight years older than the citation data, the study made no attempt to calculate the number of people of each race being stopped or searched without receiving a formal citation.

Police Department Racial Profiling Studies

As citizens became more aware of the racial profiling issue, some police departments began collecting their own data on traffic stops. When police departments collect the data themselves, a researcher can track multiple variables more easily than pre-existing data allow. One of the first such studies, conducted in 1999 in North Carolina, was in anticipation of the nation's first statewide law requiring law enforcement agencies to collect traffic stop information (Zingraff, et al., 2000). For this study, the North Carolina State Highway Patrol tracked citations, warnings, and searches, while the Department of Motor Vehicles provided information regarding the driving population.

The major methodological development of this study was a calculation of the denominator. This study used two denominators, both of which involved demographics. The first denominator, provided by the DMV, included all residents with a North Carolina driver's license. Since more police are concentrated in higher traffic areas, this first denominator was not distributed equally and was, therefore, a problem. In addition, basing any risk of being stopped on statewide figures would potentially ignore these police deployment patterns. The second denominator in this study attempted to find demographic data of drivers in a given county, regardless of their place of residence. This second denominator, calculated by combining the demographic counts of residents in a district with the demographic estimates of the originating district, was used more often in the study.

Risk rates of being stopped, ticketed, or searched were compared by race, age, and gender. This study found African-Americans more likely to be stopped, ticketed, and searched than whites in virtually every age category. Despite an attempt to accurately

calculate a denominator for comparison purposes, this study had several methodological flaws. First, no attempt was made to calculate the number of people violating the law for each ethnic group, as had been done in the Lamberth study. Second, the study used only two racial categories, African-American and Caucasian, thereby ignoring other ethnic groups that might be victims of racial profiling.

The city of San Jose, which developed a racial profiling study in 2000, made several methodological advances in data collection. As opposed to the North Carolina study's six-week data collection period, the San Jose Police Department collected data for a full year using a Computer-Aided Dispatch System. San Jose collected stop data, including: outcome of the stop; reason for the stop, such as moving violation, equipment violation, municipal code violation, or matching the description of a suspect; the driver's race and ethnicity; whether the driver was an adult or a minor; and the gender. These data were compared to estimates of the San Jose population based on both the 1990 U.S. Census and a 1995 California Department of Finance report. This study found that both blacks and Hispanics were over-represented in stops, although the police department attributed this to police distribution, as opposed to biased policing. This study is methodologically significant because the city collected information from 97,154 vehicle stops over a one-year period. In addition, it attempted to estimate the population in 1999, although this estimate is problematic because it did not take into account people not living in San Jose, nor those who were not part of its driving population.

In January 2000, The Police Department of Richmond, Virginia collected traffic stop data for a period of six weeks (Smith and Petrocelli, 2001). During this time, 2,673 stops were recorded, collecting the following information:

- Driver data: age; gender; race, which included Asian, Black, Hispanic, Native American, Middle Eastern descent, and White;
- Officer data: race; gender; age; longevity of service; and shift;
- Stop data: census tract of stop; reason for stop, such as defects, investigation, moving violation; disposition of stop, such as warning, on-view felony arrest, on-view misdemeanor arrest, summons issued, warrant served, mental detention order, parking/city decal citation, DUI arrest, offense report, miscellaneous report, other report, juvenile violation report, suspension notification issued, vehicle towed, vehicle searched, information received, stolen vehicle recovered, property found or seized, guns/weapons found or seized; if search was conducted; and type of search conducted, such as consent, incident to arrest, inventory, pat-down.

All of the collected information was compared with the 1990 Census information. Methodologically, the Richmond study is significant because of the number of variables on which the researchers collected data. This is the true strength of active collection during traffic stops, as it allows researchers to collect on all targeted variables, rather than relying on the limited variables of pre-existing data. This study is also significant because it took into account information regarding the officer making the stop. Methodological problems included an absence of a violator index, use of Census data that

was ten years old and a limited data collection period of only six-weeks, during which time 36% of the collected data was inaccurate.

Racial profiling studies have become increasingly sophisticated, evolving from earlier studies in which pre-existing data were used to compare the number of Caucasians and African-Americans ticketed, to more highly developed studies for which police departments collected a wide range of information, including decisions to stop or search, decisions about disposition, and reasons given by officers. While the methodology of racial profiling studies has developed significantly over the past eight years, methodological obstacles still exist.

The most problematic aspect of racial profiling studies is the inability to look at the total population of drivers breaking the law. The only researcher who attempted to create a violator index was Dr. Lamberth in his New Jersey and Maryland highway studies. However, his method was flawed, and no amount of correction would make it applicable to the municipal setting.

Another common methodological problem is comparing data from different years. Many of the studies used 1990 U.S. Census data to compare with data on traffic stops from the late 1990s. San Jose attempted to solve this problem by estimating the population of San Jose based on a combination of state and federal data. North Carolina attempted to take into account drivers who resided outside the study area, a problem that is especially acute in cities where a large number of people commute to work through the study area daily. In Erie we are fortunate to have 2000 U.S. Census data as the basis for this 2001-2002 study.

Analysis and Results

In the social sciences, definitive research is quite rare. Rival plausible interpretations exist for almost any particular finding or set of findings; similarly, there may be competing explanations for the data presented herein. A broad community discussion of possible interpretations of these results, and appropriate responses to the pattern of results, can fortify police-community relationships, and enhance policing and community safety. Greater confidence in study interpretation is often associated with congruent findings, where a set of findings all point in the same direction. However, caution is warranted for interpretation in situations where findings are incongruent, such as when outcomes point in a variety of directions. Therefore, prudence dictates the importance of examining patterns of findings rather than focusing on any particular finding.

When social scientists seek to determine the existence of racial profiling, they invariably study racial disparity in police stops and searches. While racial disparity in stops or searches is consistent with racial bias, it does not prove the existence of racial profiling. As noted above, any disparity could possibly have resulted from other causes. Highlighted below are examples of alternative explanations, along with the research team's response to them.

Accounting for Neighborhood Differences in Crime Rates: Zonal Analysis

The research team was unable to access neighborhood-specific crime rates for the City of Erie, but is aware that crime is not evenly distributed throughout the city. Like all cities, Erie has some areas with higher rates of crime than others.

To control for these differences in the crime rates, and the associated police activity in areas of high crime (which may also be areas of relatively high minority populations) the researchers divided the City of Erie into 12 geographic zones. The boundaries of the zones were established prior to data collection. Each zone is much more homogenous in terms of population characteristics and crime rates than is the city as a whole. As a result, crime rates and the associated levels of police activity will apply equally to black and white residents within these zones. Examining racial disparity within zones allows the team to test whether or not citywide disparity in vehicular stops is the result of police deployment practices.

If racial disparity found citywide is merely the result of increased police deployment patterns in areas of high minority residence, then the disparity will be substantially reduced when zones are examined one by one. Within each zone, minority and non-minority residents should be equally exposed to the prevailing levels of police presence. Individuals within zones should also be more alike on other potentially relevant factors, such as unemployment rates, family structure, and poverty. For example, poverty may be relevant since less affluent individuals may be more likely to drive more visibly defective cars, increasing the potential for a traffic stop or citation.

The issue being dealt with here is that it is a common police practice to deploy a greater police presence in areas with higher crime rates. This common, sensible police practice could easily lead to the appearance of racial profiling since an increased police presence in higher crime areas is associated with more police activity in that area. Individuals living in these areas, and those spending large amounts of time in these areas, are most likely to feel the effects of an increased police activity. If these areas are also

disproportionately minority, then one can expect minorities in these areas to encounter more police contacts. For example, if one area has twice the crime rate as a second area and police deployment policies are sensitive to crime rates, the residents of the first area will be under greater police surveillance than residents of the second area. If the first area also has a much higher proportion of minorities than the second area, unbiased police behavior will result in appropriately more stops of minorities and the appearance of racial disparity if the zones are not examined separately. This appearance of biased policing occurs because police stops are associated with higher police presence, which is associated with high crime rates. Due to this variance in police deployment across the city, it would be misleading to infer the existence of racial profiling merely by examining citywide disparity in police stops of minorities. However, if based on the minority populations within zones, disparity is also found within those zones, this inference becomes much stronger.

Accounting for Differences in Underlying Crime Rates by Race and Ethnicity

The above-described analysis is an effective method for reducing the impact of differential crime rates across neighborhoods, but does not address the issue of differential crime rates across racial or ethnic groups. If police disproportionately stop members of racial and ethnic groups, it may be either the result of implicit or explicit bias, or because members of those groups violate the law more often. This study, like other studies at the municipal level, has no method for ruling out that possibility, but we have found no evidence that demonstrates racial or ethnic minorities violate motor vehicle laws at greater rates than do whites living in the same section of the city.

Citywide Disparity in Vehicle Stops

This analysis examines the extent to which the data show racial or ethnic disparity in vehicle stops for the city as a whole over a study period of six-months. Figure 1 compares the expected percent of stops to the actual stop data by racial or ethnic group. The expected percentage is based on resident drivers, ages 16 and older, which is derived from 2000 Census data. In addition to percentages, this illustration provides the actual number of individuals stopped. Figure 2 shows the difference between the actual number of individuals stopped for each group and the number of stops expected. Bars above the line indicate more stops than expected while bars below the line indicate fewer stops than expected, thus illustrating both a higher number of minorities stopped than expected and a lower number of whites stopped than expected.

These two graphs clearly present a picture of racial disparity in traffic stops citywide. While whites make up 83% of the driving age population in the City of Erie, they only represented 67% of the stops (1456 of 2158), and while blacks make up 12% of the driving age population they accounted for 25% of the stops (537 of 2158). Figure 2 indicates there were 288 more stops of blacks than would have been expected, while there were 341 fewer stops of whites. The difference between these expected and observed values is statistically significant, indicating this difference would happen by chance fewer than one in one thousand times. Results of the chi-square statistical test used to determine the statistical significance of the findings is as follows: $\chi^2(4, N = 2158) = 438.135, p < .001$.

Figure 1
City of Erie
Expected vs. Actual Stops by Race and Ethnicity

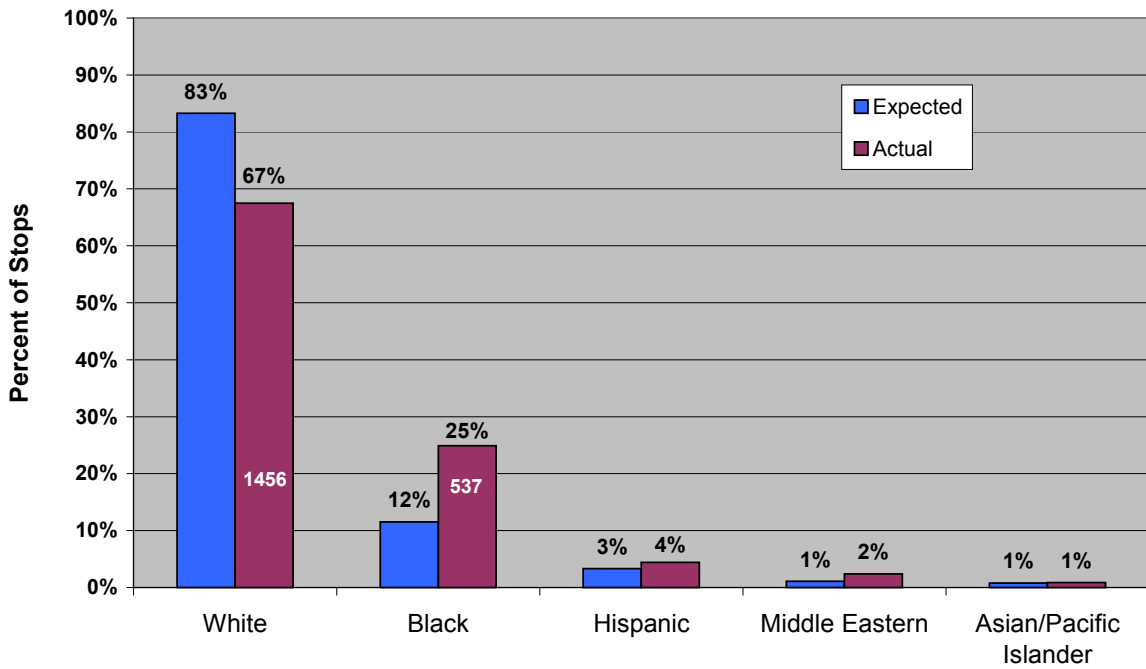
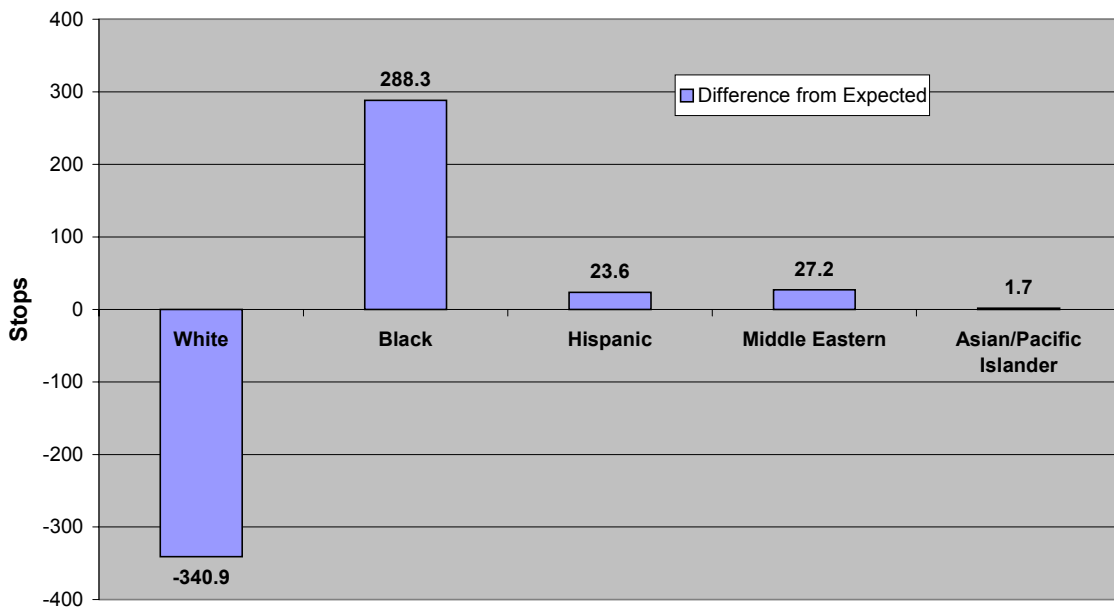


Figure 2
City of Erie
Difference between Actual Number of Stops and Expected Number of Stops
by Race and Ethnicity



Disparity by City Zone

As noted above, disparity was also examined in each zone to determine whether this statistically significant disparity found citywide would also be found within each of the 12 zones. The table below presents the zonal and citywide chi-square values, which indicate whether disparity is statistically significant for a given area. In addition, graph comparisons for each zone are presented in Appendix A; every zone showed some disparity. Nine of the 12 zones showed statistically significant levels of disparity for minorities, particularly blacks, being stopped more often than expected. In addition, Table 1 shows the proportion of all stops in a given zone that are disparate stops, which provides a way to rank the zones by total amount of disparity present. While the chi-square value associated with each zone indicates whether the disparity within the zone is statistically significant, one should not conclude that the differences between zones are necessarily statistically significant. Only two zones show higher levels of disparity than the citywide analysis, and many show considerably less disparity. This indicates the zonal analysis indicates some attenuation of the disparity found citywide when examined within zones, suggesting that some portion of the citywide disparity may be a function of police deployment practices, as outlined in the zonal analysis above. However, because statistically significant disparity remains in 9 of 12 zones, police deployment practices are unlikely to account for all the disparity.

Table 1: Zonal and Citywide Chi-Square Analysis Outcomes

AREA	PROPORTION MINORITY DISPARITY	CHI SQUARE
Zone 1	6/60 = 10.0%	$\chi^2(2, N = 60) = 20.427, p < .001^*$
Zone 2	8.5/250 = 3.4%	$\chi^2(4, N = 250) = 5.101, p = .277$
Zone 3	37.1/355 = 10.5%	$\chi^2(4, N = 355) = 34.272, p < .001^*$
Zone 4	24.1/177 = 20.6%	$\chi^2(4, N = 177) = 36.876, p < .001^*$
Zone 5	6.6/48 = 13.8%	$\chi^2(3, N = 48) = 23.000, p < .001^*$
Zone 6	46.1/240 = 19.2%	$\chi^2(4, N = 240) = 86.927, p < .001^*$
Zone 7	10.8/418 = 2.6%	$\chi^2(4, N = 418) = 18.740, p = .001^*$
Zone 8	6.2/135 = 4.6%	$\chi^2(4, N = 135) = 9.195, p = .056$
Zone 9	2.2/88 = 2.5%	$\chi^2(2, N = 88) = 8.117, p = .017^*$
Zone 10	20.3/157 = 12.9%	$\chi^2(4, N = 157) = 67.470, p < .001^*$
Zone 11	14.1/126 = 11.2%	$\chi^2(4, N = 126) = 24.628, p < .001^*$
Zone 12	3.4/100 = 3.4%	$\chi^2(4, N = 100) = 2.115, p = .715$
City Wide	340.8/2158 = 15.8%	$\chi^2(4, N = 2158) = 438.135, p < .001^*$

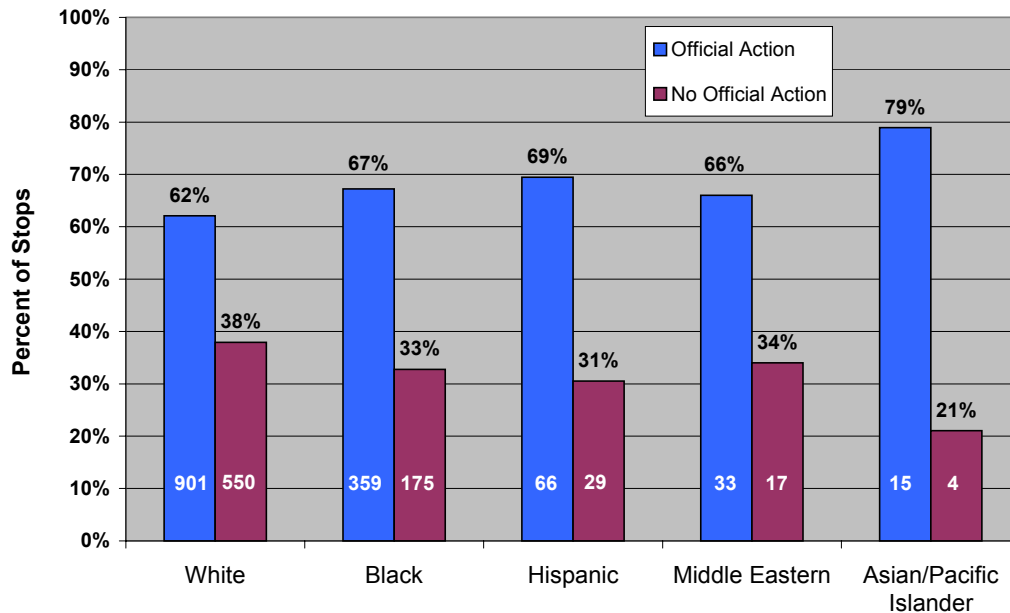
* statistically significant

Official Action by Race and Ethnicity

This analysis examines different levels of official action, such as arrest or citation, by racial or ethnic groups. If, for example, minorities are stopped for less compelling reasons than non-minorities, then a smaller proportion of minority stops would result in official action. As a result, many of the minority stops would have no basis for official action.

Figure 3 shows the proportion of official action versus no official action by race and ethnicity. In addition to percentages, the actual numbers of actions are illustrated. There is no significant difference among groups in this measure, providing no evidence for the claim that minorities are less likely to receive an official sanction. Results of the chi-square test used to determine any statistical significance of these findings is as follows: $\chi^2(4, N = 2149) = 7.856, p = .097$. Numbers may not equal previous numbers in Figure 1 due to omitted data.

**Figure 3
City of Erie
Official Action vs. No Official Action by Race and Ethnicity**

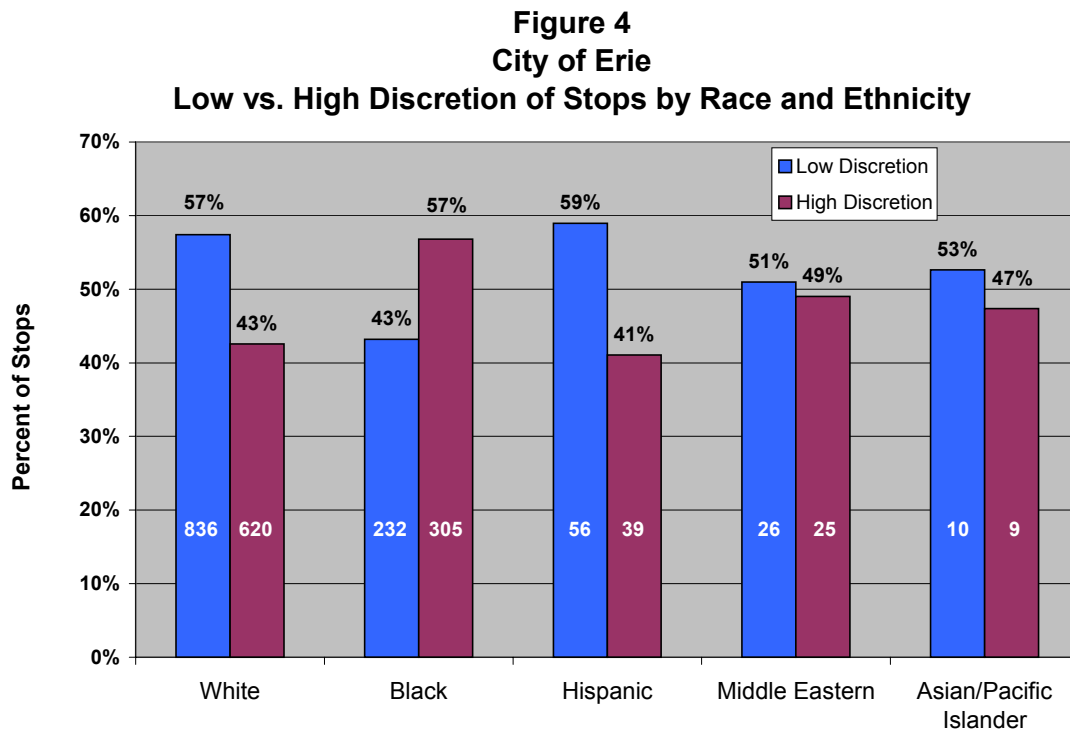


Stop Discretion by Race and Ethnicity

Reasons for a stop can be differentiated as high discretion or low discretion. A low discretion stop is one where the officer is essentially compelled to stop an individual by the nature and dangerousness of the infraction. Reasons for such stops would include hazardous moving violations, such as driving more than 15 mph over the speed limit. In contrast, a high discretion stop is based on non-hazardous moving violations, such as a broken taillight or failure to signal a lane change when not speeding.

Analysis of stop discretion is essential since any discretion exercised in a biased way, even if unconsciously, can result in a greater proportion of high discretion stops among minority drivers than white drivers. Under this hypothesis, though anyone will be stopped for low discretion circumstance, regardless of race, there may be a tendency to stop minorities at a higher rate in a high discretion circumstance.

As Figure 4 shows, a greater proportion of blacks were stopped in high discretion situations than whites or other minorities. These findings are statistically significant, occurring by chance less than one time in one thousand. Results of the chi-square test used to determine any statistical significance of these findings is as follows: $\chi^2(4, N = 2158) = 33.107, p < .001$.



Search Disparity Analysis

This analysis explores whether minorities are searched more often than non-minorities. Because a relatively small number of officer-initiated searches existed in the data file, analysis was performed on a minority versus non-minority basis, rather than by specific race or ethnicity.

The results, illustrated in Figure 5, indicate minority members are significantly more likely to be searched than non-minorities. In this case, expected rates are based on stop data rather than Census data, since only individuals actually stopped were eligible for searches. As illustrated earlier in Figure 1, non-minorities comprised 67% of stops (1456 of 2158 stops), and minorities accounted for 33% of stops (702 of 2158 stops). However, when examining searches, 34% of the searches were of non-minorities (20 of 58 searches), while 66% of the searches were of minorities (38 of 58 searches). Figure 6 illustrates the variance in expected versus actual searches observed. This difference is statistically significant, happening by chance less than one time in one thousand. Results of the chi-square test used to determine any statistical significance of these findings is as follows: $\chi^2(1, N = 58) = 28.756, p < .001$. Numbers may not equal previous numbers in Figure 5 due to omitted data.

Figure 5
City of Erie
Searches vs. Expected Searches as a Function of
Non-Minorities and Minorities Stopped

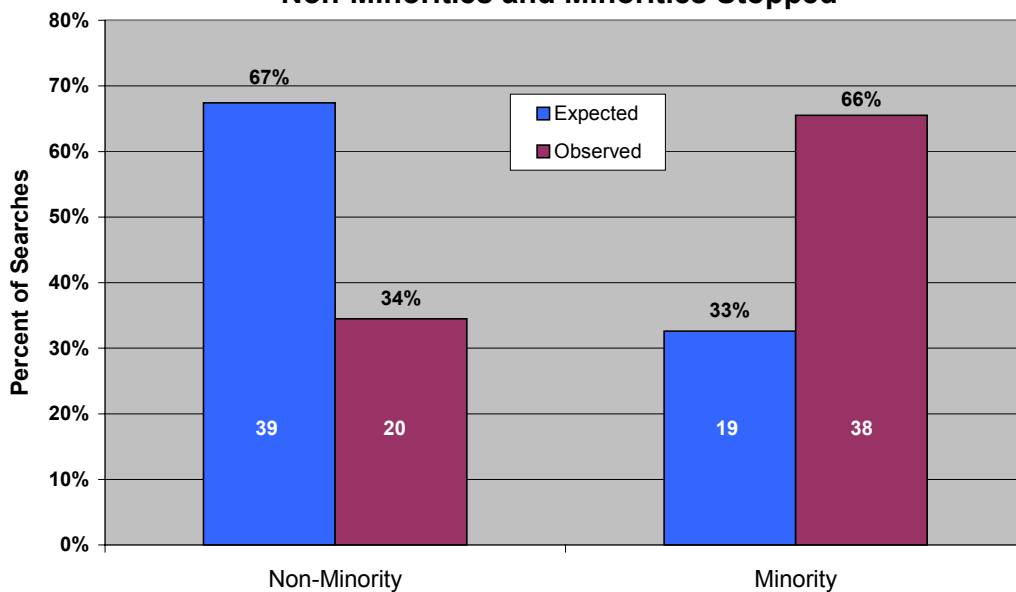
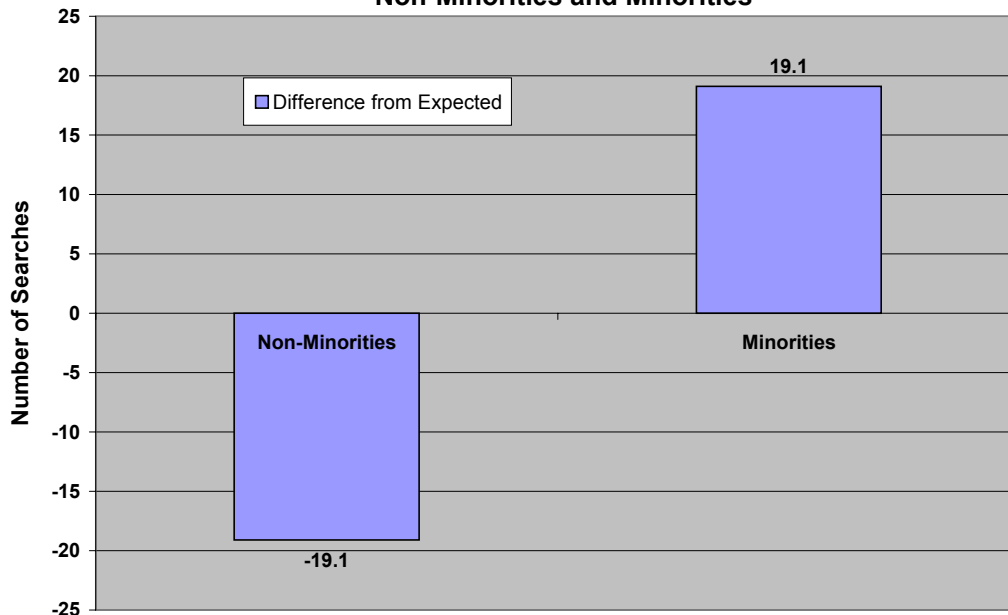


Figure 6
City of Erie
Difference between Expected and Actual Searches for
Non-Minorities and Minorities

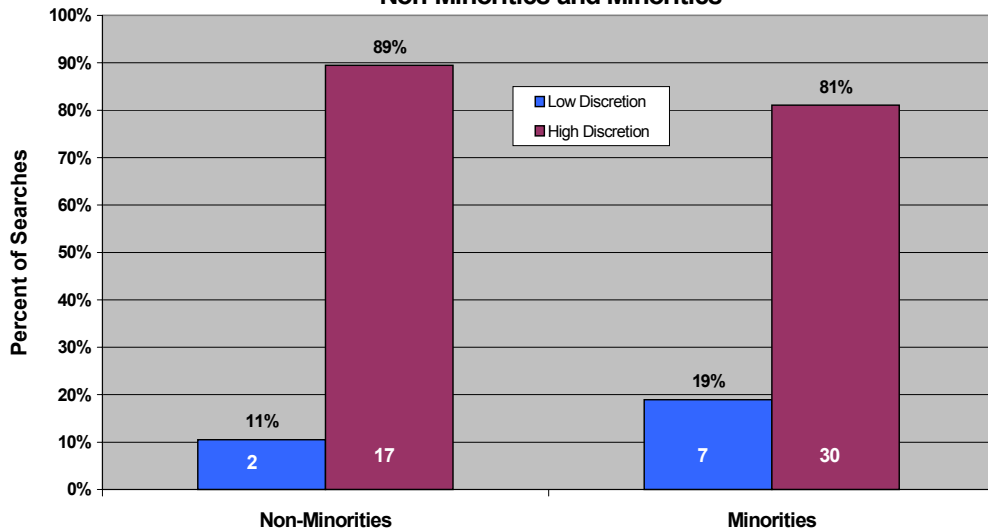


Search by Discretion

One may also be interested in whether minorities are more likely to be searched in high discretion situations. As discussed above, a relatively small number of searches existed in the data file, therefore analysis was performed on a minority versus non-minority basis, rather than by specific race or ethnicity.

As Figure 7 represents, 89% of non-minority searches (17 of 19) occurred in high discretion circumstances, while 81% of minority searches (30 of 37) occurred in high discretion circumstances. The difference between these outcomes is not statistically significant. Results of the chi-square test used to determine any statistical significance of these findings is as follows: $\chi^2(1, N = 56) = .656, p = .418$. Numbers may not equal previous numbers in Figure 5 due to omitted data.

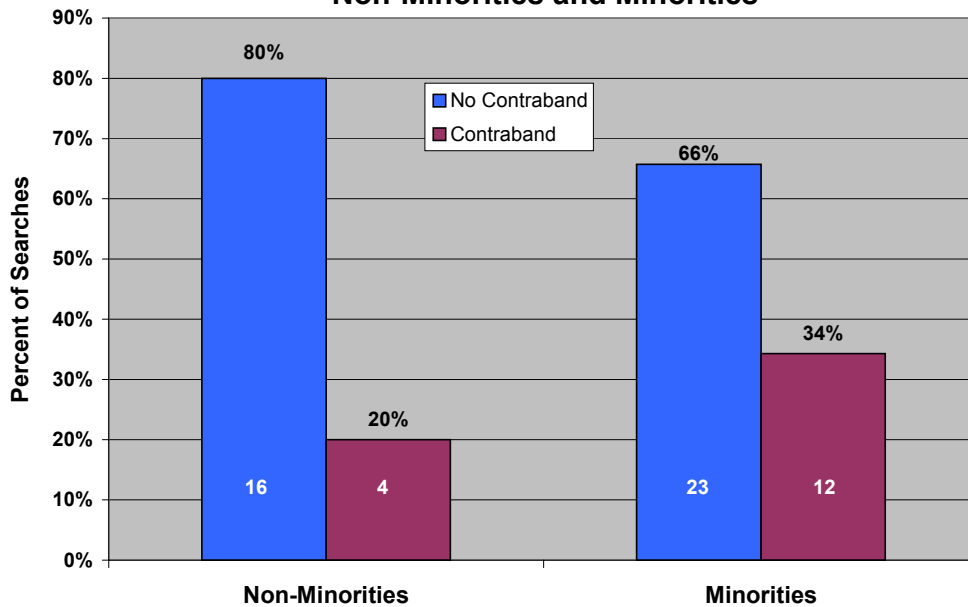
Figure 7
City of Erie
Searches by Low and High Discretion for
Non-Minorities and Minorities



Contraband by Race and Ethnicity

The final search-related issue examined was the likelihood of finding contraband subsequent to a search, as compared by race or ethnicity. As indicated in earlier search-related variables, analysis of this variable utilized a minority versus non-minority comparison. Figure 8 illustrates while non-minority searches yielded contraband in 20% of the cases (4 of 20 searches), 34% of minority searches (12 of 35 searches) discovered contraband. Though not a trivial variance, these outcomes did not reach a level of statistical significance. Results of the chi-square test used to determine any statistical significance of these findings is as follows: $\chi^2(1, N = 55) = 1.259, p = .262$. Numbers may not equal previous numbers in Figure 5 due to omitted data.

Figure 8
City of Erie
Searches Resulting in Contraband Found for
Non-Minorities and Minorities



Pedestrian Stop Disparity Analysis

Most studies of racial profiling have focused exclusively on vehicle stops, but this study also attempted to examine pedestrian stops. The number of such stops recorded was small, and much of the data transmitted on this variable was not useable. However, the final data files did include 94 usable cases of pedestrian stops. Due to the relatively small number of cases, minority groups were combined and zonal analysis was excluded. As Figures 9 and 10 show, the actual number and percent of stops for non-minorities were much smaller than the value expected, while the actual number and percent of stops for minorities was much larger than the value expected. This difference is statistically significant, happening by chance less than once in one thousand times. Results of the chi-square test used to determine any statistical significance of these findings is as follows: $\chi^2(1, N = 94) = 116.361, p < .001$.

Figure 9
City of Erie
Pedestrian Stops for Non-Minorities and Minorities

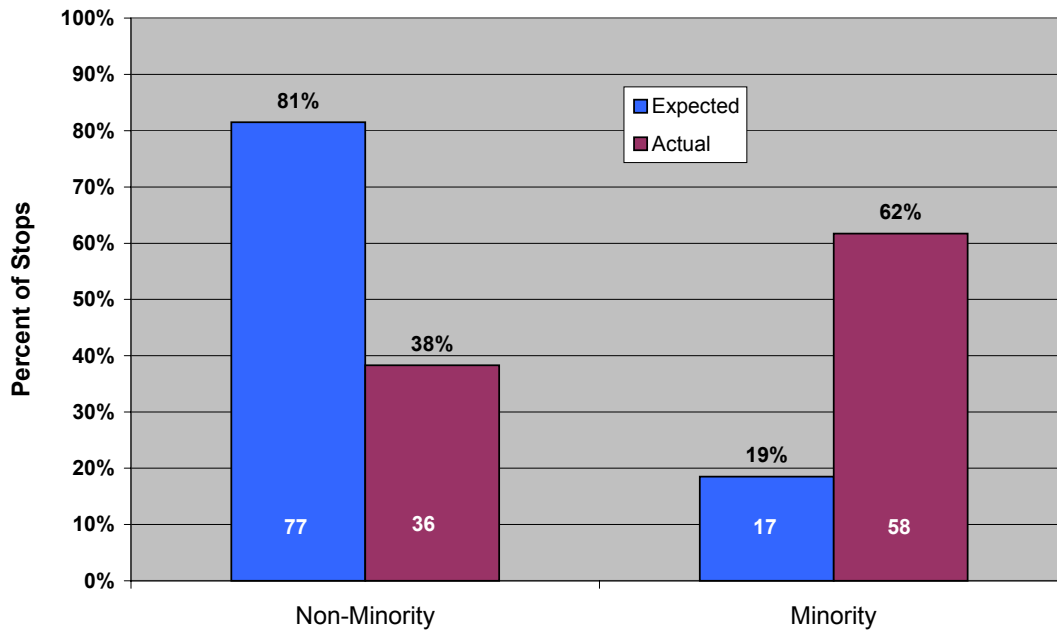
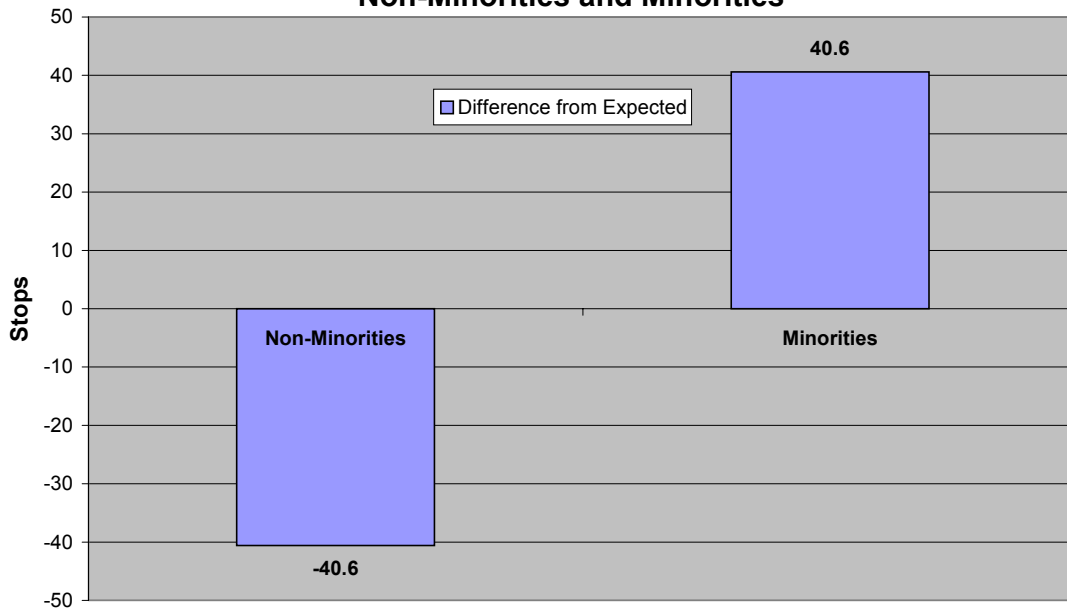


Figure 10
City of Erie
Pedestrian Stops Difference from Expected for Non-Minorities and Minorities



Summary

Contrary to some expectations about the anticipated findings of this study, the data on racial disparity are not completely consistent, but there is reason for concern. Essentially all studies of racial profiling find evidence of racial disparity and this one is no exception. However, as noted above, when there is not full consistency in the pattern of results some caution is called for. In this study many analyses found statistically significant evidence of racial disparity, but others did not. Similarly, the fact that the magnitude of the disparity was reduced when the analysis moved from the citywide analysis to the zone-specific analysis also sounds a note of caution. Nonetheless, we feel that the evidence presented herein is sufficient to warrant concern over the issue.

The data presented in this report indicate statistically significant racial and ethnic disparity in a sample of more than 2,000 stops reported by the City of Erie Bureau of Police over the six-month study period of September 1, 2001 through February 28, 2002. Significant disparity is evident in stops citywide, as well as in 9 of the 12 geographic zones established prior to data collection. Similarly, disparity was found in high discretion stops, searches, and pedestrian stops. No statistically significant disparity was found for official versus unofficial action taken, nor whether contraband was found subsequent to the search, nor on the likelihood of search in high discretion circumstances. To summarize, the data revealed:

- Statistically significant disparity between the expected numbers of motor vehicle stops for minorities, based on the citywide minority population, versus the actual numbers of minority stops;

- Statistically significant racial and ethnic disparity in 9 of the 12 geographic zones in the City of Erie, based on comparisons of each zone's minority and non-minority populations;
- Citywide, minority pedestrians are significantly more likely to be stopped than non-minority pedestrians;
- Minorities are significantly more likely to be stopped in high discretion circumstances than are non-minorities;
- No statistically significant differences between minorities and non-minorities were found on whether or not official action was taken as a result of a police stop;
- Minorities are significantly more likely to be searched than non-minorities;
- Searches of minorities are not significantly more likely to uncover contraband than are searches of non-minorities;
- Minorities are not more likely to be searched in high discretion circumstances than are non-minorities.

The pattern of results suggesting racial disparity in this study is not completely consistent, and while many analyses support the existence of racial disparity there are some analyses that do not. Nonetheless, after examining all of the data there seems to be sufficient evidence of racial and ethnic disparity to suggest that the City of Erie and the Bureau of Police may wish to consider the following recommendations in their attempts to improve relations between the police and the minority communities.

Recommendations

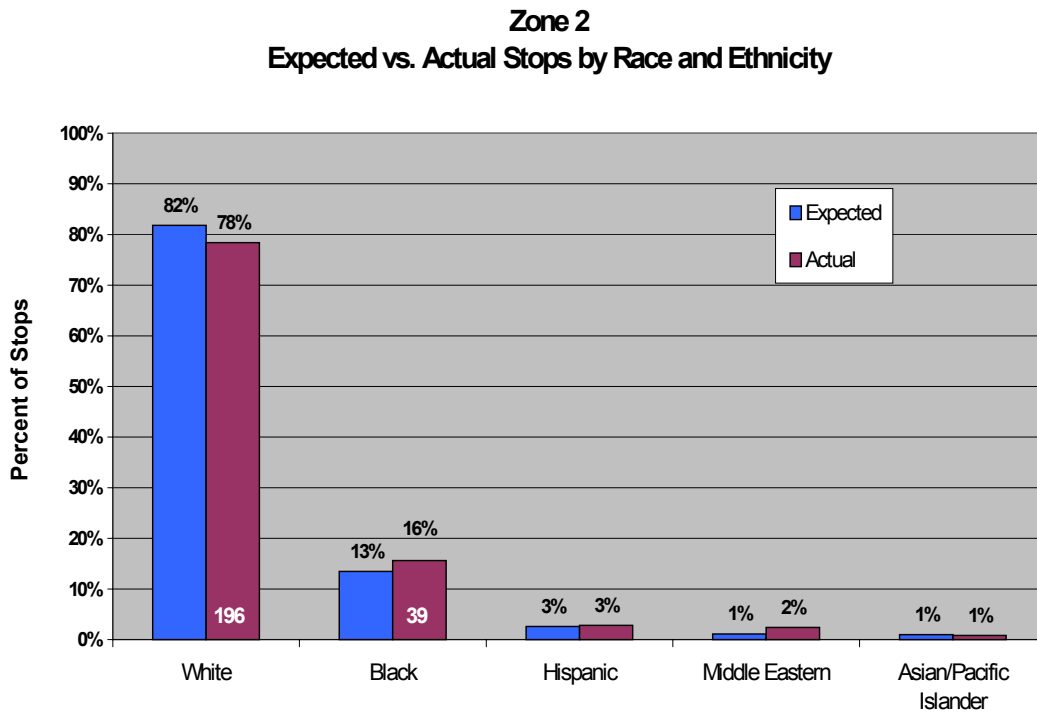
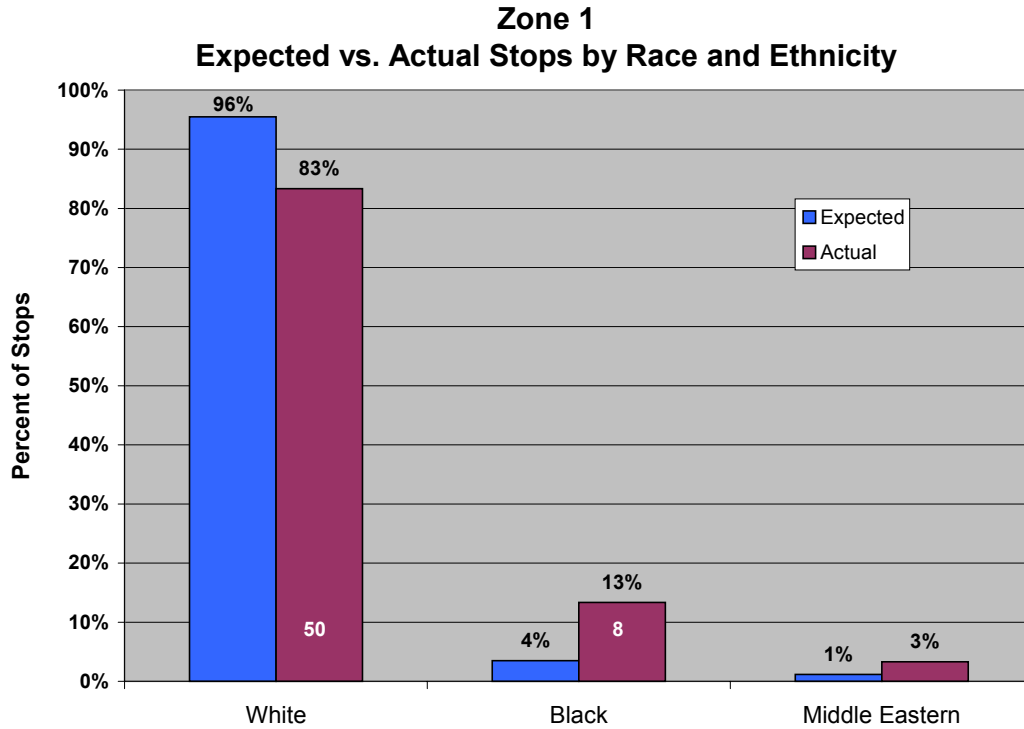
1. Review policies and procedures concerning the appropriate basis for stops and searches to assure conformity with rules that indicate stops or searches are based on reasonable suspicion or probable cause.
2. Examine city procedures and ensure the existence of a citizen-friendly process of receiving, logging, maintaining, evaluating, and responding to all citizen complaints of racial or ethnic bias or discrimination.
3. Examine in-service training curriculum to assure sufficient attention to issues related to inhibiting implicit bias or stereotyping.
4. Maintain efforts to institute community-oriented policing, particularly in establishing positive working relationships with leaders in the minority community, as well as the City's neighborhoods.
5. Maintain efforts to hire additional minority officers.
6. Consider an ongoing internal data collection effort that will allow officials within the Bureau of Police to continue monitoring trends and also serve as an "early warning system" for problems associated with biased policing.

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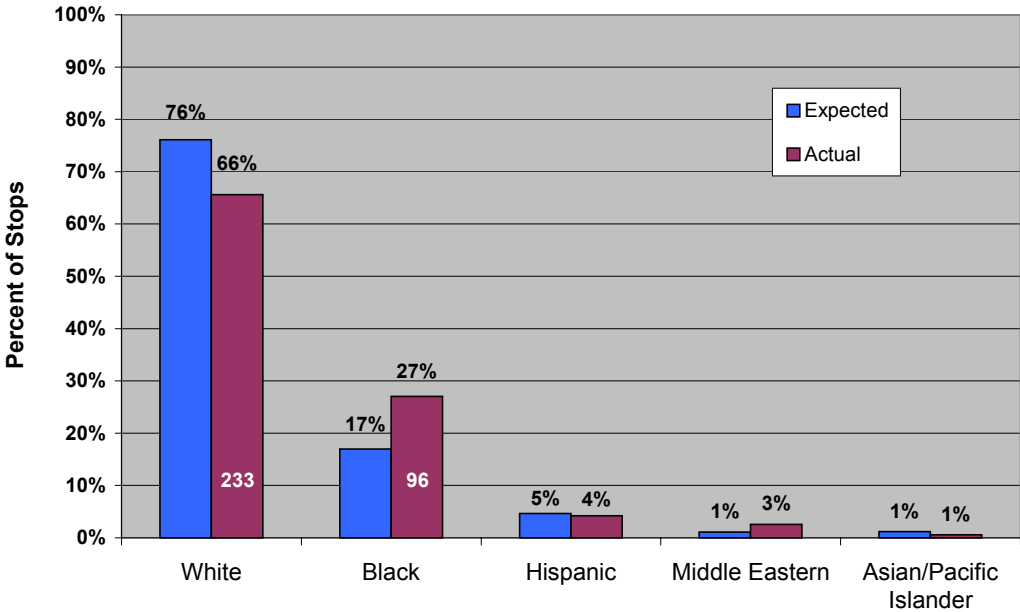
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<http://www.aclu.org/court/lamberth.html>
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<http://www.nccrimecontrol.org/shp/neshpreport.htm>

Appendix A

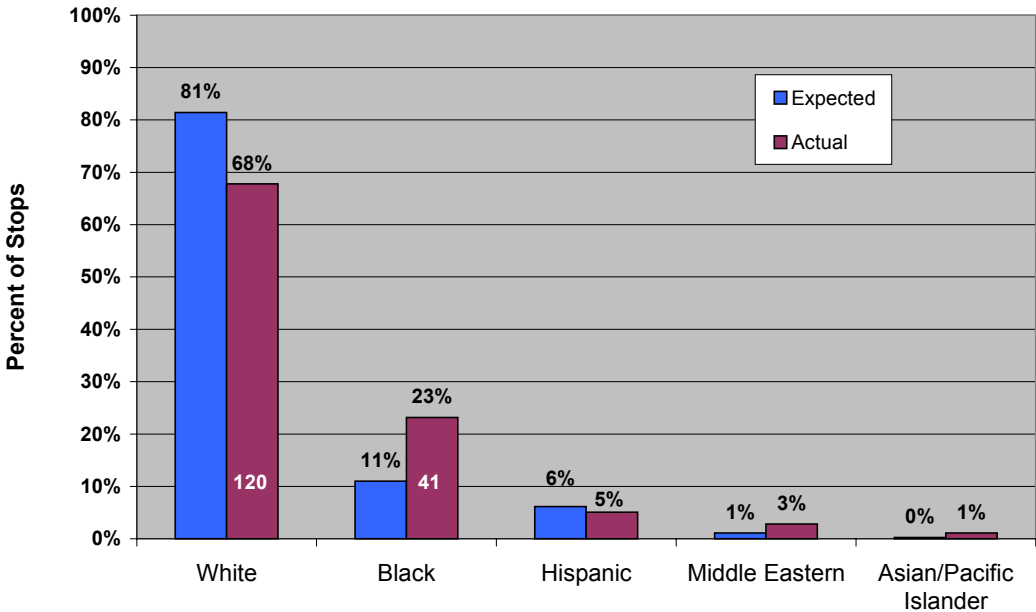
- Analysis of racial or ethnic disparity for each zone



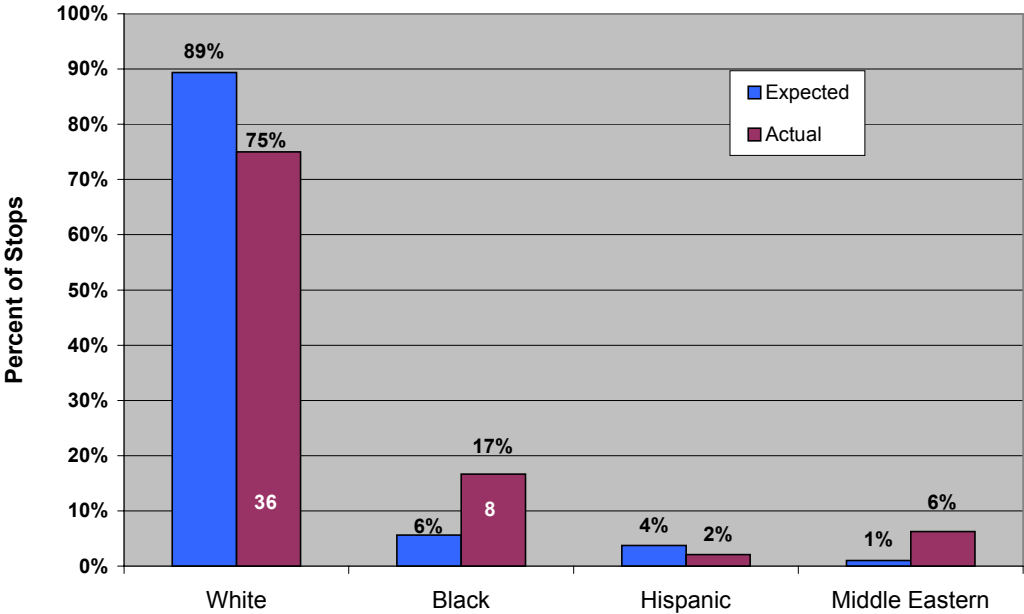
Zone 3 Expected vs. Actual Stops by Race and Ethnicity



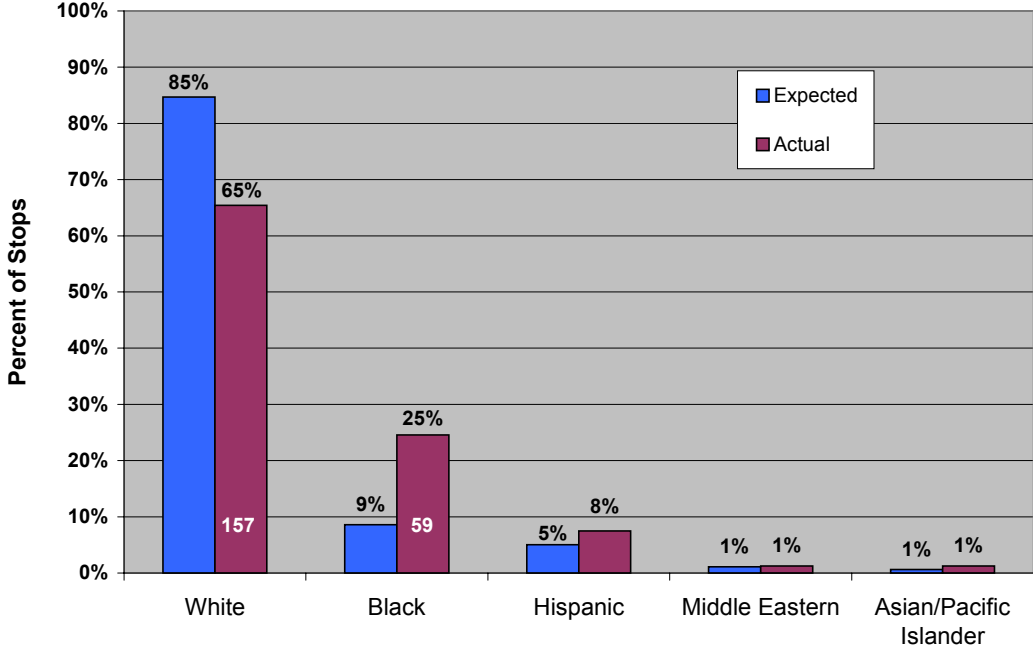
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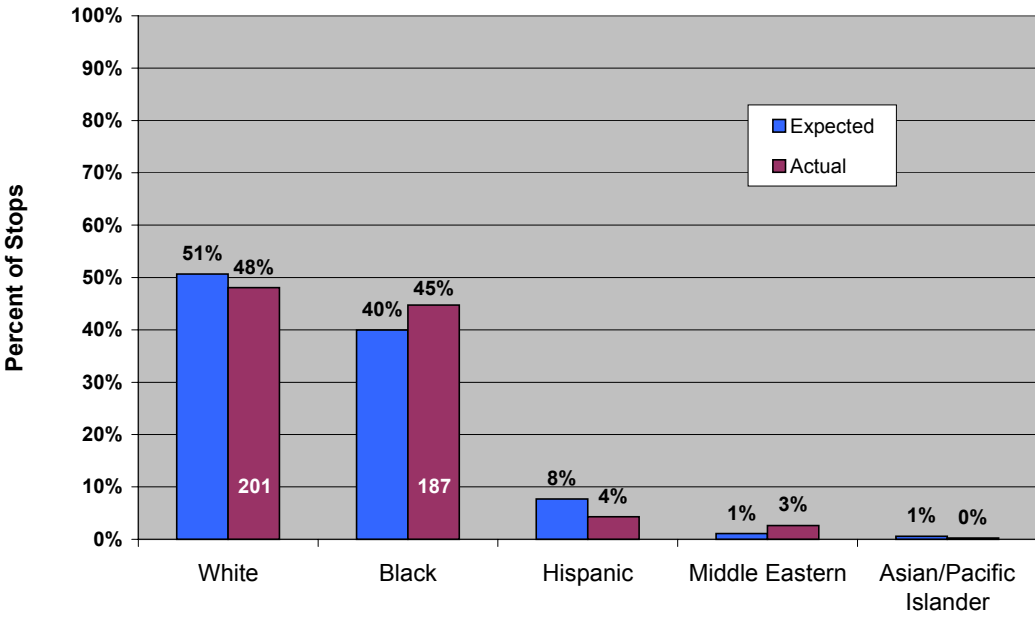
Zone 5
Expected vs. Actual Stops by Race and Ethnicity



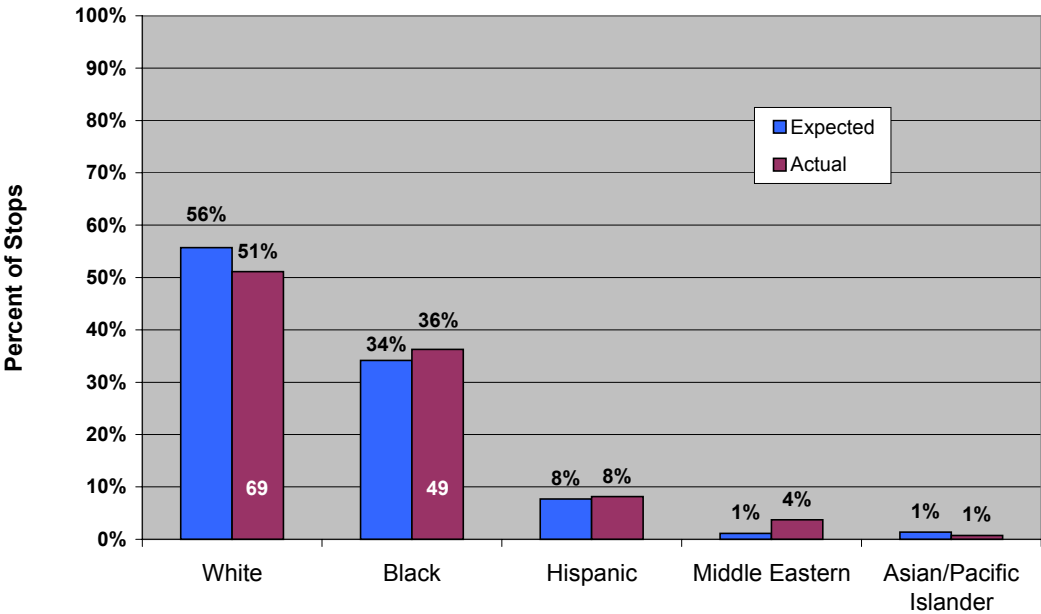
Zone 6
Expected vs. Actual Stops by Race and Ethnicity



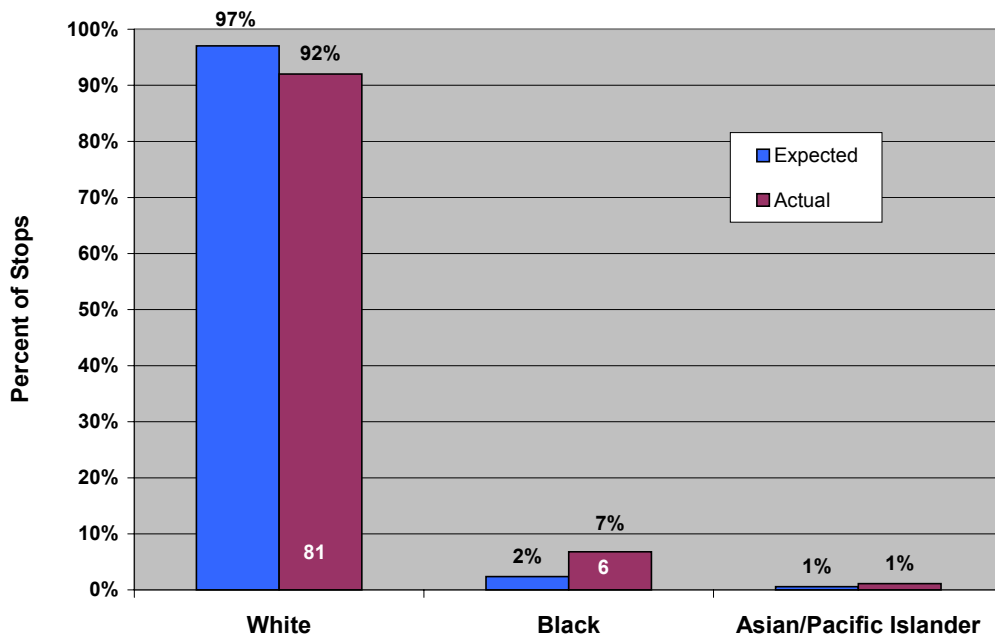
Zone 7 Expected vs. Actual Stops by Race and Ethnicity



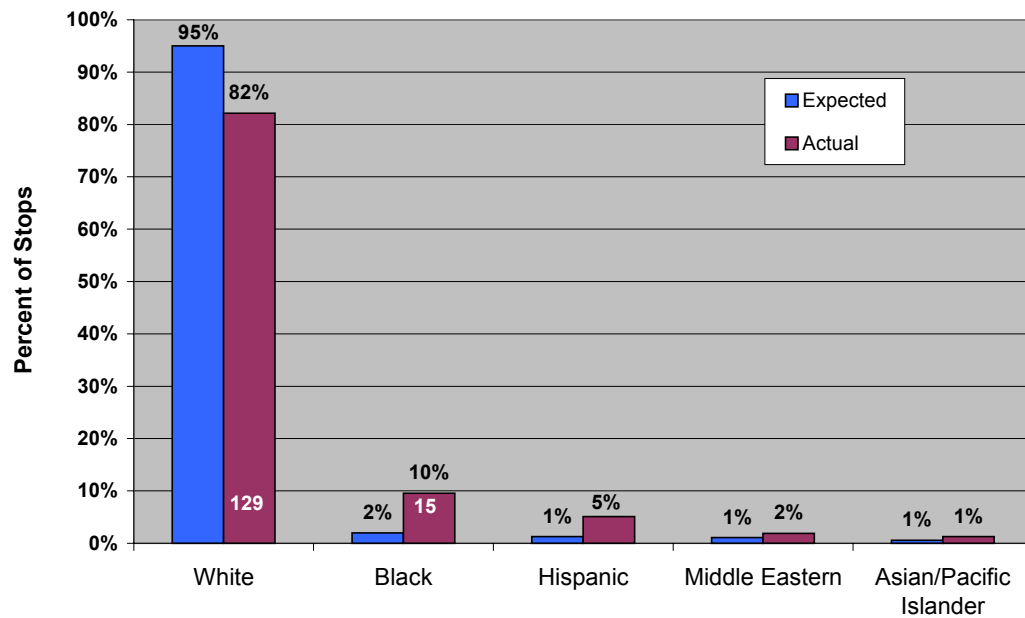
Zone 8 Expected vs. Actual Stops by Race and Ethnicity



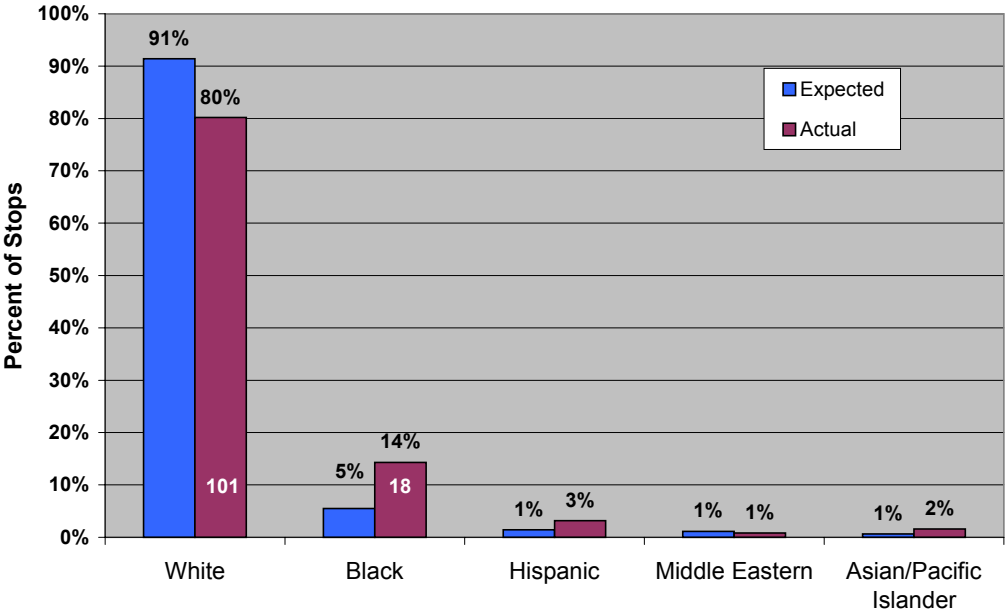
Zone 9
Expected vs. Actual Stops by Race and Ethnicity



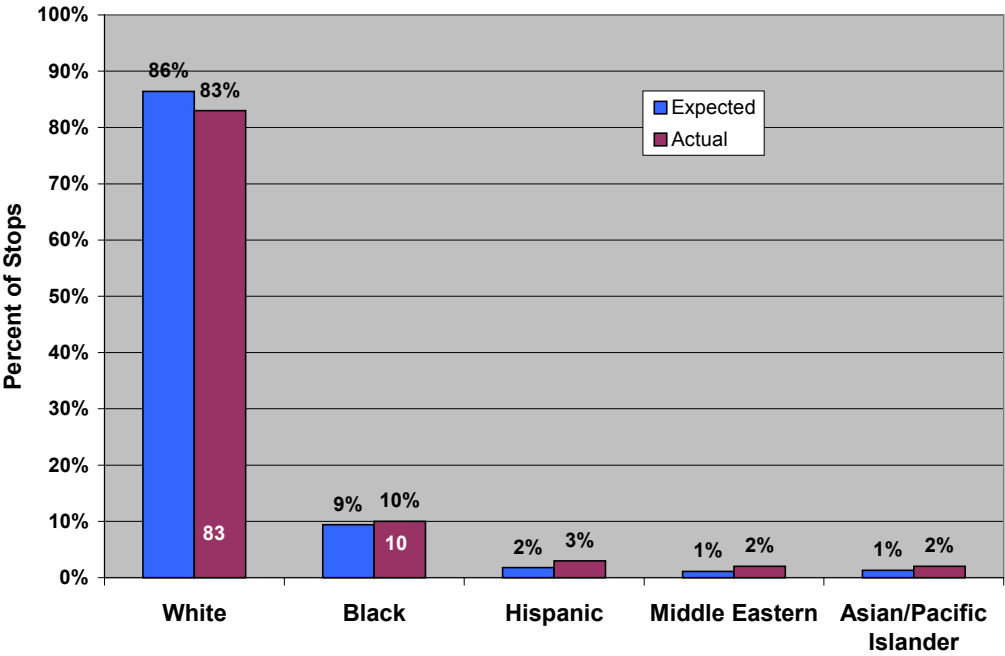
Zone 10
Expected vs. Actual Stops by Race and Ethnicity



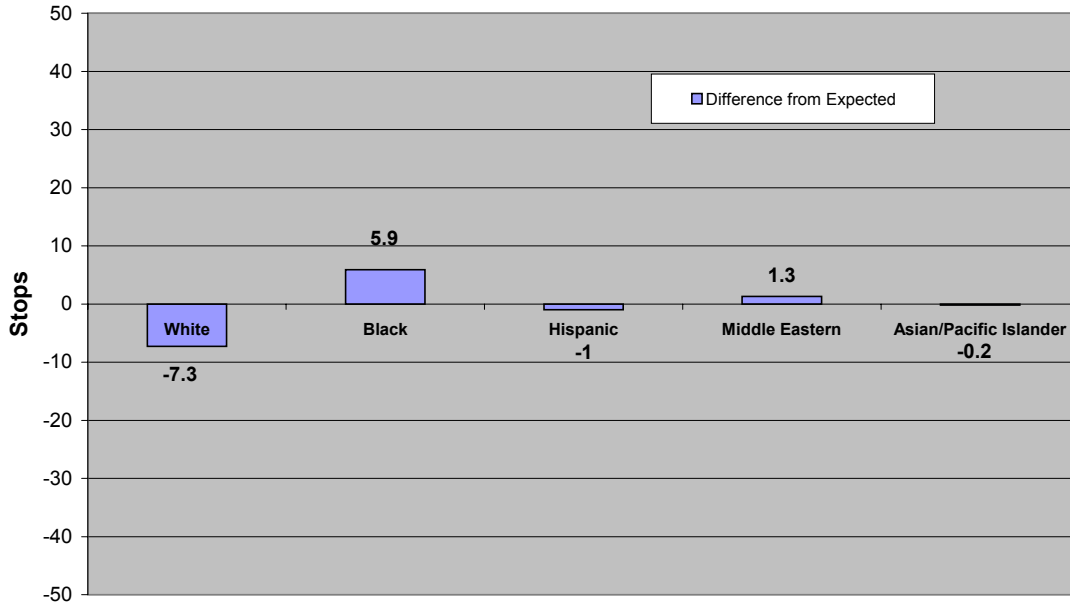
Zone 11
Expected vs. Actual Stops by Race and Ethnicity



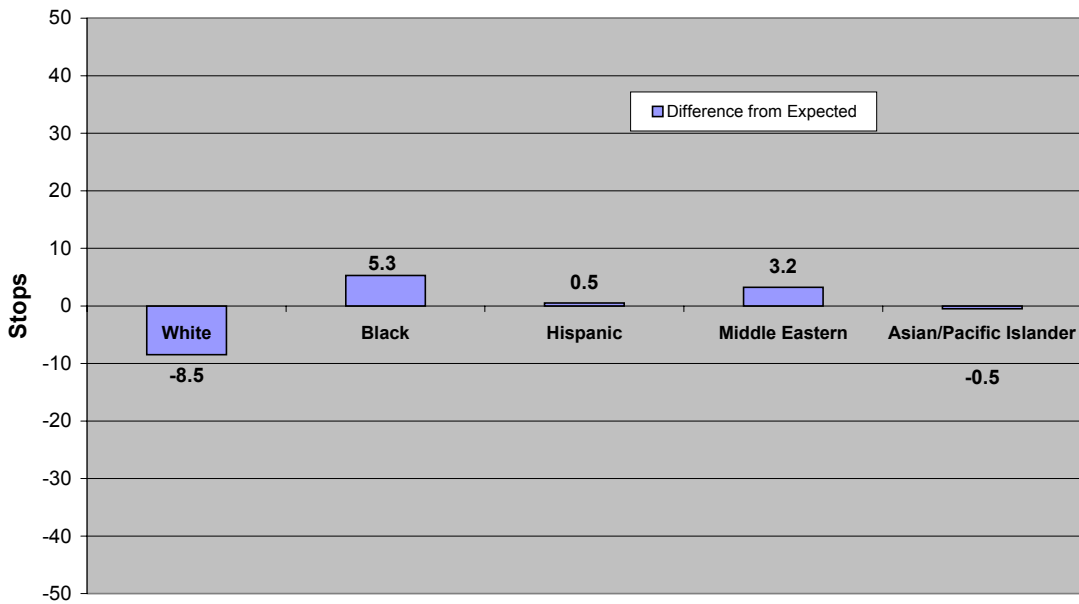
Zone 12
Expected vs. Actual Stops by Race and Ethnicity



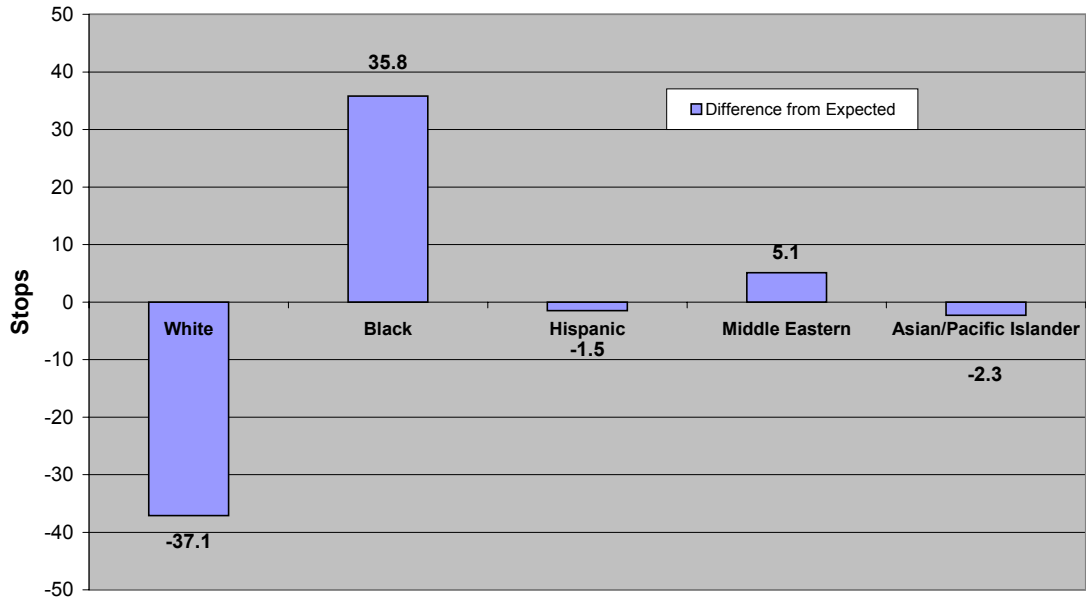
City of Erie Zone #1
Difference between Actual Number of Stops and Expected Number of Stops by Race and Ethnicity



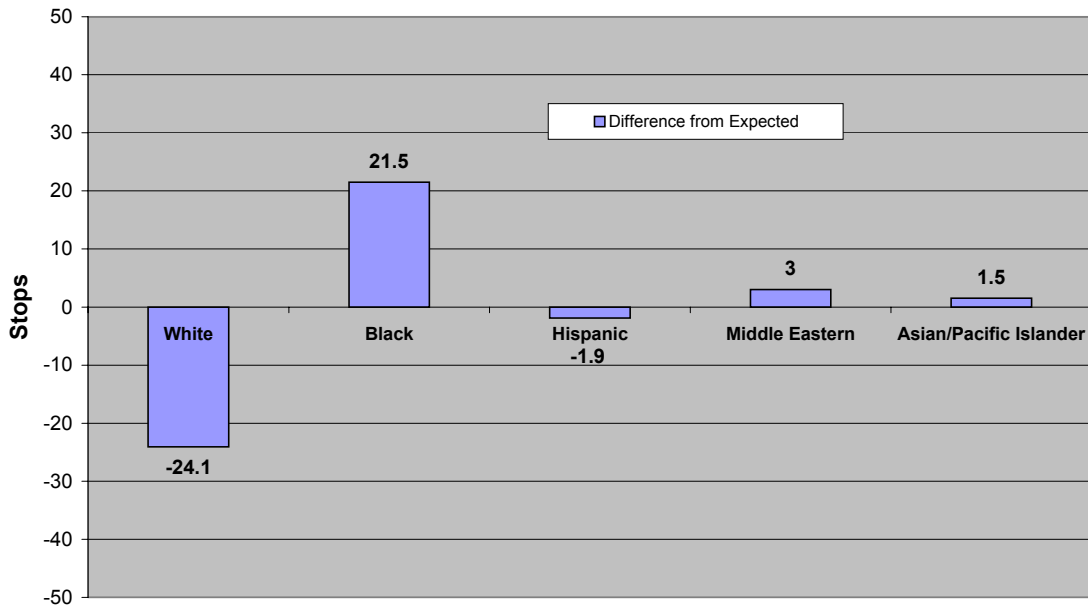
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Difference between Actual Number of Stops and Expected Number of Stops by Race and Ethnicity



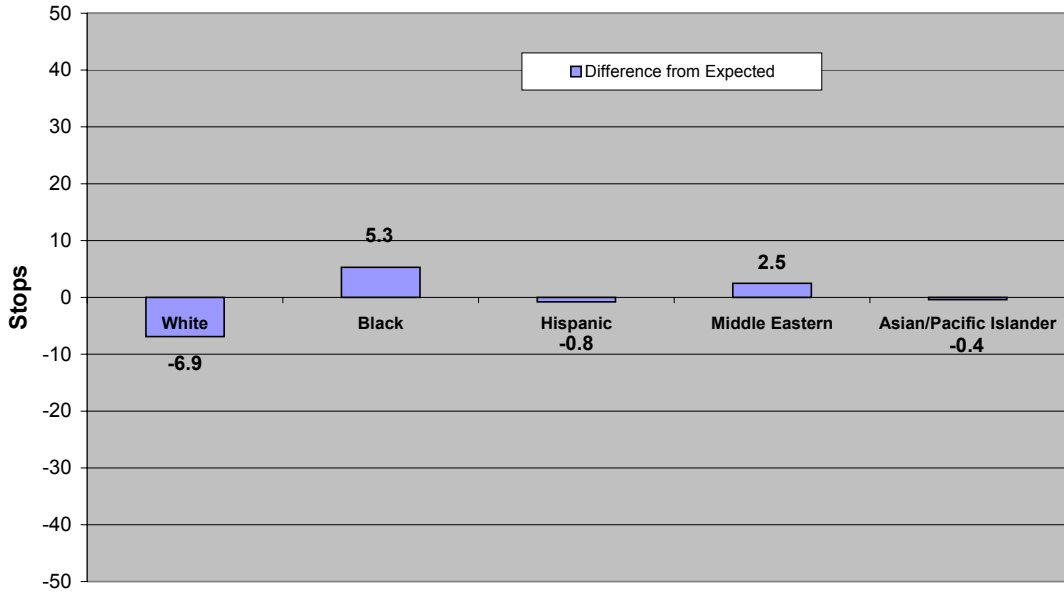
City of Erie Zone #3
Difference between Actual Number of Stops and Expected Number of Stops by Race and Ethnicity



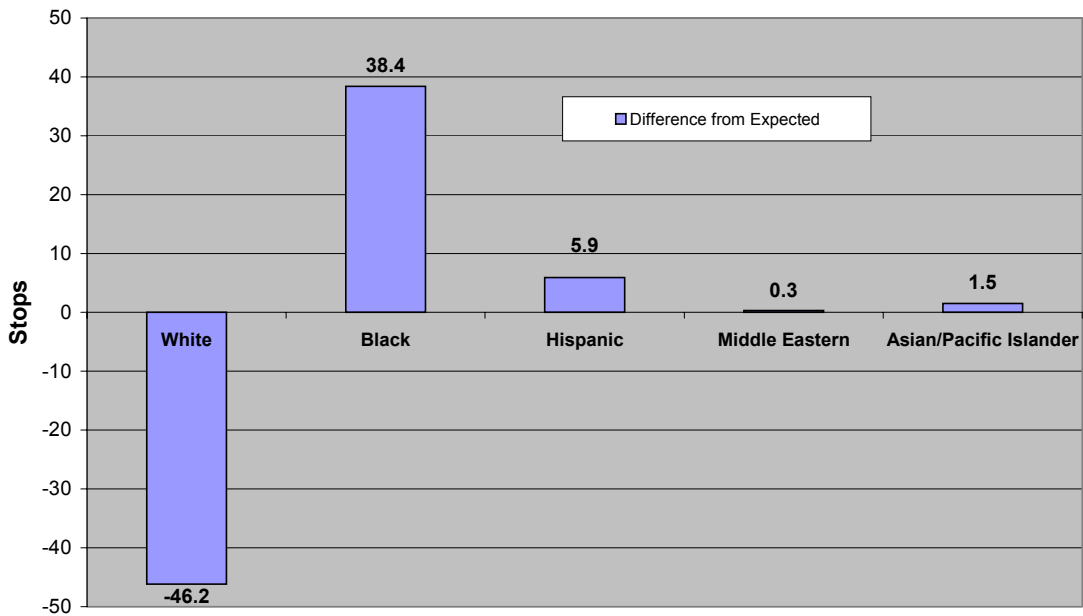
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Difference between Actual Number of Stops and Expected Number of Stops by Race and Ethnicity



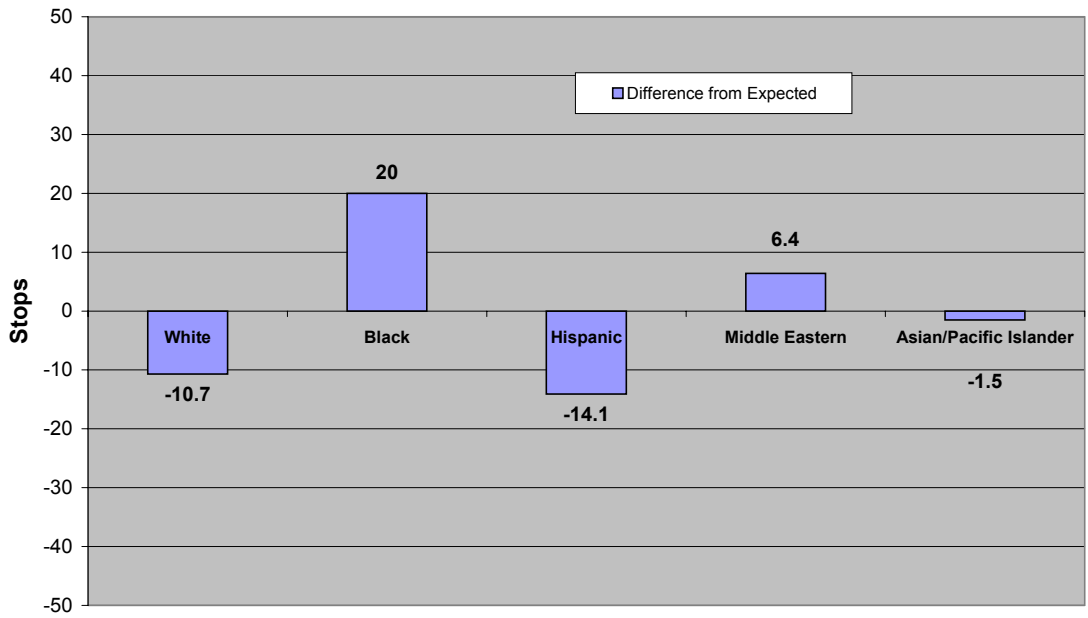
City of Erie Zone #5
Difference between Actual Number of Stops and Expected Number of Stops by Race and Ethnicity



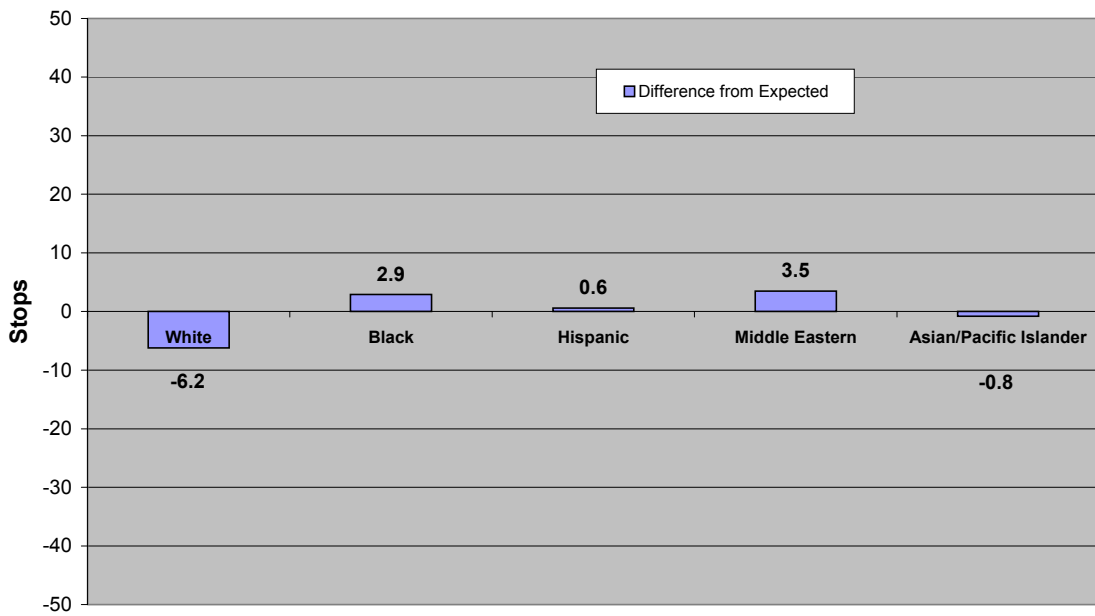
City of Erie Zone #6
Difference between Actual Number of Stops and Expected Number of Stops by Race and Ethnicity



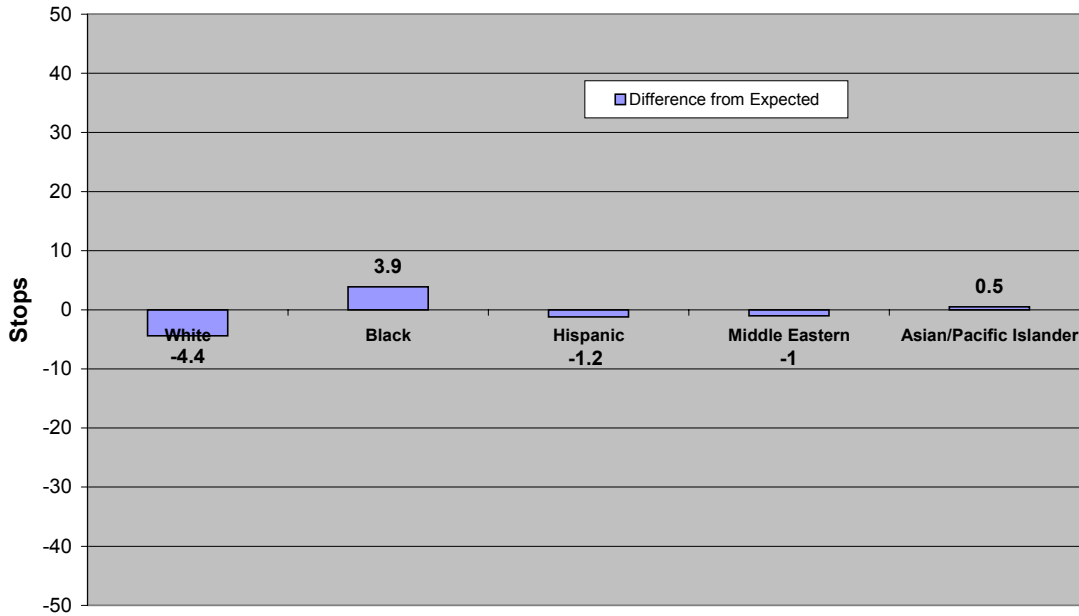
City of Erie Zone #7
Differences between Actual Number of Stops and Expected Number of Stops by Race and Ethnicity



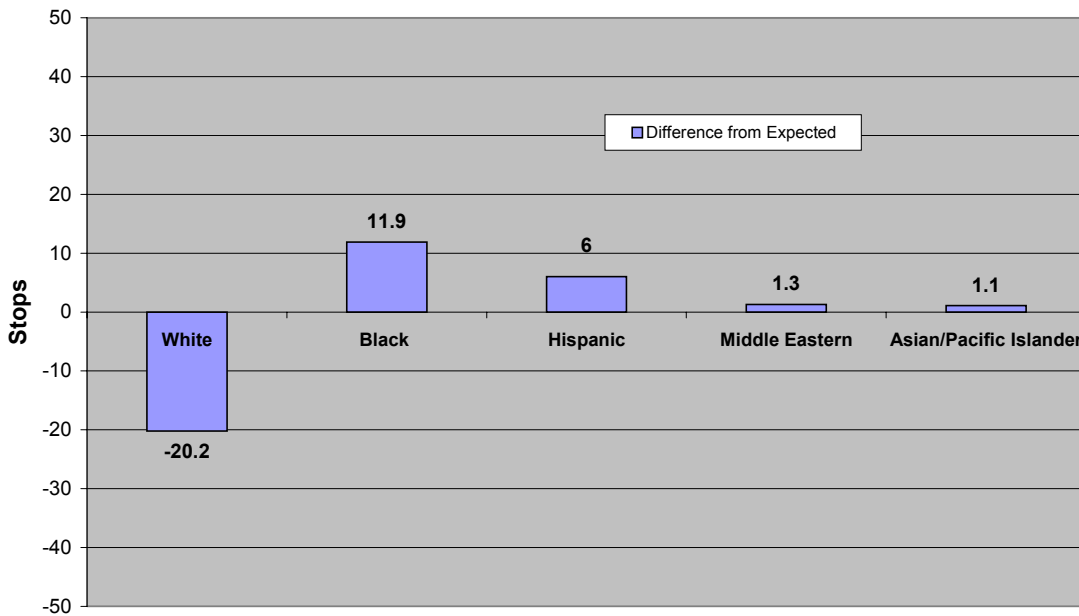
City of Erie Zone #8
Difference between Actual Number of Stops and Expected Number of Stops by Race and Ethnicity



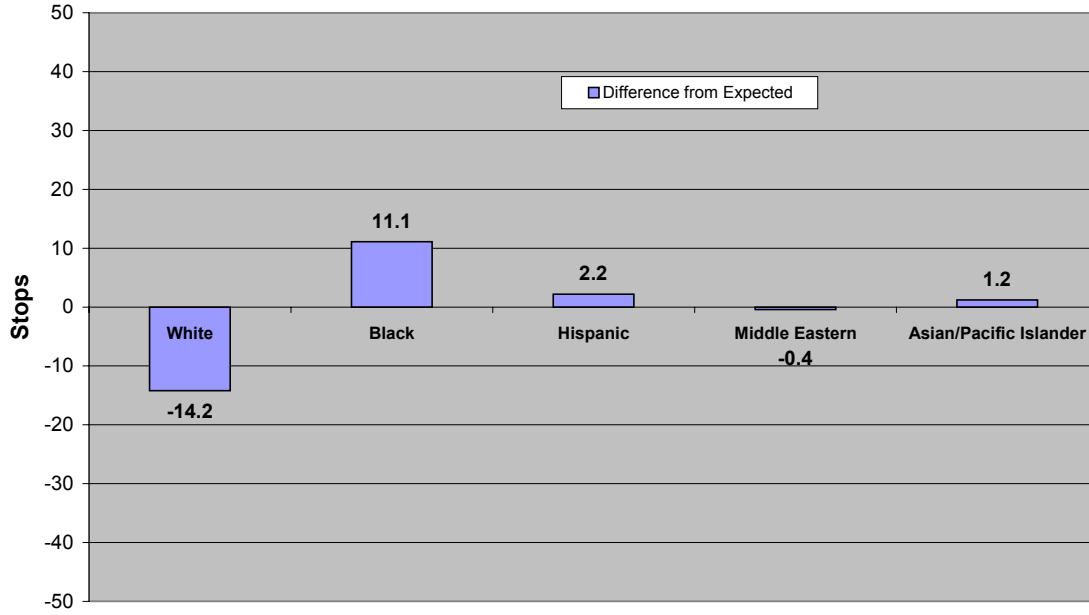
City of Erie Zone #9
Difference between Actual Number of Stops and Expected Number of Stops by Race and Ethnicity



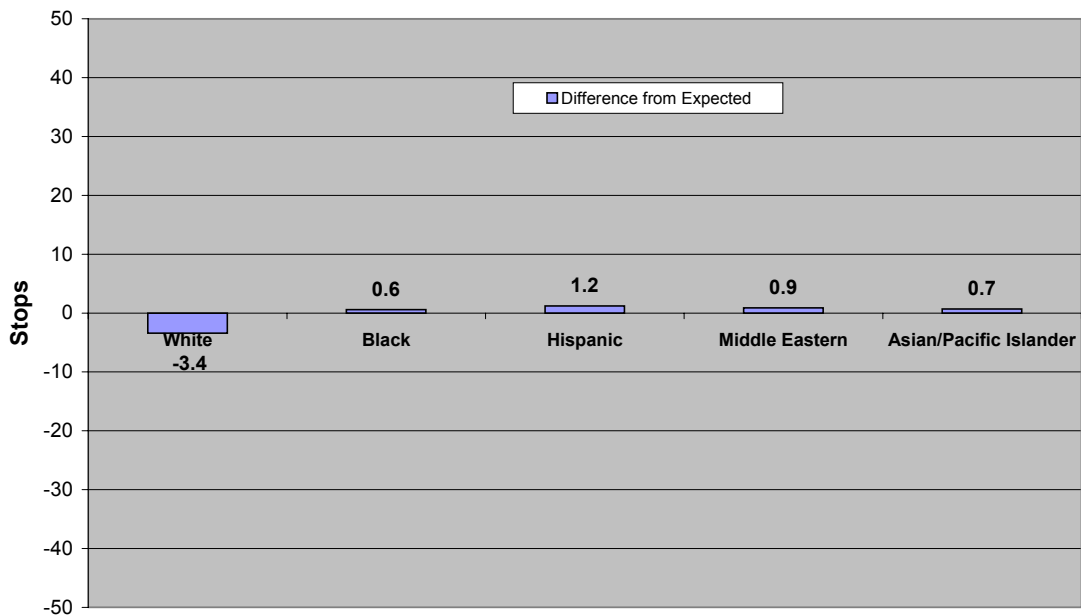
City of Erie Zone #10
Difference between Actual Number of Stops and Expected Number of Stops by Race and Ethnicity



City of Erie Zone #11
Difference between Actual Number of Stops and Expected Number of
Stops by Race and Ethnicity



City of Erie Zone #12
Difference between Actual Number of Stops and Expected Number of
Stops by Race and Ethnicity



Zone	North	South	East	West
1	Lake	12th St	Cranberry St	City Line
2	Lake	12th St	State St	Cranberry St
3	Lake	12th St	East Ave	State St
4	Lake	12th St	City Line	East Ave
5	12th St	26th St	Cranberry St	City Line
6	12th St	26th St	State St	Cranberry St
7	12th St	26th St	East Ave	State St
8	12th St	26th St	City Line	East Ave
9	26th St	City Line	Elmwood Ave	City Line
10	26th St	City Line	State St	Elmwood Ave
11	26th St	City Line	East Ave	State St
12	26th St	City Line	City Line	East Ave