

Examining Spatiotemporal Patterns of Disorder at Bars in Newark, NJ

By

Rosalyn Bocker Parks

A dissertation submitted to the

Graduate School-Newark

Rutgers, The State University of New Jersey

in partial fulfillment of requirements

for the degree of Doctor of Philosophy

Graduate Program in Criminal Justice

Written under the direction of:

Dr. James O. Finckenauer

and approved by:

Dr. James O. Finckenauer

Dr. Ronald V. Clarke

Dr. Anthony Braga

Dr. Marcus Felson

Newark, NJ

May, 2015

© 2015

Rosalyn Bocker Parks

ALL RIGHTS RESERVED

Abstract

Alcohol has long been considered a correlate of crime and disorder. Research into alcohol related crime and disorder has identified a number of risk factors and has recommended interventions aimed at reducing these problems. Research provides insight into how the police, community, and bar owners and managers can reduce crime and disorder at bar locations and where these actions should be undertaken. However, there is scarce research guiding *when* these interventions should take place. While the interaction of time and place plays an important role in bar and disorder research, a systematic examination of these temporal and spatial patterns of disorder concentrations at bar locations has not been undertaken.

The goal of this research was to examine spatial and temporal concentrations of disorder at bars. Using two years of police data on disorder calls for service at bars, this research began with a J-curve analysis for each year of police data. The results were used to identify the bars with the most disorder calls for service in each year and allowed for comparisons between the two years. Next, the data was analyzed using a series of temporal factors such as time of day, day of the week, season of the year, and year-to-year comparisons to identify when the highest concentrations of bar disorder calls for service are most likely to occur. The identified temporal patterns of the concentration of disorder calls for service at bars were utilized to create statistically significant hotspots maps of spatial concentrations.

Hotspots of disorder were most frequently located in the popular nightlife areas of the Ironbound and South Ironbound during the weekend, and in the Central Business District and Ironbound during the week. Bar disorder concentrated during the 9 p.m. to 3 a.m. time period (approximately 48 percent of all bar disorder) and hotspots of disorder

were located within the Ironbound and South Ironbound neighborhoods -- popular nightlife areas in Newark. The J-curve distribution analysis also identified the same bars as having disproportionate levels of disorder over the study period. Seven of the top ten most disorderly bars identified by the J-curve analysis in 2010 were also among the top ten most disorderly establishments in 2011, indicating a degree of continuity when examining bars with disproportionately high levels of disorder.

The results of this inquiry can be used to guide not only where but when targeted interventions should be implemented in order to generate the greatest crime control and prevention benefits. The products of this research expand the existing body of academic literature and provide valuable information to police officers, community leaders and those who live near, work in and patronize drinking establishments in Newark, NJ.

Acknowledgements

At this memorable moment in both my academic career and personal life, it is only fitting that I thank the many, many people who helped me achieve all that I have. A most appropriate phrase comes to mind: “I stand on the shoulders of giants.” I am proud and, to be perfectly honest, a bit stunned to look back on this period of my life and see the results of years of work coming to an end. At every stage of this journey I have been guided, encouraged, supported, loved, and yes, at times been dragged kicking and screaming to this day.

If I have forgotten to include anyone below, I offer my deepest apologies. Please know how eternally grateful I am for you and all of your kindness.

Rutgers School of Criminal Justice

I am very grateful to Dr. Finckenauer, the chair of my dissertation committee. His guidance throughout the dissertation has been priceless. Through his comments, constructive criticism, and encouragement he challenged me to grow as a writer, scholar and researcher, and for that I am incredibly thankful. Dr. Anthony Braga, Dr. Ronald V. Clarke, and Dr. Marcus Felson were also important members of my dissertation committee. They were extremely generous with their advice and support. Their critiques, suggestions and willingness to discuss various aspects of my research helped me to both develop and refine this work. I truly appreciate the opportunity to learn from them.

I also owe Dr. Wayne Fisher a debt of gratitude. One of my first professors in the doctoral program, Dr. Fisher’s “Issues in Policing” course set the foundation for what would become my area of specialization. He also included me on a number of different

projects as a graduate assistant. These incomparable opportunities helped me gain experience in the field and allowed me to meet and work with both academics and practitioners from diverse areas of criminal justice. His support over the past five and a half years has been incredible and invaluable.

I couldn't ask for better mentors than these five gentlemen.

Police Institute

I am fortunate to work with an amazing and talented group of people at the Rutgers University Police Institute. Executive Director Thomas O'Reilly and Associate Director Linda Tartaglia understood my need to balance both work and a writing schedule and supported my research. Ron Lyman, Jr., Director of the NJ Violence Reduction Initiative, let me ask a million questions about the neighborhoods surrounding drinking establishments in Newark. Deb Knapp, Project Manager, listened to me practice my presentations (over and over) and offered suggestions and encouragement. Lori Scott-Pickens, Director of Community Outreach/Community Based Learning for the School of Criminal Justice, not only took me on a road trip to see the most disorderly bars firsthand, she also gave me a citywide tour of Newark's neighborhoods and told me about the history of the places and spaces that underpin the context of this study.

All of these conversations brought research, theory and practice together with a real world context and have made me a better researcher.

Friends and Colleagues

Friends, fellow students and colleagues have been also played an important part in this endeavor. Even with his busy schedule, Dr. Eric Piza let me pick his brain many

times, including one fateful conversation that began with, “Ever heard of the J-Curve?” I would also like to thank Gerarda Shields, PhD, PE. A former mentee of my mother, she graciously gave advice to me in turn. She was kind enough to share her experiences with me on the dissertation writing progress, gave recommendations for presentations, and offered moral support. I hope to continue to pay it forward to others one day.

I also have many friends in this doctoral program who were in the unique position of knowing exactly how simultaneously wonderful and terrifying this process can be. Thank you for all of your kindnesses, large and small, and for some incredible memories. Whether it was marathon study sessions before the qualifier, dancing at my wedding, or lending a sympathetic ear in the library, you each reminded me to laugh, smile and that we would, in fact, survive. Taken together, these past few years have held some of my happiest moments.

Thank you for being there for all of them.

Family

I am fortunate to have a large family of aunts, uncles, cousins, grandparents, and sisters. Whether blood relations, friends of the family, or in-laws, they have constantly surrounded me with love, understanding, and much needed humor. I am particularly grateful for your enthusiasm in my research even when it doesn’t really make sense. Your polite nodding and thumbs ups speak volumes. The baked goods are always appreciated. The advice and encouragement I’ve received over the years is endless.

I will share here two brief anecdotes from maternal grandparents, Jim and Lucia Giorgi. My grandmother was the first in her family to graduate from high school and was

one of the first women to work on Wall Street. When she left the workforce to raise a family she was adamant that all four of her children, two sons and two daughters, got a college education. At a time when women were still few and far between in the fields of medicine and engineering, she made sure her daughters had the support and opportunity to achieve their dreams. She has shown the same support to all four of her granddaughters.

My grandfather was a lieutenant in the Port Authority Police Department. He served for 15 years before transitioning into a management role at the George Washington Bridge. When he was on the job in the 1950s and 1960s the majority of officers had only a high school education. He not only had a college degree, he went on to earn his master's degree and serve at Police Division Headquarters in the newly created position of Research Lieutenant. His lifelong love of learning has been an inspiration. Together with the rest of my family, they have been the bright spot in my life even on the most difficult of days.

To say my parents, Anthony and Andrea Bocker, have supported my academic career is an understatement. They have supported me in everything I do. They are my role models for the kind of person I hope to become, both professionally and personally. For my entire life I have watched my parents do every task before them to the best of their ability, help those around them become the best versions of themselves, and stand by their decisions, even when doing the right thing was difficult. I was also taught from a young age that I could achieve anything as long as I worked hard enough and was kind to others. Turns out they were right. Thanks, Mom and Dad.

Last, but certainly not least, I am thankful for my husband Ron and our dog, Lilly. Thank you both for your unfailing support and patience during this process. Thank you for understanding how all-consuming this endeavor can be and at the end of the day still loving me. Thank you for proofreading the mountain of paperwork that has slowly taken over the living room (and the office, and my car, and my purse). Thank you for forgiving me when I have been short tempered, obsessive, angry, or hopeless. Thank you for forcing me out of the house periodically to maintain a social life and for making me go on vacations without my dissertation in tow (although I still think I could have practiced my presentation in Disney World).

Most of all, thanks for being my best friends.

Preface

Alcohol has long been considered a correlate of crime and disorder. This link has been established through the use of crime statistics (Graham & West, 2001) and epidemiological, experimental and survey research (Graham & Wells, 2003; Bushman & Cooper, 1990). Alcohol is reported to be involved in as much as half of violent crimes and alcohol related aggression and disorder are considered serious social and health problems (Abbey, 2002; Briscoe & Donnelly, 2001; Graham, 2009; Bushman & Cooper, 1990; Murdoch & Ross, 1990). Alcohol use is also thought to play a causal role in aggressive behaviors (Graham et al. 2006). It can also be linked to aggression through two mechanisms: an increased willingness to take risks and a physiological effect that narrows the perceived range of options in a given situation (Block & Block, 1995). Many of the alcohol related problems requiring police attention involve heavy or binge drinkers who consume excessive amounts of alcohol. These individuals are not only at a higher risk of injury compared to moderate and nondrinkers, but they also experience heightened emotional states, reduced fear of sanctions and decreased inhibitions, and are impaired in their abilities to verbally diffuse situations (Scott & Dedel, 2006; Engineer et al., 2003).

Research into alcohol related crime and disorder has identified a number of risk factors and has recommended interventions aimed at reducing these problems. These include factors such as aggressive staff and patron altercations, drinking culture, continued service to drunk patrons, competitive situations, sexual activity taking place in bars, and high levels of patron intoxication (Graham et al, 2012; Graham et al., 2006; Graham et al., 2004; Graham et al 2001; Graham and Wells, 2001; Quigely et al., 2003).

In order to reduce and prevent these situations, it is recommended that interventions at bars and drinking establishments are designed to achieve the following five primary goals: 1) reduce aggressive staff and patron altercations; 2) reduce rowdy behaviors and tolerance of disorderly behaviors (e.g., competitive situations, sexual activity, etc.); 3) improve crowd control; 4) eliminate drink discounting and drink specials; and 5) decrease levels of patron intoxication and discontinue service to drunk patrons (Graham et al, 2012; Graham, 2009; Graham & Homel, 2008; Graham et al., 2006; Graham et al., 2004; Quigley et al., 2003; Graham et al 2001; Graham & Wells, 2001; Graham, 2000; Homel & Clark, 1994). This effort to identify causes for disorder at bars and offer recommendations for control and prevention begs an important question: **“where does disorder at bar locations concentrate, and how do these spatial patterns change in response to temporal factors?”**

It is important to identify the locations where these interventions will be the most effective and yield the greatest crime and disorder reductions. In order to do so, the bars and drinking establishments with the highest numbers of crime and disorder incidents must be identified. Also known as Allport’s hypothesis of conforming behavior, the J-curve hypothesis states that the distribution of a given event or circumstance, here disorder at drinking establishments, is disproportionately concentrated at a small number of locations (1934). Much of the research in criminal justice on concentrations of crimes and disorder has examined locations described as “risky facilities.” The term “risky facilities” includes a number of locations such as fast food restaurants, strip clubs, and bars and liquor stores. These facilities have all been identified by academic literature as places where disproportionate numbers of crimes occur (Clarke et al., 2007; Eck et al.

2007; Caplan 2006; Graham et al., 2004; Graham et al 2001; Graham & Wells, 2001; Quigely et al., 2003). Bars, pubs, and other liquor serving establishments experience similar patterns of concentration.

One way to identify densely concentrated areas of crime and disorder is through the use of hotspot mapping. This form of spatial analysis utilizes retrospective data to identify the locations where crime or disorder concentrate and can provide guidance for resource allocation and targeted enforcement (Chainey et al., 2008; Braga, 2005; Groff & La Vigne, 2002; Groff & La Vigne, 2001). The use of mapping to identify crime hotspots has been recognized as an effective way to target police crime-fighting action (Braga, 2005; Groff & La Vigne, 2002). Crime mapping can also be used to identify patterns of crime or disorder concentrations that have been found to be linked with bars and other drinking establishments.

Previous studies have demonstrated the efficacy of using hotspots analysis when examining bar crime and disorder. Five of the ten hot spots of crime identified in Sherman, Gartin, and Buerger's analysis were bars (1989). In a study conducted in Cleveland, a positive relationship was found to exist between the number of taverns and lounges located in city blocks and reported levels of crime (Roncek & Maier, 1991). Block and Block's hotspots analysis of drinking establishments in Chicago found that bars tend to cluster near one another, primarily in what were identified as nightlife, shopping and hotel areas in the city (1995).

Research provides insight into how the police, community, and bar owners and managers can reduce crime and disorder at bar locations and where these actions should

be undertaken. However, there is scarce research guiding *when* these interventions should take place. There are many more studies on spatial concentrations of crime and disorder than there are on the temporal and spatiotemporal patterns (Townnsley, 2008; Johnson et al., 2007; Ratcliffe, 2004; Felson & Poulsen, 2003). As such, much of what we know about the times and places where bar disorder occurs is taken for granted. While the interaction of time and place plays an important role in bar and disorder research, a systematic examination of these temporal and spatial patterns of disorder concentrations at bar locations has not been undertaken.

The purpose of this dissertation is to examine spatial and temporal concentrations of disorder at bars. Using two years of police data on disorder calls for service at bars, this research begins with a J-curve analysis for each year of police data. The results identify the bars with the most disorder calls for service in each year and allow for comparisons between the two years. This allows for an assessment of whether the J-curve analysis of bar disorder identified the same bars as being the most problematic from one year to the next. Next, the data analysis utilizes a series of temporal factors such as time of day, day of the week, season of the year, and year-to-year comparisons to identify when the highest concentrations of bar disorder calls for service are most likely to occur. Finally, the identified temporal patterns of the concentration of disorder calls for service at bars are utilized to create hotspots maps of spatial concentrations. This examination of spatiotemporal hotspots of bar disorder at drinking establishments in Newark, NJ determines if spatial concentrations of bar disorder are stable over time. In doing so, the results of this inquiry can be used to guide not only where but when targeted

interventions should be implemented in order to generate the greatest crime control and prevention benefits.

Grounded in environmental criminology and drawing from the traditions of situational crime prevention and rational choice theories, this dissertation not only expands the existing body of academic literature but provides valuable information to police officers, community leaders and those who live near, work in and patronize drinking establishments in Newark, NJ. This dissertation can help police decision makers and crime analysts identify and target problem areas by identifying the bars with the highest numbers of calls for service and identifying disproportionate concentrations of disorder in time and space. Once identified, the Newark Police Department could use this information to provide directed, targeted interventions at specific places and offer efficient solutions to manpower and resource allocation. It is important to remember, however, that the criminal justice system and academia are not the only stakeholders in the problem of bar disorder. The community where these businesses operate and all those who frequent these areas are also in a position to benefit from this research. From the employees of these establishments to the emergency medical personnel who respond to calls for service and from the neighboring residents to local government officials, all can learn from and benefit from the products of this research.

This dissertation is separated into five chapters. While this first section provides a brief introduction to the current research, Chapter One provides a consultation of the existing academic literature and outlines this study's conceptual framework. Chapter Two presents the rationale for this study and the research questions, and Chapter Three introduces the research site, population for the study, units of analysis, units of observation and the methods for a three part analysis. Chapters Four and Five present the results of this analysis and a discussion of the policy implications of this research.

TABLE OF CONTENTS

| | |
|--|-----------|
| Abstract..... | ii |
| Acknowledgements..... | iv |
| Preface | ix |
| TABLE OF CONTENTS..... | xv |
| List of Figures | xviii |
| List of Tables | xix |
| CHAPTER ONE: HISTORICAL BACKGROUND AND CONCEPTUAL FRAMEWORK | 1 |
| Disorder at Bars and Drinking Establishments | 1 |
| <i>Findings from Studies in Bar Violence and Alcohol Related Aggression</i> | <i>4</i> |
| <i>Recommendations from the Research</i> | <i>13</i> |
| Bar Disorder and the Place-Based Criminological Theory | 20 |
| <i>Environmental Criminology</i> | <i>20</i> |
| <i>J-curve Hypothesis of Conforming Behavior</i> | <i>22</i> |
| <i>Routine Activities Theory, Rational Choice Theory and Situational Crime Prevention</i> | <i>24</i> |
| <i>Spatial and Temporal Analysis of Disorder at Bars</i> | <i>32</i> |
| Chapter Summary | 42 |
| CHAPTER TWO: RATIONALE FOR CURRENT RESEARCH..... | 44 |
| Chapter Summary, Research Questions, and Hypotheses | 50 |
| CHAPTER THREE: METHODS..... | 55 |
| Research Site | 55 |
| Population for Study and Units of Analysis..... | 57 |
| Definition of Key Terms and Units of Observation | 57 |
| Timeframe for Study | 59 |
| Research Design | 60 |
| <i>Analysis A: Analysis for a J-Curve Distribution</i> | <i>60</i> |
| <i>Analysis B: Temporal Analysis of Disorder Incidents at Bars</i> | <i>61</i> |
| <i>Analysis C: Spatiotemporal Hotspots Analysis of Bars Disorder</i> | <i>63</i> |
| Sources for Data..... | 68 |
| Data Collection..... | 69 |

| Chapter Summary | 70 | | | | | | | | | | |
|--|------------|--------|-------|--------|-----|--------|-----|--------|-----|--------|-----|
| CHAPTER FOUR: RESULTS | 71 | | | | | | | | | | |
| Initial Analysis..... | 71 | | | | | | | | | | |
| <i>Bar pairs</i> | <i>71</i> | | | | | | | | | | |
| <i>Disorder Calls for Service v. Disorder Incidents</i> | <i>71</i> | | | | | | | | | | |
| Results of the J-Curve Analysis | 72 | | | | | | | | | | |
| Results of the Temporal Analysis of Disorder at Bars..... | 75 | | | | | | | | | | |
| <i>Time of Day.....</i> | <i>75</i> | | | | | | | | | | |
| <i>Day of Week</i> | <i>79</i> | | | | | | | | | | |
| <i>Month</i> | <i>83</i> | | | | | | | | | | |
| <i>Season</i> | <i>88</i> | | | | | | | | | | |
| <div> <table border="1"> <caption>Disorder Calls for Service 2010-2011 by Season</caption> <thead> <tr> <th>Season</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Spring</td> <td>492</td> </tr> <tr> <td>Summer</td> <td>576</td> </tr> <tr> <td>Autumn</td> <td>574</td> </tr> <tr> <td>Winter</td> <td>442</td> </tr> </tbody> </table> </div> | | Season | Total | Spring | 492 | Summer | 576 | Autumn | 574 | Winter | 442 |
| Season | Total | | | | | | | | | | |
| Spring | 492 | | | | | | | | | | |
| Summer | 576 | | | | | | | | | | |
| Autumn | 574 | | | | | | | | | | |
| Winter | 442 | | | | | | | | | | |
| ... 91 | | | | | | | | | | | |
| Results of the Spatiotemporal Analysis..... | 92 | | | | | | | | | | |
| <i>Overall Patterns of Bar Disorder</i> | <i>95</i> | | | | | | | | | | |
| <i>Time of Day.....</i> | <i>98</i> | | | | | | | | | | |
| <i>Day of Week</i> | <i>102</i> | | | | | | | | | | |
| <i>Month.....</i> | <i>105</i> | | | | | | | | | | |
| <i>Season</i> | <i>110</i> | | | | | | | | | | |
| Chapter summary | 114 | | | | | | | | | | |
| CHAPTER FIVE: DISCUSSION AND POLICY IMPLICATIONS | 117 | | | | | | | | | | |
| Introduction..... | 117 | | | | | | | | | | |

| | |
|--|------------|
| Discussion | 117 |
| <i>Findings from the J-Curve Analysis</i> | 118 |
| <i>Findings from the Temporal Descriptive Statistics</i> | 120 |
| <i>Findings from the Spatiotemporal Hotspots Analysis of Bars Disorder</i> | 124 |
| <i>Bar Typologies: An avenue for future research</i> | 128 |
| Policy Implications | 141 |
| Conclusion | 151 |
| REFERENCES | 155 |
| APPENDIX A: DISORDER CALLS FOR SERVICE CUMULATIVE J-CURVE TABLE FOR 2010 | 171 |
| APPENDIX B: DISORDER CALLS FOR SERVICE CUMULATIVE J-CURVE TABLE FOR 2011 | 178 |
| APPENDIX C: DESCRIPTIVE MAPS OF NEWARK, NEW JERSEY AND RESULTS OF THE SPATIOTEMPORAL HOTSPOTS ANALYSIS OF BARS DISORDER | 185 |
| APPENDIX D: ANALYSES OF DISORDER INCIDENTS | 235 |
| APPENDIX E: DISORDER INCIDENTS CUMULATIVE J-CURVE TABLE FOR 2010 | 252 |
| APPENDIX F: DISORDER INCIDENTS CUMULATIVE J-CURVE TABLE FOR 2011 | 259 |
| APPENDIX G: BAR PROFILES | 266 |

List of Figures

| | |
|---|-----|
| Figure 1: Calls to Police from Bars in Shawnee Kansas (July 1, 2002– Sept. 2, 2004) ... | 23 |
| Figure 2: The Problem Analysis Triangle..... | 25 |
| Figure 3 The Getis-Ord Gi* Statistic | 65 |
| Figure 4: Disorder Calls for Service at Bars Newark, NJ 2010..... | 73 |
| Figure 5: Disorder Calls for Service at Bars Newark, NJ 2011 | 74 |
| Figure 6: Disorder Calls for Service 2010 by Hourly Blocks | 76 |
| Figure 7: Disorder Calls for Service 2011 by Hourly Block | 77 |
| Figure 8: Disorder Calls for Service 2010-2011 by Hourly Block | 79 |
| Figure 9: Disorder Calls for Service 2010 by Day of Week | 80 |
| Figure 10: Disorder Calls for Service 2011 by Day of Week..... | 81 |
| Figure 11: Disorder Calls for Service 2010-2011 by Day of Week | 83 |
| Figure 12: Disorder Calls for Service 2010 by Month | 84 |
| Figure 13: Disorder Calls for Service 2011 by Month | 86 |
| Figure 14: Disorder Calls for Service 2010-2011 by Month | 88 |
| Figure 15: Disorder Calls for Service 2010 by Season..... | 89 |
| Figure 16: Disorder Calls for Service 2011 by Season..... | 90 |
| Figure 17: Disorder Calls for Service 2010-2011 by Season | 91 |
| Figure 18: Newark, NJ's Neighborhoods | 92 |
| Figure 19: 2010 Top Ten: Most Disorderly Bars in Newark, NJ | 93 |
| Figure 20: 2011 Top Ten: Most Disorderly Bars in Newark, NJ | 94 |
| Figure 21: Newark, NJ Bar Disorder 2010 | 95 |
| Figure 22: Newark, NJ Bar Disorder 2011 | 96 |
| Figure 23: Newark, NJ Bar Disorder 2010-2011 | 97 |
| Figure 24: Newark, NJ Bar Disorder 9pm-3am 2010..... | 99 |
| Figure 25: Newark, NJ Bar Disorder 9pm-3am 2011 | 100 |
| Figure 26: Newark, NJ Bar Disorder 9pm-3am 2010 and 2011 | 101 |
| Figure 27: Newark, NJ Bar Disorder Sundays 2010..... | 103 |
| Figure 28: Newark, NJ Bar Disorder Saturdays 2011 | 104 |
| Figure 29: Newark, NJ Bar Disorder Sundays 2010 and 2011 | 105 |
| Figure 30: Newark, NJ Bar Disorder August 2010..... | 107 |
| Figure 31: Newark, NJ Bar Disorder July 2011 | 108 |
| Figure 32: Newark, NJ Bar Disorder August 2010 and 2011 | 110 |
| Figure 33: Newark, NJ Bar Disorder Summer 2010..... | 111 |
| Figure 34: Newark, NJ Bar Disorder Fall 2011 | 112 |
| Figure 35: Newark, NJ Bar Disorder Summer 2010-2011 | 113 |

List of Tables

| | |
|--|----|
| Table 1: Top Ten Most Disorderly Bars in Newark, NJ in 2010 and 2011 | 75 |
| Table 2: Disorder Calls for Service 2010 by Hourly Block..... | 76 |
| Table 3: Disorder Calls for Service 2011 by Hourly Block..... | 77 |
| Table 4: Disorder Calls for Service 2010-2011 by Hourly Block | 78 |
| Table 5: Disorder Calls for Service 2010 by Day of Week | 80 |
| Table 6: Disorder Calls for Service 2011 by Day of Week | 81 |
| Table 7: Disorder Calls for Service 2010-2011 by Day of Week..... | 82 |
| Table 8: Disorder Calls for Service 2010 by Month..... | 84 |
| Table 9: Disorder Calls for Service 2011 by Month..... | 86 |
| Table 10: Disorder Calls for Service 2010-2011 by Month | 87 |
| Table 11: Disorder Calls for Service 2010 by Season | 89 |
| Table 12: Disorder Calls for Service 2011 by Season | 90 |
| Table 13: Disorder Calls for Service 2010-2011 by Season..... | 91 |

CHAPTER ONE: HISTORICAL BACKGROUND AND CONCEPTUAL FRAMEWORK

Disorder at Bars and Drinking Establishments

Research supports the conventional wisdom that alcohol is linked to violence and disorder. An early meta-analysis of the role of alcohol and homicide found that just over 50 percent of offenders had been drinking before their crime (MacDonald, 1961).

Alcohol consumption has been linked to other kinds of violent offending such as domestic violence, assault, rape, and disorder problems such as aggression toward others (Bushman & Cooper, 1990). Murdoch and Ross (1990) found that 50 percent of all violent crimes involved alcohol, and Abbey's (2002) study of sexual assault on campus found that alcohol played a role in approximately 50 percent of on campus sexual assaults, with 74 percent of perpetrators and 55 percent of victims of rape having used alcohol prior to the incident (Abbey 2002). One third of respondents in a UK study reported experiencing alcohol-related coerced sex, and heavy drinkers experience higher rates of non-consensual sex compared to more moderate drinkers (Gunby et al., 2012). Research in New South Wales, Australia and Sydney's metropolitan areas found that 23 percent of all assaults, 58 percent of reported offensive behaviors and six percent of malicious property damage incidents involved alcohol. The latter research found that these incidents of alcohol related aggression share common characteristics: victims and aggressors alike were most likely to be male, approximately 25 years old, and engage in criminal or disorderly alcohol-related behaviors on Friday and Saturday night between 9 p.m. and 3 a.m. (Briscoe & Donnelly, 2001).

Because alcohol has been established as an influencing factor in violent crime and disorder problems, the contributing role that drinking establishments play has also been studied. Researchers argue that bars and other drinking establishments are important targets for intervention, as bars are both considered high-risk locations and are, in many countries, subject to regulations that when enforced can be used to reduce crime and disorder at these places (Gruenewald et al., 2006; Graham et al., 2004; Graham & Wells, 2001; Graham, 2000). While there is considerable heterogeneity amongst establishments licensed to sell alcoholic beverages for on-site consumption, Cavan's (1966) typology of bars categorizes drinking establishments into one of four categories: 1) convenience bars (bars located in business centers); (2) nightspot bars (locations that offer entertainment and dancing); (3) marketplace bars (a category that includes 'pick-up' or 'meat market' bars that cater to finding sexual partners, as well as bars where drugs, sex, gambling and stolen goods are bought and sold); and (4) home territory bars (locations with regular customers who share common traits such as living in the neighborhood, sexual orientation, ethnicity) (Graham & Homel, 2008; Cavan, 1966). Graham and Homel (2008) note that while there is variability among bars there are also distinct shared characteristics across these typologies.

While the settings may vary, the activities at these locations center on consuming alcohol, time away from regular responsibilities, and socializing with both strangers and acquaintances. Previous research has been used to examine the role that these drinking establishments play in a given community, particularly their relationship with high rates of violent crime or disorder problems (Graham et al., 2012; Madensen & Eck, 2008; Gruenewald et al., 2006; Graham et al., 2005; Graham et al., 2004; Wallin et al., 2003;

Lipton & Gruenewald, 2002; Block & Block, 1995; Felson et al., 1997; Sherman, Schmidt & Velke, 1992; Fishbine et al., 1978). Some of this research has resulted in offering proposals for preventative measures for controlling drinking establishment disorder (Bieler & Roman, 2013; Graham, 2009; Graham & Homel, 2008; Graham et al, 2005; Graham et al., 2004; Graham, 2000; Homel et al., 1997ab; Homel & Ross, 1997).

Much of the research and implementation of programs seeking to reduce bar violence have been completed in partnership with or outside of the criminal justice field, and have occurred abroad (Hughes et al., 2011; Graham, 2009; Bellis et al., 2008; Graham & Homel, 2008; Graham, 2006; Graham et al., 2005; Graham & Wells, 2001; Graham, 2000; Homel et al., 1997ab; Block & Block, 1995). Studies from the fields of sociology, epidemiology and public health, and alcohol and addiction studies view the problem of alcohol related disorder, aggression and violence as complex social and public health problems. Many early studies of barroom behaviors in these associated fields focused primarily on social dynamics and the interpersonal conflict between bar staff and patrons (Cavan, 1966; Clark, 1981); and primarily focused on the aggressive behaviors of men (Burns, 1980; Dyck, 1980).

The focus of these research projects has since evolved to include the study of aggression in individuals and groups and reducing disorder problems at bars (Graham, 2009; Graham et al., 2006; Graham et al., 2005; Graham & Wells, 2001; Graham, 2000). In these later research studies, it is not only the interpersonal and social environment, but also the physical environment under study. Both the population and place are studied in

ecological approaches (Hughes et al., 2012; Graham, 2009; Graham, 2006; Gruenewald et al, 2006; Block & Block, 1995).

Findings from Studies in Bar Violence and Alcohol Related Aggression

The findings of the extant research identify a number of predictors of high levels of disorder and aggressive behaviors at drinking establishments. The term “aggressive behaviors” includes a range of behaviors from the most common low-level or non-physical forms of aggression (e.g., shouting, insults, name calling, etc.) to the less frequent but more severe physical forms of aggression (e.g., fighting, punching, hitting, etc.) (Homel & Clark, 1994). While alcohol plays a causal role in aggressive behaviors (Bushman, 1997) research suggests that both individual and situational factors play important roles in moderating the effects of alcohol on behaviors (Graham, 2009; Graham et al., 2006; Graham & Wells, 2001; Graham, 2000; Graham et al., 1998).

Studies note that although the types of drinkers who frequent bars (i.e., young males, patrons under the age of 25) may partly contribute to the high rate of crime and disorder problems at these locations, there are also characteristics of the bar environment that increase the likelihood of bar related problems (Hughes et al., 2011; Graham & Homel, 2008; Graham, 2006; Gruenewald et al., 2006; Graham & Wells, 2001; Graham, 2000; Homel & Clark, 1994). The latter include factors such as aggressive staff and patron altercations; drinking culture; competitive situations; sexual activity taking place in bars; rowdiness and permissiveness of disorderly behaviors that would not be tolerated in other social settings (e.g., public drunkenness, shouting, swearing, fighting, displays of sexual affection, etc.); crowding and long lines; drink discounting and drink specials;

levels of patron intoxication and continued service to drunk patrons (Graham et al, 2012; Hughes et al., 2011; Graham & Homel, 2008; Graham, 2009; Graham et al., 2006; Graham et al., 2004; Quigley et al., 2003; Graham et al., 2001; Graham & Wells, 2001; Graham, 2000; Homel & Clark, 1994).

Graham and Wells' (2001) observational study of 12 bars known for aggression incidents in Ontario, Canada found that the number and role of participants in incidents of bar aggression changed, beginning with two or three individuals but growing to include more combatants, and individuals being combative and peacemakers by turns (pg. 202). In that study, 62.1 percent of these incidents involved bar staff and 74 percent of incidents involved only men; and many of these incidents occurred in high traffic and crowded areas, such as entrances, around the serving bar and on the dance floor. Many of these incidents began with angry reactions to unwanted contact, sexual harassment and dominance, offensive behavior and insults (Graham & Wells, 2001).

Felson (1986) notes that the presence of bouncers may actually contribute to higher rates of barroom fights, and other studies note that in addition to unprofessional behaviors, aggression, and a lack of boundaries on the part of security staff, having large numbers of staff at bars was a significant predictor of aggression (Graham, 2009; Graham et al., 2006; Graham et al., 2005). Closing times may also play a role in barroom disorder. Rossmo (1994) points out, for example, that "bars and nightclubs in close proximity and with simultaneous closing times can create crowd effects that lead to disturbances, crime, and violence" (pg. 11). Once bars close, the journey home from these drinking establishments also poses risks to both patrons and the community at large. In a European

study spanning nine cities, private cars were the most frequently used modes of transportation home from nightlife locations, particularly for males and older individuals. These drivers pose a danger to themselves and others by drunk driving and other risky traffic behaviors (Calafat et al., 2008).

Special events held at bars may also contribute to higher rates of reported disorder. Block and Block (1995) found that bars and drinking establishments that offered live entertainment, ranging from live bands to mud wrestling, were clear attractors of aggression and had higher rates of disorder. In addition to bar practices and the social environment, the physical environment of bars, including cleanliness, upkeep, layout and size all contribute to observed aggression as a result of frustration, discomfort and disorder at these locations (Hughes et al., 2012; Hughes et al., 2011; Graham, 2009; Graham et al, 2006; Felson et al., 1997). Recommendations such as plastic glassware and sufficient restroom facilities are aimed at preventing physical aggression escalating to serious injury. However, these and similar measures may be “tokenistic,” inadequate to address the underlying social health issues, and “insufficient to demonstrate social responsibility” (Hughes et al., 2012).

Several studies of drinking establishments and their relation to crime in their communities have been undertaken in the US. Fishbine and Joelson’s (1978) study of crime around bars was one of the first undertaken. It examined the geographic distribution of offences in a given area, and how characteristic concentrations of crime can be attributed to the geographic locations of individual sites (pg. 4). Distance decay analysis showed that the areas surrounding the 157 Minnesota bars under observation

experienced on average approximately two to three times more assaults than areas without drinking establishments (pg. 8).

Sherman, Schmidt and Velke (1992) designed the 12 step RECAP Program in an effort to reduce violent crimes in bars after analysis found that although licensed premises accounted for less than 1 percent of all addresses in Milwaukee, these bars and taverns were the location of 783 (12 percent total) of the city's homicides (pg. 44).

Putnam, et al. (1993) reported on the design of a successful community-based intervention in Rhode Island., which included server training as well as publicity campaigns, local task force activities, and community forums. Police officers also received specialized training on bar crime and disorder and increased their levels of enforcement of alcohol-related accidents and crimes (Putnam, 1993).

Citing a sense that certain bars and liquor stores were problematic and attracting and generating both violent and drug crimes, an analysis by the Loyola Community Safety Project was undertaken in the Chicago communities of Rogers Parks and Edgewater. The findings of this study indicate that while bars with high rates of disorder were located within high concentrations of bar locations or high crime areas, bar specific characteristics are a better indicator of which location will "attract" disorder to them (Block & Block, 1995).

Studies conducted in other countries also highlight the ubiquitous nature of barroom disorder problems across cultures. A study from Canada found that problems related to drinking in bars were common. These included aggression and conflict between drunk patrons, driving while intoxicated, the intervention of third-party

participants (i.e., someone “trying to break it up”) and poorly trained staff contributing to conflict and disorder problems (Graham, 2000). Graham et al. (1980) categorized Vancouver, Canada, taverns into three types—“attractor bars” and nightclubs where interpersonal environment, the high number of patrons, and the presence of bouncers combined for high levels of aggression; neighborhood drinking establishments with regular customers who more or less controlled the levels of disorder and aggression; and “skid-row” bars with high levels of unreported disorder.

Studies from Europe report similar findings. A European systematic literature review of environmental factors at bars found that while drinking establishments, management and behaviors of patrons may change from country to country, physical disorder, staffing and social problems contributed to alcohol-related harm (Hughes et al., 2011). A cross-sectional study conducted in the Netherlands, Spain, Slovenia and the UK found that drinking cultures across European countries shared notable similarities. Most participants in the study engaged in preloading and binge drinking behaviors. Participants in the UK were most likely to experience increased alcohol consumption compared to more moderate rates elsewhere. High blood alcohol concentrations above .08 percent were associated with being male, less than 19 years old, being British, and having consumed spirits (Hughes et al., 2011). Research into European holiday makers also highlights the relationship between alcohol and violence. Vacation nightlife venues were characterized by densely concentration drinking establishments, overcrowding, and poorly maintained facilities. Over two-thirds of the British and German tourists surveyed reported being drunk while on vacation, 12.4 percent had been involved in verbal altercations, and 2.9 percent had been in physical fights (Calafat et al., 2013).

A study of nine European countries identified a series of risk factors for violence at nightlife locations included. The likelihood of a respondent having been involved in physical violence at nightlife locations increased with drunkenness, younger age (18 years old or less), and increasing preference for drinking establishments that attracted both genders (Schnitzer et al., 2013). Research from the UK found that 28.8 percent of drinkers between the ages of 15 and 16 experienced violence while intoxicated. While involvement with drunken violence was disproportionately associated with being male, alcohol-related regretted sex and forgetting events after drinking was found to be associated with being female (Bellis et al., 2009).

Research from Liverpool, UK, notes that the nightlife industry is a driving force in the revitalization of the city's economy. However, the economic benefits of nightlife locations are counterbalanced by serious public health and criminal justice concerns. Ninety percent of persons attending nightclubs and drinking establishments consume 12 units (i.e., 96 grams) of alcohol per night, and 35 percent of men and 28 percent of women binge drink at least once a week. Across the UK, approximately half of all violent crimes are alcohol related, and a fifth of all these incidents occur in or around bars and drinking establishments (Bellis & Hughes, 2005).

Canada's "Safer Bars" program developed by Braun and colleagues (2000) focused on designing a two part intervention including a three hour training program for management and staff at large (>300 capacity) bars in Toronto, Canada using four main principles: 1) that aggression, both on the part of patrons and staff, is preventable; 2) early interventions can prevent aggression escalation and conflict; 3) teamwork is needed

to prevent and manage aggression; and 4) physical force on the part of bar staff is used only as a last resort (Graham et al., 2004; Graham, 2000). This program also included a self-administered risk assessment workbook for bar managers and owners (Graham et al., 2004; Graham, 1999), which was designed to help them identify and make changes to bar environments. It contained 97 items covering 11 different topics including staff characteristics, policies, and the physical bar environment (Graham, 2000; Graham & Homel, 1997). A 2004 assessment using randomized assignment of bars to intervention and control groups found the “Safer Bars” program had an impact on reducing serious and moderate incidents of physical aggression in bars; while the results were modest there is evidence that training bar staff may reduce aggression and disorder problems (Graham et al., 2004).

The “Geelong Accord” was a response to the high amount of disorder, crime and other incivilities in Geelong, Australia. These problems arose as a result of “pub hopping,” where groups of youths would move between drinking establishments in the city’s central business area (Felson et al., 1997). Popular with young adults and student populations, pub hopping behaviors have led to commercially organized “pub crawls” in nightlife areas. Participants in these events had a median blood alcohol content of .10 percent and consumed a median of 80 grams of pure alcohol. In addition to visiting multiple bars over the course of an evening, 90 percent of respondents engaged in “preloading” or “pre-gaming” prior to a night out (Quigg, Hughes & Bellis, 2013; Quigg, Hughes & Bellis, 2011). Here, an individual or group will drink in their home or that of a friend’s prior to going out for the evening. Individuals who reported participation in this behavior were found to have significantly higher totals of alcohol consumptions

compared to individuals that did not and were 2.5 times more likely to be involved in a fight in nightlife areas (Hughes et al, 2008).

This phenomenon was particularly problematic in Geelong. Between 1989 and 1990, the police, working with the Liquor Commission, the Victorian Community Council Against Violence, and bar owners, created the Accord in an effort to reduce pub hopping and its associated disorder problems through targeted strategies. Some of the requirements included required cover charges and free entrance policies for young women (who were used to attract crowds of young men); prohibited unlimited re-entry when a cover was paid to discourage moving from one establishment to another; and ended drink specials and happy hours. Implementation, involving the Liquor Licensing commission, police and bar owners, offered not only potential penalties including increased oversight from the Commission and loss of liquor licenses, but also presented bar owners with prospective benefits such as the ability to increase cover charges and reduce their risk of assault or damages to their property (Felson et al., 1997). The implementation of the initiative was followed by a significant decline in pub hopping, along with a relative reduction in serious assault rates (Graham, 2000; Felson et al., 1997; Lang & Rumbold, 1997).

Australia's "FREO Respects You" program utilized both staff and management training and a house policy checklist in an attempt to reduce barroom disorder problems including aggression. The house policy checklist assessed risk on four points: 1) policies minimizing harm (e.g., safe ride programs); 2) policies to reduce intoxication (e.g., slowing and/or refusing drink service to intoxicated patrons; 3) avoiding incentives for

intoxication (e.g., drink specials); and 4) providing incentives for avoiding intoxication (e.g. lower prices for non-alcoholic drinks and food) (Graham, 2000; Lang et al., 1998; Stockwell et al., 1993). The study noted small but significant improvements in knowledge regarding serving laws; a significant reduction in patrons leaving seven of the experimental bars compared to control bars with a BAC of .08; however, there was no change in self-reported rates of refusal to serve or patron observations of intoxicated patrons receiving continued bar service (Graham, 2000; Lang et al., 1998; Stockwell et al., 1993). “FREO Respects You,” however, had a number of implementation problems. Of the 50 bars invited to participate, only 10 did so, and participation was not fully cooperative (Graham, 2000).

Australia’s “Surfers’ Paradise Program” and its replications oversaw and implemented a two-day program in security management training for bar owners and offered crowd control and management security training to bouncers and bar staff as part of a larger set of premise based interventions including policy development on responsible drink service and partnerships with law enforcement (Graham, 2000; Hauritz et al., 1998 ab; Homel et al., 1997ab; Homel & Clark, 1994; Homel et al., 1994). It was noted that, as in the case of Geelong, Surfers’ Paradise was characterized by the presence of many bars in a relatively small area of the greater community (Graham et al., 2004; Felson et al., 1997; Homel et al., 1997ab; Homel & Clark, 1994). The results of evaluations of the Surfers’ Paradise program are mixed: the pre-post observations of bar staff after the training program found improvements in staff and patron interactions, including systematic checking of ID’s at the door; friendlier bouncers; bouncers who maintain order around and not just inside the door areas; and staff who were less

permissive towards deviant and disorderly behavior and friendlier in their interactions with patrons. However, compliance with the policies and safety codes was not sustainable, and although crime and violence in bars had dropped immediately following the intervention, these levels returned to the pre-intervention rate (Graham, 2000; Hauritz et al., 1998 ab; Homel et al., 1997ab).

Another study using targeted interventions at drinking establishments in order to reduce violence was begun in 1996 as part of a ten year long project in Stockholm, Sweden. Following the decentralization of the Swedish national liquor policy, there was an increase in the number of bar-related violent incidents. In response to these increases in crime and disorder, the Stockholm County Council introduced the STAD project (Stockholm Prevents Alcohol and Drug Problems). This intervention included two days of responsible beverage service training to servers, stricter enforcement of existing liquor laws by the police and the liquor licensing board, and community mobilization to engender support for the reforms. Following the first four years of these interventions, violent crimes decreased by 29 percent in the intervention sites compared to the control sites (Wallin, Norstorm & Andreasson, 2002).

Recommendations from the Research

Most of the previous research in this area recommends a similar series of preventative measures to reduce disorder at bars. These measures often include “responsible serving practices.” This term includes any strategies by management or staff to reduce the number of intoxicated patrons and avoid problems resulting from intoxication or excessive drinking (Homel & Clark, 1994). Premised-based responsible

service interventions typically utilize multiple components that incorporate a number of initiatives including bar management and staff training, policy developments, law enforcement, and changes to bar environments, both social and physical (Bieler & Roman, 2013; Graham, 2009; Bellis & Hughes, 2005; Graham et al., 2004; Bellis, Hughes & Lowey, 2002; Graham, 2000; Homel & Clark, 1994).

It is recommended that interventions at bars and drinking establishment include measures to reduce factors that contribute to crime and disorder such as aggressive staff and patron altercations; drinking culture; rowdiness and permissiveness of disorderly behaviors (e.g., competitive situations, sexual activity, etc.); poor crowd control; drink discounting and drink specials; levels of patron intoxication and continued service to drunk patrons (Bieler & Roman, 2013; Graham et al, 2012; Graham, 2009; Graham & Homel, 2008; Graham et al., 2006; Graham et al., 2004; Graham et al 2001; Graham and Wells, 2001; Graham, 2000; Quigley et al., 2003; Homel & Clark, 1994). House policies limiting patrons levels of intoxication and prohibiting continued alcohol service to intoxicated individuals is a particularly important component of bar crime and disorder interventions, as high levels of patron intoxication have been linked to both increased frequency and increased severity of incidents of aggression (Graham et al., 2006).

Broken windows theory supports the concept that improving the attractiveness, cleanliness and tidiness of bars and drinking establishments may also reduce disorder problems there (Graham et al., 2006; Wilson & Kelling, 1982). While the physical environment of a bar may be characterized as a seemingly small, aesthetic issue, rundown drinking establishments may convey to patrons that the place is uncared for and as such is

unmonitored (Hughes et al., 2011; Scott & Dedel, 2006; Wilson & Kelling, 1982).

Environmental cues, such as violent music lyrics and videos and highly sexualized décor, may indicate to patrons that behaviors like fighting and sexual harassment are tolerated (Graham, 2009). Research conducted in Glasgow, Scotland found that the music played in nightclubs could be used to market alcoholic drinks and encourage patrons to remain longer in these bars. The genre of music was also observed to influence the behaviors and actions of patrons including sexual activity, style of dancing, and levels of alcohol and other drug use (Forsyth, 2009).

Eck, Clarke, and Guerette (2007) argue that in order for any series of preventative measures to be effective the persons who own and operate these bars must be involved in the process. People who control these spaces have the authority and the ability to make the necessary changes needed to reduce concentrations of crime and disorder (pg. 243). However, it may be difficult to effectively implement these interventions due to a lack of cooperation from bar owners, management and staff. A review of intervention studies indicates that these groups often do not voluntarily make changes to their drinking establishments or their practices; do not fully cooperate with implementation or only partially follow the interventions; and often do not change much as a result of interventions or do not sustain what changes were made (Graham, 2000). This reluctance to participate in or maintain interventions may be a result of several factors, including the demands and expectations of their patrons and competition from other drinking establishments. There should be a concerted effort to enter into partnerships and implement initiatives diplomatically to avoid heavy-handedness (Bieler & Roman, 2013; Graham, 2000; Felson et al., 1997).

These potential difficulties make it even more important that strong partnerships with bar management be established and community mobilization used when implementing interventions. Pressure from the community for bar ownership to take responsibility in terms of bar related disorder and community support for interventions has been found to be successful at generating change (Bieler & Roman, 2013; Graham, 2009; Wallin, Nostrom & Andreasson, 2002; Graham, 2000; Homel et al., 1997ab; Homel & Clark, 1994). Raising awareness of bar crime and disorder problems and associated risk factors through bar owner's associations is another helpful starting point, as in the case of the Geelong Accord (Felson et al., 1997). In order to effect sustainable changes, however, voluntary practices must be combined with enforcement to ensure a level playing field between competing drinking establishments (e.g., ensure no one bar reinstates a "no cover charge" for women policy in order to attract more customers) (Graham, 2000; Hauritz et al., 1998 ab; Felson et al., 1997). And while the community may be able to encourage and promote change it remains unclear how to initiate grassroots bar disorder interventions in communities without funding for research, and how to sustain the positive outcomes of interventions long term (Graham, 2000).

Recommendations for risk reduction to bar management, such as how drinks are dispensed; drink discounting policies; types of entertainment provided; how bartenders handle intoxicated patrons; encouraging the use of designated drivers; and the types of customers being catered to, can all change the characteristics of these places and reduce their role in crime and disorder problems (Bieler & Roman, 2013; Eck, Clarke, & Guerette, 2007; Scott & Dedel, 2006; Graham, 2000; Homel & Clark, 1994). Research indicates that similar policies and regulations should be implemented on regional and

national levels. In addition to regulating bar practices such as happy hours, required food service, hours of operation, and the licensing and training of door staff (Bieler & Roman, 2013; Graham, 2000), policies holding bar owners and managers legally liable for harm attributed to the intoxication of patrons they have served have been shown to significantly impact the serving practices at drinking establishments (Graham & Homel, 2008; Graham et al., 2004; Graham, 2000; Homel & Clark, 1994). The risk of being exposed to greater liability through state level laws has been shown to increase levels of awareness concerning service practices among bar owners and managers (Homel & Clark, 1994; Holder et al., 1993). While there is not a great deal of research on the long term effectiveness of risk assessment interventions and in-house policies, the consistently reported correlation between identified risk factors and bar disorder indicates that this is an area of prevention that should be further studied (Graham, 2000).

Proactive and preventative law enforcement strategies are also recommended when seeking to reduce disorder problems at bars. Research indicates that an important part of any bar disorder related intervention is the consistent enforcement of existing liquor laws (e.g., prohibition of public drunkenness, underage drinking, continued service to intoxicated patrons, etc.) by the police (Bieler & Roman, 2013; Graham, 2009; Graham & Homel, 2008; Scott & Dedel, 2006; Graham, 2000; Homel & Clark, 1994). Jeff and Saunders's (1983) landmark study found that while liquor regulations were extant, there were high rates of alcohol related crime and disorder (e.g., public drunkenness, disturbance of the peace, underage drinking), enforcement of these regulations was inconsistent and prosecution of bar owners and management was rare. Research cites a number of reasons why the police routinely under enforce liquor laws,

including difficulties determining guilt, ignorance of or a poor understanding of liquor laws, and reluctance to interfere with bar profitability (Graham, 2009; Graham, 2000; Stockwell, Norberry & Solomon, 1995; Homel & Clark, 1994; Jeffs & Saunders, 1983).

While poor and inconsistent policing and enforcement may contribute to problems in and around bars (Graham, 2000; Marsh & Kibby, 1992), the results and effectiveness of these interventions is mixed (Graham, 2000). A study of changes in police enforcement around bars in a coastal English town found that proactive policing, such as regular visits to bars to prevent public drunkenness and underage drinking, resulted in an overall drop in arrests, particularly alcohol related offences, compared to traditional reactive policing (Graham, 2000; Jeffs & Saunders, 1983). However, the Burn et al.'s (1995) replication study in New South Wales, Australia, did not find the same reductions in arrests, and instead found no difference between proactive visits to bar location and waiting for a disturbance to occur before intervening. The Rhode Island project also found inconsistent results when evaluating proactive and preventative policing in and around bars. There, the number of arrests rose as a result of increased enforcement of liquor laws, but a review of emergency room admission data indicated there were fewer assault-related injuries (Graham, 2000; Putnam et al., 1993). Graham (2000) argues that these mixed results are a function of using arrest data as the sole outcome measure (pg. 626). Relying solely on measures such as police arrest records or reports of assault may first underestimate the seriousness of disorder at drinking establishments, and later underestimate the effectiveness of interventions (Clarke & Eck, 2007; Scott & Dedel, 2006; Graham, 2000). While the evidence is inconclusive, proactive police interventions are most likely to yield positive results when interventions target specific crime disorder

problems and focus efforts in small geographic areas with a concentration of bars and drinking establishments (Graham, 2000).

Bar Disorder and the Place-Based Criminological Theory

Environmental Criminology

Many of these studies in alcohol related disorder at bars and drinking establishments highlight the importance of studying these situations in the context of place. In one study, as much as 60 percent of alcohol related offenses were found to occur in or near licensed drinking establishments (Ireland & Thommeny, 1993). Early works by social ecologists such as Durkheim and the seminal works of the Chicago School have contributed to fundamental empirical works in criminology. These foundations in environmental criminology have played an important role in our understanding of where and why crime and disorder occur. Their stance that no social facts or conditions can be divorced from the place and time in which they occur can be seen in the works of Shaw and McKay as well as Burgess and Park, all focused on the context in which crime, disorder, and disorganization occur (Anselin, 2000; Abbott, 1997).

The works of the Brantinghams also provide the theoretical framework for understanding the relations among time, space and place. The examination of the criminogenic influence of places highlights the necessity for examining crime and disorder events within the context in which they occur. The “environmental backcloth” of these places is a result of the routine activities that take place there, as well as the physical structure of the area. The backcloth can be influenced by “crime generators,” specific circumstances that increase opportunities for crime as a result of increased contact between persons in an area, and “crime attractors,” specific things that attract

offenders to a specific place (Brantingham & Brantingham, 1995; Brantingham & Brantingham, 1981). This position argues that crime has “an inherent geographical quality” and the study of crime, and crime prevention techniques, cannot be separated from the place in which it occurs (Kennedy & Van Brunschot, 2009; Chainey & Ratcliffe, 2005).

Throughout the works of the Chicago School, time, place, and *location* remain central foci of study (Anselin, 2000; Abbot, 1997). Many earlier studies of alcohol violence focused exclusively on the characteristics of individuals, interpersonal conflict and social environments (Parker & Rebhun, 1993; Pernanen, 1993; Tomsen et al., 1991), and not the characteristics of places or their encompassing spaces. However, the literature linking drinking and disorder to specific places is growing (Gruenewald et al., 2006; Block & Block, 1995). Early literature examining the situational factors contributing to alcohol related violence indicates that drinking settings themselves, such as bars and drinking establishments, directly contribute to crime and disorder problems. The proximity to bars (Roncek & Maier, 1991; Roncek & Pravatiner, 1989; Brantingham & Brantingham, 1981) and the density of bars and drinking establishments (Scribner et al., 1995; Homel & Clark, 1994) have been linked to property crimes, violent crimes and disorder problems not only in areas near bars but also within the locations themselves, reinforcing the importance of studying the places where crime and disorder occur (Gruenewald, 2006; Graham, 2000; Felson et al., 1997; Block & Block, 1995; Roncek & Maier, 1991; Scribner et al., 1995; Homel & Clark, 1994; Roncek & Pravatiner, 1989; Brantingham & Brantingham, 1981; Graham, 1980).

J-curve Hypothesis of Conforming Behavior

Allport's (1934) description of the J-curve hypothesis of conforming behavior states that only a small percentage of a given group or event is responsible for a large percentage of a particular result or outcome. Some research indicates that the general propensity to deviance across a variety of situations is normally distributed (Clarke, 1996; Clarke & Weisburd, 1990). However, the particular hypothesis that relatively few places account for a majority of crime and disorder problems has been tested in the criminal justice field and others repeatedly (Kennedy & Van Brunschot, 2009; Lum, 2008; Chainey et al., 2008; Clarke & Eck, 2007; Eck, Clarke, & Guerette, 2007; Eck et al., 2007; Johnson et al., 2007; Gottfredson & Moriarty, 2006; Gruenewald et al., 2006; Braga, 2005; Eck et al., 2005; Weisburd et al., 2004; Farrell & Pease, 2003; Gorr & Olligschlaeger 2002; Groff & La Vigne 2002; Eck, 2001; Groff & La Vigne, 2001; Anselin et al., 2000; Townsely, Homel & Chaseling, 2000; Harries, 1999; Homel & Clark, 1994; Farrell & Pease, 1993; Clarke & Weisburd, 1990; Sherman 1989; Sherman, Gartin & Buerger, 1989).

Closely related to distributions described by power laws (Schroeder, 1991), a well-known variant of which is Zipf's Law (Gell-Mann, 1994; Zipf, 1949), the J-curve distribution can be discerned by knowing the number of crimes in a set period of time at each of the targets under study. These targets are then ranked according to the number of problems reported at each location, scaling down from locations with the most problems to those with few or no reported problems. This results in a bar chart depicting the incident frequency, with a few facilities on the left end of the distribution having many

crimes, followed by a steep drop-off in crimes that flattens out with very few or no crimes for the majority of the facilities, resulting in a graph with the characteristic appearance of a “J” lying on its side (Clarke & Eck, 2007; Eck, Clarke, & Guerette, 2007). This is the J-curve.

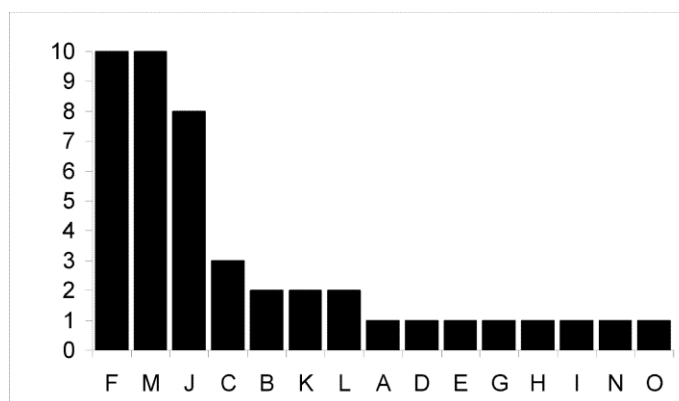


Figure 1: Calls to Police from Bars in Shawnee Kansas (July 1, 2002– Sept. 2, 2004)

Adapted from Eck, Clarke, & Guerette, 2007

This phenomenon has also been expressed as the “80/20” rule. In theory, approximately 20 percent of the members of any particular group are responsible for approximately 80 percent of the outcomes observed at the locations studied (Clarke & Eck, 2007; Kock, 1999). This pattern of concentration has also been documented at bars and drinking establishments (Graham et al. 2012; Gruenewald et al., 2006; Lipton & Gruenewald, 2002; Homel & Clark, 1994). In many cities, a handful of bars have more crime and disorder problems than the rest of the city’s drinking establishments combined (Clarke & Eck, 2007). A study of bar disorder in Shawnee, Kansas found that of the 15 bars in the city, three (20 percent) of these locations accounted for 62 percent of calls for police service between 2002 and 2004 (Eck, Clarke, & Guerette, 2007).

The J-curve distribution has been found to exist in a variety of situations and has been examined using a number of different methods (Anselin et al., 2000). Spatial analyses of the distribution of crime include the use of near repeats when examining shootings (Ratcliffe & Rengert, 2008), burglaries (Townesley et al., 2000) and victimizations (Farrell & Pease, 1993; Farrell & Pease, 2003; Spelman, 1995, Taylor & Mayhew, 2002). Crime mapping and hotspots analysis has been utilized to assess for opportunities for burglary (Groff & LaVigne, 2001; Townesley et al., 2000) and as a predictive tool (Groff & LaVigne, 2002; Harries, 1999; Johnson et al., 2007; Townesley et al., 2000). The fact that crime is heavily concentrated with respect to particular people, places and things also has important implications for prevention. Understanding these concentrations can offer insights into how to focus resources in the places that will yield the greatest preventive benefits (Eck et al., 2007).

Routine Activities Theory, Rational Choice Theory and Situational Crime Prevention

Works in routine activities theory (Anselin et al., 2000; Felson, 1995; Clarke & Felson, 1993; Roncek & Maier, 1991; Sherman et al., 1989; Cohen & Felson, 1979) and situational crime prevention (Cornish & Clarke, 2003; Farrell & Pease, 2003; Graham, 2009; Homel et al., 1997ab; Clarke, 1997; Clarke & Felson, 1993; Clarke, 1992) all acknowledge the importance of place in the study of crime. These works, based in ecological criminology and the belief that place is an important factor when examining crime and disorder, form the theoretical foundation for this study. Routine activities theory posits that, through routine, every day behavioral patterns, potential criminal offenders and potential victims and targets of crime are brought together in the absence of

a guardian against crime and disorder. The focus is not on why certain individuals or groups are inclined to commit criminal and disorderly acts, but that the spatiotemporal organization of social activities allows for these individuals with criminal proclivities to translate their intentions into actions (Cohen & Felson, 1979).

Here, specific places serve as loci for the convergence of motivated offenders and desirable targets in the absence of crime suppressors (e.g., guardians, intimate handlers and place managers) and it is this convergence of factors that creates the opportunity for crime (Graham & Homel, 2008; Graham et al., 2005; Anselin, 2000; Block & Block, 1995; Felson, 1995; Felson, 1994; Felson, 1986; Cohen & Felson, 1979). The routine activities that bring motivated offenders within range of these attractive and accessible opportunities occur in a number of settings, such as in the home, at jobs outside of the home, and in other activities outside of a residence. The control of routine activities allows for reducing the opportunities for crime and disorder by altering any one of the three convening factors in a given place (Felson, 1995; Felson, 1994; Felson, 1986; Cohen & Felson, 1979).



Figure 2: The Problem Analysis Triangle

Adapted from the Center for Problem Oriented Policing, 2013

In occurrences of disorder and crime at bars, both offenders and targets are most likely to be young, male, and heavy drinkers. And while acts of barroom aggression may include a clear aggressor and an unwilling victim (e.g., bullying, harassment, unwanted sexual advances) they may also include mutual combatants who are neither clearly offender nor victim, but are instead both active participants (Graham, 2009). In bars and drinking establishments, both patrons and staff can potentially serve as guardians and handlers. While third party interventions may inadvertently escalate some incidents of aggression, the intercession of guardians and handlers can protect against aggression towards potential victims and dissuading and deterring potential offenders (Graham & Homel, 2008; Graham et al., 2005). These guardians and handlers can potentially intervene in situations of escalating violence, whereas permitting small, minor or low-level instances of aggression can lead to more serious aggression. In many cases of barroom aggression, small instances of disorder, such as spilling a drink or bumping into someone, can escalate from feelings of humiliation or frustration into violence without third party intervention (Graham & Homel, 2008).

In the case of bar staff, this role is primarily a passive one, as their presence alone and threat of eviction from the premises may prevent problematic activities from occurring (Graham, 2009). However, in cases where bar staff, particularly security staff, “bouncers,” or doormen, directly intervene in instances of aggression and disorder they tend to use force in cases where a patron shows relatively no or only minor displays of aggression, or in instances of severe physical violence, potentially escalating the situation through inappropriate or disproportional responses. It is recommended, therefore, that

the aforementioned preventative interventions, including staff training and education, be used to reduce escalating responses to problematic patron behaviors, and instead employ less aggressive approaches in order to become effective handlers and place managers (Graham et al., 2005; Graham et al., 2004; Homel & Clark, 1994).

Rational choice theorists argue that offenders use spatially structured, hierarchal and sequential decision making processes when choosing where these intersections will take place (Bernasco & Nieuwebeerta, 2005; Bernasco & Luykx, 2003; Clarke & Felson, 1993; Cornish & Clarke, 1986). Cornish and Clarke suggest in their situational-rational choice model that the background characteristics of an individual, such as biological and inherited traits, intelligence, and class, may give an offender a predisposition or “taste” for crime. The decision to commit a crime, however, is ultimately a choice and the result of a series of rational decisions. Yet these are not necessarily well thought out plans or particularly logical in nature; individual crime event decisions are frequently shorter processes and less complex, and rationality is “bounded” by limited information and perceptions and only limited forethought to long term consequences (Cornish & Clarke, 1986).

Researchers believe that many offenders do not actually intend to commit crimes or actively seek out targets; instead, offenders are presented with opportunities while going about their routine activities and visiting the places they usually frequent (Felson, 2006; Clarke & Felson, 1993; Cornish & Clarke, 1986; Felson & Cohen, 1979). As traveling outside of their familiar settings may be perceived as more risky, potential offenders target places they are familiar with through their travels to work, school, or

recreation activities (Block & Bernasco, 2009; Wiles & Costello, 2000; Felson, 1998). Brantingham and Brantingham posited that this trend is a result of “people interacting more with people and things that are close to their home location than with people and things that are far away” (Brantingham & Brantingham, 1984).

Using residential burglary to examine what factors pull burglars to certain areas, Bernasco and Luykx (2003) examined the rational choices made by offenders when selecting where to commit crimes. They argued that offenders are drawn to spatial locations that are accessible to them and where there are attractive targets and opportunities for crime. They choose target rich locations that are accessible to them, such as areas that are already a familiar part of their routine activities (e.g., a neighborhood near their own) or areas that are unstable or characterized by a lack of guardianship (Bernasco & Block, 2011; Bernasco & Nieubeerta, 2005; Bernasco & Luykx, 2003; Felson, 1998; Felson, 1995; Clarke & Felson, 1993; Cohen & Felson, 1979). By understanding what characteristics of bar locations make them attractive to those seeking to commit crime and disorder problems, steps can be taken to reduce the risk of crime and disorder (Felson, 2006; Felson, 1998; Clarke, 1997; Clarke & Felson, 1993; Cohen & Felson, 1979).

The understanding of the routine activities and rational choices that combine to facilitate crime can be used to guide analysis and has been considered an important analytical tool by adherents to situational crime prevention:

“The first, and most important, implication from this discussion is that it is productive to divide places by facility type and focus prevention on homogeneous

sets of facilities. This is a logical extension of the first principle of Situational Crime Prevention: be crime-specific.” (Eck, Clarke, & Guerette, 2007, pg. 243)

An analysis of crime that controls for the type of facility (e.g., disorder at bars, car theft from parking lots, etc.) is more likely to reveal effective interventions than an analysis that studies crime across heterogeneous groups of facilities (Eck, Clarke, & Guerette, 2007). Clarke (1992) argues that the intersection of crime opportunities in time and space is made possible by a range of situational features, both social and physical, and that these situations can be altered to become more or less conducive to crime. The routine activities that occur in these places are one of the factors that influence the amounts of kinds of crime that occur at these locations (Cornish & Clarke, 2003; Clarke & Felson, 1993; Clarke, 1992). Certain facilities experience more crime and disorder than others, in some cases due to these facilities being host to numerous attractive targets, and hosting activities linked to increase levels of violence and disorder, such as alcohol consumption at bars (Graham et al., 2006; Graham et al., 2004; Anselin, 2000; Roncek & Maier 1991; Homel & Clark, 1994; Block & Block 1995).

The physical features of a place are the second way in which a location can contribute to or reduce crime. Regardless of the persons who frequent these places, the locations can themselves play a role in crime and disorder (Anselin et al., 2000; Taylor & Harrell, 1996; Clarke, 1992). This idea has inspired interest in the concept of “defensible space” and crime prevention through environmental design, or “CPTED.”

Recommendations for improved design features may range from improved lines of sights in public spaces to directing foot traffic along paths that are easily monitored by place

managers (Taylor & Harrell, 1996; Jeffery, 1971; Newman 1972). Studies show that the poorly designed physical layout of a bar can lead to poor traffic flow and crowding, and cause patrons to bump into one another, leading to spilled drinks, unwanted contact, increasing feelings of discomfort, frustration, and ultimately aggression among patrons (Graham, 2009; Felson et al., 1997; Tomsen et al., 1997).

On-premise interventions would benefit from the use of a systematic analytical model such as situational crime prevention to identify the influencing factors of bar disorder at specific locations and conceptualizing targeted place-based interventions (Graham, 2009; Graham, 2000; Clarke, 1992). Using the tenets of rational choice theory, routine activities theory and situational crime preventions, four different strategies can be used to design interventions to reduce crime and disorder in bars and drinking establishments: 1) increase the risk of being caught and punished by having clear policies and sufficient levels of staff to enforce them consistently; 2) make barroom aggression and disorder less rewarding by creating an environment where these behaviors are unacceptable and combatants are not given “hero” status for their behavior; 3) remove excuses for bad behavior by not allowing disorderly behavior and holding individuals accountable for their actions; and 4) increase the effort needed to commit a crime (e.g., it takes less effort to pick a fight in a noisy, crowded bar with a permissive approach to patron behavior than it does in a clean, orderly bar where staff and patrons do not condone fighting) (Graham, 2009; Graham & Homel, 2008; Cornish & Clarke, 2003; Clarke & Homel, 1997; Clarke, 1992). The use of the J-curve to guide these interventions would seemingly make them more efficient. Rather than spread crime and disorder control strategies across an entire group of facilities, focusing interventions on the most

problematic location within that group has been demonstrated to yield a much greater payoff (Eck, Clarke, & Guerette, 2007).

Research studies have utilized the principles of routine activities theory, rational choice theory and situational crime prevention in an effort to reduce bar aggression by recognizing problematic situations contributing to bar crime and disorder problems, such as public intoxication and bar hopping. For instance, Australia's Geelong Accord utilized situational crime prevention strategies that targeted management practices, security, staff responsibilities, promotional practices (e.g., drink discounting, types of entertainment, etc.) and service practices that have an impact upon crime (e.g., serving to minors or intoxicated patrons) (Felson, et al., 1997). Australia's "FREO Respects You" program utilized place-based interventions that sought to increase the penalties for aggressive behaviors, reduce the incentives for intoxication, and increase the rewards for responsible drinking and behaviors (Graham, 2000; Lang et al., 1998; Stockwell et al., 1993). Researchers have argued that interventions using the principles of routine activities theory and situational crime prevention could simultaneously focus on the behaviors and environment, and will facilitate or prevent barroom aggression and disorder (Graham, 2009; Graham et al., 2005; Graham & Homel, 2008). As bars provide a specific location for risky behaviors (e.g. the availability and consumption of copious amounts of alcohol) these locations provide increased opportunities for motivated offenders to come into contact with impaired victims (Anselin et al., 2000).

Eck and colleagues (2005) note that differences in crime and disorder rates between a bar with frequent or many incidents and a bar that has few or no incidents is

likely to be in how bar employees regulate the behavior of patrons to minimize the chances of crime and disorder. In places with few or no incidents they regulate, and in places with many, they do not (pg. 11). Place-based regulations can prevent crime in a number of ways. First, they can prevent criminal activity through early intervention (e.g., limiting the number of drinks served to customers and not serving to intoxicated patrons). Second, potential customers who desire a poorly monitored location over a well-regulated place (i.e., patrons “looking for a fight”) are deterred. Lastly, well-regulated locations can potentially attract customers who desire a well-regulated location over a weakly regulated place (e.g., such people are less likely to create problems and also serve as de facto place managers) (Eck, Clarke, & Guerette, 2007; Eck et al., 2005; Anselin et al., 2000; Brantingham & Brantingham, 1995).

Spatial and Temporal Analysis of Disorder at Bars

In keeping with the tenets of the J-curve hypothesis, a number of studies have used different spatial analyses to examine the concentration of disorder, aggression or violence in bars. Spatial analyses provide access to practical methods that, according to Anselin et al. (2000), should arguably be the starting places for any empirical analysis of the relationship between crime and place, as the distribution of crime is neither static nor uniform (Block & Block, 1995). Improvements in the ability of computers to analyze place-based crime data, such as the incorporation of geographic information systems (GIS) and improved computerized police data management systems, allow for the characteristics of “points” (i.e., places), “polygons” (i.e., spaces), and “lines” (e.g., street segments, city boundaries, police districts, etc.) to be displayed in ways that can

meaningfully contribute to analysis (Eck et al., 2005; Ratcliffe & McCullagh, 2001; Block & Block, 1995). These advances enable law enforcement agencies and researchers alike to better conceptualize and systematically quantify patterns of crime spatially (Caplan, Kennedy, & Miller, 2011; Groff & La Vigne, 2001; Anselin et al., 2000).

Allport's (1934) J-curve hypothesis and Brantingham and Brantingham's (1982) work on the concentration of crime in identifiable places serve as a foundation for the study of crime and disorder hotspots— geographic locations of “high crime concentrations, relative to the distribution of crime across the whole region of interest” (Chainey & Ratcliffe, 2005, p. 147). Crime and disorder are intrinsically linked to the place in which they occur and their distribution is not random or evenly spread across an area. Even in neighborhoods or cities with high numbers of crimes, there are only a few, relatively small places that generate half of all the criminal events (Chainey, Thompson & Uhlig, 2008; Chainey & Ratcliffe, 2005; Brantingham & Brantingham, 1995; Weisburd et al. 1992; Sherman et al. 1989; Pierce et al. 1986; Brantingham & Brantingham, 1981). Concentrations of these events at specific places can be examined through the lens of routine activities and rational choice theories, as victim and offender interactions in these places create the opportunities for crimes to occur (Cornish & Clarke, 1986; Brantingham & Brantingham, 1984; Cohen & Felson, 1979). In practice, hotspot mapping utilizes retrospective data to identify the locations where crime is the most densely concentrated, providing insight for resource allocation and targeted enforcement. And it is used to visualize crime rates, patterns, and trends that have come to the attention of law enforcement (Chainey et al., 2008; Braga, 2005; Eck et al., 2005; Groff & La Vigne, 2002; Groff & La Vigne, 2001; Ratcliffe & McCullagh, 2001;

Harries, 1999). The use of mapping to identify crime hotspots has been recognized as an effective way to target police crime-fighting action (Braga, 2012; Braga, 2005; Groff & La Vigne, 2002).

The ability of the police to prevent crime is improved when actions are focused on the places, times, and people who pose the highest risks to public safety compared to traditional crime control methods including random patrols of large areas, rapid responses to calls for service, and making large numbers of reactive arrests (Braga, 2001; Sherman 1997; Clarke 1992; Goldstein 1990; Wilson & Kelling 1982). As Chainey and colleagues (2008) concluded:

“In essence, hotspot mapping is a technique that is used to help determine where crime may happen next, using data from the past to inform future actions. In this sense, it acts as a basic technique for predicting where crime may occur, using the premise that retrospective patterns of crime are a useful indicator for future patterns.” (pg. 8)

These concentrations of individual events may indicate a series of related crime and disorder problems at these locations, which in turn suggests the possibility of underlying factors influencing these problems (Eck et al., 2005). Spelman (1995a) found that examining one year of crime data predicts the locations of future crime events with 90percent accuracy. These findings indicate that while hot spots of crime may intensify and dissipate over relatively short periods of time, these patterns nonetheless occur in the same places, creating longer-term trends (Groff & La Vigne, 2002; Adams-Fuller, 2001; Spelman, 1995ab).

The identification and study of hotspots of crime by Sherman, Gartin and Buerger (1989) revived interest in the study of the spatial features of crime. The relationship between specific types of locations and observed hotspots of crime at these places suggests a chronic nature (Groff & La Vigne, 2002; Anselin, et al., 2000; Homel & Clark, 1994). These patterns of crime concentrations have been found to be linked with bars and other drinking establishments. Of the ten hot spots of crime identified in Sherman, Gartin, and Buerger's analysis, five included bars (1989). In a study conducted in Cleveland, a positive relationship was found between the number of taverns and lounges located in city blocks and reported levels of crime. The influence of these taverns on crime was compounded when these establishments were located in areas with more anonymity and lower guardianship (Roncek & Maier, 1991). Sherman, Schmidt and Velke's (1992) work in Milwaukee identified hotspots of tavern violence, and used these findings to direct a 12-step targeted intervention to crackdown on these locations. Block and Block's hotspots analysis of drinking establishments in Chicago found that bars tend to cluster near one another, primarily in what were identified as nightlife, shopping and hotel areas in the city. These high density areas of drinking establishments, however, did not correspond directly to similarly high densities of violence and disorder at liquor serving locations or high crime areas overall. However, 39 percent (19 locations) of the identified high-crime taverns and liquor stores were located within high density bar areas, compared to 20 percent (10 locations) of the single- incident drinking establishments (1995). High concentrations of alcohol establishments have also been linked to violence and drug arrests in Boston (Lipton, 2011).

The studies of micro places, such as hotspots, examine concentrations of crime and disorder in a given area. However, hotspot crime analysis is traditionally conducted at census block or police beat level. These geographic units provide data only on the crime problem in large areas, obscuring indicators of micro-spatial hot spots as a result of aggregation. However, police records almost always specify small areas, such as an address or bus stop, as the locations of crimes. These addresses provide point data that can identify crime patterns and crime trends at finite locations (Weisburd et al., 2004; Nelson, Bromley & Thomas, 2002; Eck & Weisburd, 1995; Sampson & Groves, 1989). Studies of crime at these micro places show generally stable concentrations of crime over time, indicating underlying factors and routine activities that contribute to crime concentrations at these locations; thus attracting both victims and offenders together in time and place (Braga, Hureau & Papachristos, 2011; Braga, Papachristos & Hureau, 2010; Weisburd et al., 2004; Cohen & Felson, 1979). Like hotspots analysis, micro place analysis can be used to identify problem areas and guide police actions in targeted interventions. These interventions have a narrower focus, targeting very small geographic locations such as a block, street segment, alley, intersection, specific address or cluster of addresses instead of an entire police beat or census tract (Weisburd et al., 2004; Weisburd & Braga, 2003; Sherman & Weisburd, 1995).

Much research in criminal justice and other related fields has examined the concentration of crimes and disorder at homogenous locations. Eck, Clarke, and Guerette (2007) describe these as “risky facilities.” Just as an offender may commit only a certain kind of crime, or a specific victim be more vulnerable to certain kinds of repeat victimization (Farell & Pease, 1993), certain places and spaces may be high risk settings

for certain kinds of disorder to occur. In turn, of these identified risky facilities only a small percentage may account for the majority of crime and disorder problems experienced by all of the facilities of that type (Bernasco & Block, 2011; Clarke & Eck, 2007; Eck, Clarke, & Guerette, 2007; Anselin et al., 2000; Block & Block, 1995). These facilities may be in the neighborhood where offenders live, putting them at higher risk of victimization (Bernasco & Nieuwebeerta, 2005; Bernasco & Luykx, 2003; Ratcliffe, 2003; Wiles & Costello, 2000). They may be in areas characterized by activities that generate crime or attract offenders, or located in commercial areas characterized by a lack of guardianship, anonymity, public access, limited surveillance, a close proximate setting and potentially lower standards of behavior (Bernasco & Block, 2011; Gruenewald et al., 2006; Bernasco & Luykx, 2003; Block & Block, 1995; Roncek & Maier, 1991).

These characteristics make crime opportunities at these locations accessible and attractive options (Bernasco & Nieuwebeerta, 2005; Bernasco & Luykx, 2003; Clarke & Felson, 1993). Bars, pubs, and other liquor serving establishments experience patterns of concentration similar to other risky facilities, as they offer opportunities to engage in aggressive or violent behaviors, are places where alcohol is consumed in large quantities and inhibitions are reduced, and are often located in areas with little guardianship (e.g., commercial or retail areas) (Bernasco & Block, 2011; Graham & Homel, 2008; Graham et al., 2006; Gruenewald et al., 2006; Graham et al., 2005; Graham et al., 2004; Anselin, 2000; Block & Block, 1995; Homel & Clark 1994; Roncek & Maier 1991; Felson, 1994; Felson, 1987; Felson, 1986; Cohen & Felson, 1979).

Any number of different types of locations can be considered “risky facilities,” including fast food restaurants, bus stops, strip clubs, bars and liquor stores. These locations have all been identified by academic literature as places where disproportionate numbers of crimes occur (Caplan & Kennedy, 2010, Caplan & Kennedy, 2009; Clarke & Eck, 2007; Eck, Clarke, & Guerette, 2007). In areas categorized as high risk, individual places are likely to be at an increased risk of disorder as well (Block & Block, 1995). While risky facilities may appear to be crime hotspots, treating these places solely as hotspots limits potential analysis. The study of risky facilities allows for comparisons among similar establishments, as well as comparisons among members of these groups. These comparisons can “reveal important differences between facilities that can account for the differences in risk, thereby providing important pointers to preventive action” (Clarke & Eck, 2007). For instance, the comparison of a bar with many crime and disorder complaints to other bars in the area that do not may highlight the ways in which a bar’s layout, staff and business practices contribute to the problem. Just as targets and offenders play a role in the rates of crime at facilities, so too do the characteristics of these places (Eck, Clarke, & Guerette, 2007). Through comparison, recommendations can be made to reduce the number of crime and disorder complaints at the most problematic of these locations.

In addition to the study of *where* crime happens, research into *when* crime happens can also provide valuable information about patterns of crime concentration. While environmental criminology and crime geography discuss the importance of both time and place in the study of crime, research has traditionally focused much more on the spatial rather than temporal patterns of crime and disorder (Townesley, 2008; Ratcliffe,

2004; Felson & Poulsen, 1993). Levels of crime and disorder vary greatly by hour of the day, day of the week and by monthly and seasonal cycles (Uittenbogaard & Ceccato, 2012; Felson & Poulsen, 2003; Harries, 1980). Hawley (1950) organized temporal patterns into three categories: tempo, the number of events observed in a given unit of time; rhythm, the repeating patterns of events in time; and timing, the intersections of these rhythms. It is in these intersections of time that the paths of offenders and victims cross, allowing for opportunities for crime, and the routine activities of people and places offer explanations of daily (morning-afternoon-evening), seasonal (summer–winter) and weekly (weekend–weekday) variations of crime over time and space (Uittenbogaard & Ceccato, 2012; Felson, 2002; Felson, 1994; Brantingham & Brantingham, 1993; Felson, 1986; Cohen & Felson, 1979).

Like other kinds of crime and disorder, problem behaviors at bars are most frequently concentrated during specific hourly groups and days of the week, particularly during late night weekend hours (Bieler & Roman, 2013; Felson & Poulsen, 2003; Briscoe & Donnelly, 2001). Conventional wisdom and some research indicates that between the hours of 9 p.m. and 3 a.m. on Friday and Saturdays are the peak times for patronage, alcohol consumption, and incidents of aggression and disorder. When undertaking qualitative research in this area, researchers typically make their observations during these late night and early morning periods (Bieler & Roman, 2013; Graham et al., 2006; Graham, Bernard, Osgood & Wells, 2006; Graham et al., 2005; Graham et al., 2004; Felson & Poulsen, 2003; Briscoe & Donnelly, 2001; Graham & Wells, 2001; Homel et al., 1997ab).

Different months and seasons of the year have also been linked to changes in crime patterns. The results of studies into crime seasonality are mixed. Although some studies have shown either no change or reversed patterns in seasonality (Farrell & Pease, 1994; Block, 1984), most studies that indicate seasonal fluctuations in crime identify low rates in the winter and peaks in the summer months (McDowall, Loftin & Pate, 2011; Hipp et al., 2004; Cohn & Rotton, 2000; Lab & Hirschel, 1988). Yet these findings may have more to do with corresponding seasonal changes in routine behaviors rather than fluctuation in temperature alone (McDowall, Loftin & Pate, 2011). As opportunities for crime depend on the intersections of a motivated offender and a potential victim in time and place in the absence of capable guardians (Felson, 1994; Felson, 1986; Cohen & Felson, 1979), changes in season may lead to subsequent changes in the behaviors that affect when and where motivated offenders and potential victims intersect. For instance, warm weather in the summer and increased hours of daylight may encourage people to leave their homes more frequently, putting them at a higher risk of crime (McDowall, Loftin & Pate, 2011; Van Koppen & Jansen, 1999; Cohn, 1990). The study of the temporal characteristics of bar disorder can inform police officers when targeted interventions should be undertaken, as there is often a discrepancy between when most calls for service are received and when most police officers are on duty (Felson & Poulsen, 2003; Knutsson, 1994).

Spatiotemporal analyses of crime allow for both the study of the place and time where crime and disorder happen, allowing for researchers and analysts to study how concentrations of crime and disorder wax and wane over time (Townsend, 2008; Weisburd et al., 2004; Ratcliffe, 2002). All crimes occur in the context of a place, and

these places are discretely located in time and space; these places, in turn, are where the three additional dimensions of victims, offenders and lack of guardians intersect to allow for crime to occur (Ratcliffe, 2002; Felson, 1994; Felson, 1986; Brantingham & Brantingham, 1981; Cohen & Felson, 1979). The use of hotspots mapping to display spatial and temporal information can effectively aid in visualizing the temporal patterns of hot spots on multiple levels (e.g., hour blocks, days, months, years, etc.) (Townesley, 2008). Insight into these patterns can provide guidance to police departments. Not only can they utilize hotspots analysis to determine where crime is concentrated, the incorporation of temporal factors allows them to analyze when these hotspots are at their highest concentrations. This information can in turn direct police managers to alter their shift schedule to have better police coverage on days and hours when crime peaks, and direct police intervention to targeted locations and times (Ratcliffe, 2002; Nelson, Bromley & Thomas, 2001). While these patterns of place and time are informative to research and potential police action, it is important to note that temporal data can be difficult to collect. Police records are often limited in their descriptions of time. Most police departments record only the estimated “start times” of crimes and infrequently report a crime’s “end time,” thus giving no indication of the duration of an event (Ratcliffe, 2002, pg. 25).

As a result, there are many fewer studies on the temporal and spatiotemporal aspect of crimes than there are on spatial patterns alone (Townesley, 2008; Johnson et al., 2007; Ratcliffe, 2004; Felson & Poulsen, 2003). Bromley and Nelson’s (2002) study of the spatiotemporal patterns of alcohol related crime and disorder in Worcester, UK offers some insight into time and space patterns of alcohol related crime and disorder. While

their dataset included all alcohol related offenses across the entire city, their findings highlight where the expected spatial and temporal concentrations of disorder at bar locations may occur. Alcohol-related violence and harassment citywide was found to have temporal concentrations beginning at 10 p.m., peaking between 1 a.m. and 2 a.m., and decreasing dramatically between 3 a.m. and 5 a.m. Spatial concentrations of crime and violence were also observed in the city center, in mixed land use areas (i.e., areas with both residential and commercial properties) and in evening entertainment districts, particularly around bar locations and late night shopping and dining places (Bromely & Nelson, 2002, pg. 248).

With the exception of Bromley and Nelson (2002), much of what we know about the times and places where bar disorder occurs is colloquial. While spatial and temporal patterns are not the focus of these studies, much research in alcohol related aggression and bar crime and disorder is guided by when and where these events take place. Many program evaluations and qualitative studies of these problem behaviors arrange their observations to take place at certain times in certain areas, usually in the late evening and early morning hours and in entertainment and commercial district bars (Graham et al., 2006; Graham, Bernard, Osgood & Wells, 2006; Graham et al., 2005; Graham et al., 2004; Graham & Wells, 2001; Homel et al., 1997ab). While the interaction of time and place is often taken for granted in bar and disorder research, a systematic examination of these temporal and spatial patterns of disorder concentrations at bar locations has not been undertaken.

Chapter Summary

In summary, the prevailing literature has identified risk factors such as aggressive staff and patron altercations, rowdiness and permissiveness of disorderly behaviors, crowding and long lines, drink discounting, and continued service to drunk patrons as contributing to disorder problems at bars (Graham et al, 2012; Graham, 2009; Graham & Homel, 2008; Graham et al., 2006; Graham et al., 2004; Quigley et al., 2003; Graham et al 2001; Graham & Wells, 2001; Graham, 2000; Homel & Clark, 1994). Research has also recommended numerous preventative interventions that include bar management and staff training, policy developments, law enforcement, and changes to bar environments -- both social and physical (Graham, 2009; Graham et al., 2004; Graham, 2000; Homel & Clark, 1994). In order to best direct these interventions, however, concentrations of bar disorder must be identified. The conceptual framework for this current research draws from the traditions of environmental criminology, routine activities theory, situational crime prevention and rational choice theories to examine where bar disorder concentrates.

The success of crime mapping in identifying hot spots and other location-based crime patterns is well established and is an important tool in police efforts to scan for problems in their communities and develop responses for both law enforcement and the community (Gorr & Olligschlaeger 2002; Groff & La Vigne, 2002; Groff & La Vigne, 2001; Ratcliffe & McCullagh, 2001; Dussault, 1999; Sherman, 1995; Spelman 1995; Sherman et al., 1989). Focusing police actions and interventions for crime control and prevention at high-crime “hot spots,” such as directed patrols, proactive arrests, and problem-oriented policing, can produce significant crime prevention gains (Braga et al., 2012; Braga, 2008; Braga, 2007; Braga 2002; Skogan & Frydl, 2004; Weisburd & Eck 2004; Eck 2002; Braga, 2001; Eck 1997).

Although research has been recommended and conducted on spatial concentrations of alcohol related crime and disorder (Eck, Clarke & Guerette, 2007; Gruenewald, 2006; Briscoe & Donnelly, 2001; Lipton & Gruenewald, 2001; Block & Block, 1995; Sherman, Schmidt & Velke, 1992; Roncek & Maier, 1991; Fishbine & Joelson, 1978), there is a paucity of research on spatiotemporal patterns of disorder incidents at bars. The findings extant highlight that while much research has been done on the relationship among place, space and situational characteristics of bar disorder, there is still no clear consensus on whether or not concentrations of bar disorder remain stable over time.

CHAPTER TWO: RATIONALE FOR CURRENT RESEARCH

This dissertation is set apart from other work in this area by its research aims. Unlike previous works, this study endeavors to examine both the spatial and temporal concentrations of disorder at bars. Allport's (1934) description of the J-curve hypothesis has been tested in the criminal justice field repeatedly (Lum, 2008; Chainey et al., 2008; Eck, Clarke, & Guerette, 2007; Clarke & Eck, 2007; Johnson et al., 2007; Gottfredson and Moriarty, 2006; Gruenewald et al., 2006; Braga, 2005; Weisburd et al., 2004; Farrell & Pease, 2003; Gorr & Ollisclaire, 2002; Groff & La Vigne 2002; Eck, 2001; Groff & La Vigne, 2001; Anselin et al., 2000; Townsely, Homel & Chaseling, 2000; Harries, 1999; Farrell & Pease, 1993; Clarke & Weisburd, 1990; Sherman 1989; Sherman, Gartin & Buerger, 1989). Similar concentrations have also been documented at bars and drinking establishments (Graham et al. 2012; Lipton & Gruenewald, 2002). While environmental criminology and crime geography discuss the importance of both time and place in the

study of crime, research has traditionally focused much more on the spatial rather than temporal patterns of crime and disorder (Townesley, 2008; Felson & Poulsen, 2003).

This research focus is evident in studies of bar disorder and crime. Previous studies have used spatial and hotspots analysis for barroom violence (Graham et al., 2012; Gruenwald et al., 2006; Lipton & Gruenwald, 2002; Felson et al., 1997; Homel et al., 1997; Fishbine et al. 1978). However, few have examined temporal or spatiotemporal patterns of concentration. This research provides an opportunity to examine disorder calls for service at bar locations in Newark, NJ in order to assess for the existence of a J-curve distribution and spatiotemporal hotspots of disorder. The results of these analyses identify the bar locations and times that account for a disproportionate amount of disorder calls for service reported to the police. This information not only assesses for the generalizability of prior findings to the current research site, it also provides important information that can be passed on to police decision makers. The incorporation of both spatial and temporal concentrations can be used to guide targeted patrol, problem-solving policing, inform undercover operations, and other police tactics can be targeted on identified areas of concentrated offending with maximum benefit and efficiency (Braga, 2012; Braga, 2007; Braga, 2005; Groff & La Vigne, 2002; Gorr & Olligschlaeger, 2002; Braga, 2001; Groff & La Vigne, 2001).

The focus on bar disorder also sets this research apart from previous works. Traditionally, violent crimes, police reports, and observed cases of aggressive behaviors have been used to measure problem behaviors at bars and alcohol related violence (Graham & Homel, 2008; Graham et al., 2006; Scott & Dedel, 2006; Graham et al., 2005;

Graham et al., 2004; Leonard et al., 2003; Bromley & Nelson, 2002; Lipton & Gruenewald, 2002; Wallin, Nostrom & Andreasson, 2002; Graham & Wells, 2001; Graham, 2000; Felson et al., 1997; Homel et al., 1997ab; Block & Block, 1995; Roncek & Maier, 1991; Fishbine & Joelson, 1978). This dissertation proposes the use of bars as the units of analysis and disorder calls for service as the units of observation. While violent crimes may have severe consequences for its victims, the consequences of disorder are evident in the subsequent investment of public resources. There were over 29,000 disorder calls for service made to the Newark Police Department in 2010, and over 27,000 disorder calls for service in 2011. Even if the police spent only five minutes at the scene of each of these calls, it would take approximately 4,500 person-hours, or 195 days, to respond to two years of disorder calls for service.

This investment of resources to deal with disorder complaints dwarfs the investment of resources into more serious forms of crime; most police responses are reactions to order maintenance, not criminal, complaints (Perez, 2012; Famega, Frank & Mazzerole, 2005; Wilson & Kelling, 1982). Of all police actions, about 40 percent of an officer's time is spent on order maintenance compared to the eight percent spent on law enforcement (Perez, 2010). The current research can be used to guide interventions to remove one source of the expenditure on disorder complaints, and the newly freed resources can be reallocated to the control and prevention of serious crimes. Disorder calls for service may not seem severe enough to warrant the same depth of study as violent crimes or incidents ending in an arrest, yet the majority of police actions are comprised of responses to order maintenance and peace-keeping concerns (Famega, Frank & Mazzerole, 2005; Wilson & Kelling, 1982).

This dissertation can potentially do more than just expand the current state of the academic literature in the criminal justice field. There is also the opportunity here to provide information and assistance to the police and the public as well. While the police can do little to control the actions of individuals, a number of criminological theories and policing paradigms advocate targeted, place based interventions in order to reduce crime and disorder (Chaniney & Uhlig, 2008; Ratcliffe, 2008; Gottfredson & Moriarty, 2006; Scott & Dedel, 2006; Braga, 2005; Ratcliffe, 2003; Gorr & Ollischaleager, 2002; Abbott, 1997; Taylor, 1997, Taylor & Harrell, 1996; Brantingham & Brantingham, 1981; Cohen & Felson, 1979; Sherman et al., 1989). By identifying the bars with the highest numbers of calls for service and identifying bar locations having disproportionate levels of disorder, this dissertation can help police decision makers and crime analysts identify and target problem areas. Once identified, the police can use this information to efficiently allocate resources and manpower and provide directed, targeted interventions specific places. A number of policing paradigms advocate the use of scientific research and partnerships with local universities. The Office of Community Oriented Policing Services published numerous Problem-Oriented Guides for Police advocating the use of deep problem solving and research to target specific problems in specific places (Scott & Dedel, 2006; Clarke & Eck, 2002). Evidence-based and intelligence-led policing also utilize academic research, data analysis and crime intelligence to drive the decision-making processes that facilitate crime reduction and prevention (Eck, 2002; Sherman et al., 2002; Ratcliffe, 2003; Ratcliffe, 2008; Sherman, 1998).

Police departments who utilize spatial analyses such as hotspots analysis can especially benefit from the findings of academic research and use scientific research to

guide responses to problems in the community (Braga, 2012; Lum, 2008; Braga, 2006; Gottfredson and Moriarty, 2006; Gruenewald et al., 2006; Braga, 2005; Eck et al. 2005; Weisburd et al., 2004; Farrell & Pease 2003; Eck, 2002; Gorr & Ollisclaire 2002; Groff & La Vigne 2002; Lipton & Gruenewald, 2002; Groff & La Vigne, 2001; Eck, 2001; Townsely, Homel & Chaseling, 2000; Eck and Weisburd 1995; Harries, 1999; Sherman, Gartin & Buerger, 1989). The use of mapping to identify crime hotspots has been recognized as an effective and accurate way to target police crime-fighting action (Braga, 1995; Spelman, 1995). Spelman (1995) found that examining one year of crime data predicts the locations of future crime events with 90% accuracy, and Adams-Fuller's (2001) examination of homicides in three US cities also found that the vast majority of hot spots remain constant over time. Examining 14 years of Seattle crime data, Weisburd et al. (2004) determined that micro places such as street segments had stable concentrations of crime over the study period. Using 29 years of data from Boston, one percent of all street segments were found to be responsible for nearly 50 percent of all commercial robberies and eight percent were found to be the location of 66 percent of street robberies (Braga, Hureau & Papachristos, 2011). Gun violence was also found to be highly concentrated at a small number of street segments and intersections over a 29 year period (Braga, Papachristos & Hureau, 2012). These findings indicate that hot spots of crime may intensify and dissipate over relatively short periods of time, but that these patterns nonetheless occur in the same places creating longer-term trends (Weisburd et al., 2004; Groff and La Vigne, 2002; Adams-Fuller, 2001; Spelman, 1995).

The hot spots policing perspective suggests that crime and disorder can be reduced by focusing police resources on these relatively few places that generate the

majority of crime (Braga, 2006; Eck & Weisburd, 1995; Sherman & Weisburd, 1995). Randomized controlled experiments have found that using problem-oriented strategies to focus on social disorder problems resulted in significant reductions in calls for service for crime and disorder at identified hotspots, even when officer used “shallow” problem solving analysis over carefully designed and implemented programs (Taylor, Koper & Woods, 2010; Braga & Bond, 2008; Braga et al., 1999). This strategy has become a very popular way for police departments to study, control and prevent crime with as many as 7 in 10 departments with more than 100 sworn officers reported using crime mapping to identify crime hot spots (Weisburd et al. 2003). Police departments that utilize spatial and temporal analyses such as hotspots analysis can benefit from the findings of academic research and use scientific research to effectively guide and target responses to problems in the community (Ratcliffe et al., 2011; Lum, 2008; Johnson et al., 2007; Gottfredson and Moriarty, 2006; Gruenewald et al., 2006; Braga, 2005; Eck et al. 2005; Weisburd et al., 2004; Farrell & Pease 2003; Gorr & Ollisclaregr 2002; Eck, 2002; Groff & La Vigne 2002; Lipton & Gruenewald, 2002; Eck, 2001; Groff & La Vigne, 2001; Townsely, Homel & Chaseling, 2000; Harries, 1999; Eck and Weisburd 1995; Sherman, Gartin & Buerger, 1989).

The findings of hotspots policing and situational crime prevention evaluations suggest that focused police actions can prevent crime and disorder in crime hot spots without necessarily causing crime displacement (Braga, 2012; Ratcliffe et al., 2011; Taylor, Koper & Woods, 2010; Guerette & Bowers, 2009; Braga, 2007; Braga, 2005; Braga, 2001). As prioritizing the delivery of police services and allocation of resources is common to all public sector activities, a “compromise has always to be reached between

the universal provision of service and selectivity” (Farrell & Pease, 1993). In an economic climate where police departments face reduced funding, hiring freezes and officer layoffs, access to and the ability to use scientific data to guide resource allocation and support police action is an important consideration for researchers and police departments alike.

In addition to providing academic research that can be used to guide police action, this dissertation can provide useful information to the communities and community leaders of Newark, particularly in the areas where these disorderly bars are located. The availability of scientific research to potential decision makers can aid in a number of ways, from informing neighborhood residents of potentially risky places to offering advice on how to improve security to drinking establishments and other local businesses (Scott & Dedel, 2006). The problem of disorder in bars is not solely the concern of the criminal justice system and academia. The communities where these businesses operate, from the employees of these establishments to the emergency medical personnel who respond to calls for service and from the neighboring residents to local government officials, all can learn from and benefit from the products of this research.

Chapter Summary, Research Questions, and Hypotheses

Chapter Three presented a rationale for the current research and presented the potential benefits to the academic literature and the wider criminal justice community. While there is a great deal of research on bar disorder, there is still a gap in the body of knowledge in this area. Some studies have examined limited temporal patterns such as the time of day and day of the week when alcohol-related and bar crime and disorder

occurs (Felson & Poulsen, 2003; Bromley & Nelson, 2002; Briscoe & Donnelly, 2001; Nelson, Bromley & Thomas, 2001). Yet limited research has been undertaken into more detailed patterns of spatiotemporal concentrations. For the current research, the following research question is posed:

“Where does disorder at bar locations concentrate, and how do these spatial patterns change in response to temporal factors?”

Environmental criminology contends that no social facts or conditions can be divorced from the place and time in which they occur and focuses on the spatial, temporal and social contexts in which crime, disorder, and disorganization take place (Anselin, 2000; Abbott, 1997). The works of the Brantinghams provide a theoretical framework for understanding the relationships between time, space and place through their examination of the ecology of crime. Their work highlights the necessity for examining crime and disorder events within spatiotemporal contexts (Brantingham & Brantingham, 1995; Brantingham & Brantingham, 1981). Routine activities theory, rational choice theory, situational crime prevention and the study of crime geography also posit that through routine, everyday behavioral patterns, potential criminal offenders and potential victims and targets of crime are brought together in time and place in the absence of a guardian against crime and disorder. The focus of these theories is not why certain individuals or groups are inclined to commit criminal and disorderly acts but how the spatiotemporal organization of social activities allows for these individuals with criminal proclivities to translate their intentions into actions (Cohen & Felson, 1979).

In the case of concentrations of bar disorder in Newark, NJ, these spatiotemporal patterns have yet to be examined. In order to answer this conceptual question, the following sub-questions are posed:

1. *“Are identified concentrations of bar disorder stable over a one year period?”*

Prior research has shown evidence that hotspots of crime have a relatively high degree of stability over long periods of time (Weisburd et al., 2004; Spelman, 1995). These findings indicate that while hot spots of crime may intensify and dissipate over relatively short periods of time, these patterns nonetheless occur in the same places creating longer-term trends (Groff & La Vigne, 2002; Spelman, 1995). No research has yet examined the long term stability of spatial concentrations of bar disorder. I hypothesize that concentrations of bar disorder in Newark, NJ will remain stable over the two year study period.

2. *“Where are spatial concentrations of bar disorder located during weekdays and weekends?”*

Studies show that most incidents of bar disorder occur on the weekend, particularly Fridays and Saturdays, the days when bars and drinking establishments are usually the most crowded (Briscoe & Donnelly, 2001), but there is no discussion on where bar disorder concentrates on these days. I hypothesize that bar disorder will concentrate primarily in the Downtown area of Newark, NJ during weekdays and that bar disorder will concentrate in nightlife areas of Newark, NJ on Friday nights and during the weekend.

3. *“How are spatial concentrations of bar disorder affected by seasons?”*

Studies show that many crime types experience seasonal fluctuations, usually with low rates in the winter and peaks in the summer months (McDowall, Loftin & Pate, 2011; Farrell and Pease, 1994). These findings may have less to do with fluctuation in temperature (McDowall, Loftin & Pate, 2011) than with corresponding changes in routine behaviors. Opportunities for crime depend on the intersections of a motivated offender and a potential victim in time and place in the absence of capable guardians (Felson, 1994; Felson, 1986; Cohen & Felson, 1979). Changes in season may lead to subsequent changes in the behaviors that lead to the intersection of people, places and time. There has been little research on how these seasonal patterns affect the spatial concentration of bar disorder. I hypothesize that there will be a spike in bar disorder calls for service and higher concentrations of bar disorder during the summer months and again during the winter around the holiday season and New Year’s Eve.

4. *“Where are spatial concentrations of bar disorder located during different times of day?”*

The existing body of literature indicates that alcohol related crimes are most likely to occur between 9 p.m. and 3 a.m. as these are the times when bars and drinking establishments are the most crowded (Briscoe & Donnelly, 2001), but there is no discussion of where bar disorder and crime occur during these time periods. I hypothesize that there will be high temporal and spatiotemporal concentrations of bar disorder between 9 p.m. and 3 a.m. with a peak in disorder activity around midnight concentrated in the nightlife areas of Newark, NJ.

5. *“Does the J-curve distribution analysis identify the same bars as having disproportionate levels of disorder over time?”*

While the J-curve hypothesis has been used to identify bars with disproportionately high numbers of crime and disorder incidents (Clarke & Eck, 2007; Eck, Clarke & Guerette, 2007), it has not been examined whether a J-curve distribution analysis would identify the same problematic locations in subsequent time periods. I hypothesize that bars identified by the J-curve distribution analysis at the beginning of the study time frame will continue to have disproportionately high numbers of calls for service at bar locations over a one year period.

CHAPTER THREE: METHODS

Research Site

Founded in 1666 and incorporated into a city in 1836, Newark, NJ has experienced a severe decline over the past 80 years. Following the large population growth and mass industrialization of the late 19th and early 20th century, the urban decline and rising racial tensions since the end of WWII climaxed in 1967 with the Newark riots. The six days of rioting left 26 dead, hundreds injured, and caused over \$10 million in damages. It is considered one of the leading causes of the subsequent departure of much of the city's industry and business, and the predominately white middle class (Tuttle, 2009). The remaining population, predominately racial and ethnic minorities, continued to suffer from years of socioeconomic decline, political corruption, a poor education system and high rates of violent crime (Mumford, 2008).

The largest city in the state of New Jersey, Newark was home to a population of 277,140 people in 2010. As the city is only approximately 24 square miles, Newark's persons per square mile average of 11,458 is nearly ten times that of the NJ average. A racially and ethnically diverse community, 26 percent of residents reported their race as white, 52 percent African American and 34 percent Hispanic or Latino. Approximately twenty-six percent of Newark's residents live below the poverty line (US Census Bureau, 2010).

Cited in 1975 (Tuttle, 2009) and again in 1996 (Fried, 1996) as the most dangerous city in America, the city of Newark has made strides since 2006 to reorganize

the Newark Police Department in an effort to reduce the high rate of violent crime. In that year, the FBI's annual Uniform Crime Report (UCR) reported a total of 14,392 Part 1 crimes (i.e., homicide, sexual assault, robbery, aggravated assault, burglary, larceny, auto theft and arson) and 435 shootings in Newark, NJ (UCR, 2007). Over the next three years Newark's violent crime rate began to fall, with shooting rates down three consecutive years, a 75 percent reduction. March 2010 was the first murder free month in Newark in over 40 years (Christie, 2013).

Despite these recent decreases in crime, Newark, NJ still made CNN Money Magazine's 2013 list of most dangerous US cities. Ranking as the sixth most dangerous city in America, Newark's brief period of declining crime rates was overshadowed by rising violent crime rates and the 2010 layoff of 162 police officers (Christie, 2013). The UCR statistics from 2011 indicate that from 2010 violent crime rose 11 percent, robberies increased by 23 percent and street crimes continued to rise. Of the reported 3,243 violent crimes, there were 94 murders and non-negligent homicides, 58 forcible rapes, 1,977 robberies and 1,114 aggravated assaults (UCR, 2012).

The geography of this research encompasses the city of Newark, NJ with the exclusion of Newark Liberty International Airport and Port Newark. While the airport is home to bars and other drinking establishments, both the airport and seaport fall under the jurisdiction of the Port Authority Police Department and reports of disorder at these locations are not responded to by the Newark Police Department. For this reason, these areas have been removed from the study area and only locations within the boundaries of

the City of Newark and under the jurisdiction of the Newark Police Department are included in this study.

Population for Study and Units of Analysis

There were approximately 201 active licensed drinking establishments within the city limits of Newark, NJ in 2010 and 2011. Included in this count are 12 bar locations within the Newark Liberty International Airport. The remaining 189 bars in Newark's city limits will serve as the units of analysis and population for this study.

Definition of Key Terms and Units of Observation

For this study, a "bar" or "drinking establishment" is defined as a place that meets three conditions: (1) it has to be open to the general public, rather than restricted to members or rented out to private parties (i.e., private clubhouses such as a VFW post or Elks Club); (2) it has to be licensed to serve alcohol for onsite consumption; (3) some patrons have to come to the place for the primary purpose of onsite alcohol consumption (Clarke & Eck, 2007; Scott & Dedel, 2006). Locations that did not meet all three conditions were excluded from the study.

The units of observation for this study will be disorder calls for service in and near bar locations. Two years of disorder calls for service data was requested of the Newark Police Department. Research on police recorded crime statistics indicate that police data, including records of violent crimes and arrest records, represent only a small proportion of all crime and disorder occurring in a community, as many incidents go unreported or unrecorded (National Committee on Violence, 1990).

Alcohol-related incidents are potentially even less likely to result in a police report than non-alcohol-related incidents (Homel et al., 1999; Homel & Clark, 1994). Relying on police arrest records or reports of assault may underestimate the seriousness of disorder at drinking establishments compared to calls for service data (Scott & Dedel, 2006). Call data is considered a more reliable measure of crime and disorder as information on calls for service is less affected by police discretion than other data sources (Braga & Bond, 2008). As such, calls for service can be considered the “widest ongoing data collection net for criminal events in the city” (Sherman, Gartin & Buerger, 1989) and an appropriate measure of disorder for this research.

The addresses of these disorder calls for service was then compared to the Newark Police Department’s list of bar locations. Disorder calls for service recorded at bar addresses were included in the analyses of this study. In addition to disorder calls for service reported at bar locations, a catchment area with a 50 foot radius around bar locations was drawn to include disorder calls for service near bars. The 50 foot radius was selected as a reasonable sphere of influence as there is evidence in the research to suggest that disorder problems that begin in bar locations are often observed to take place just outside the entrances and within the vicinity of drinking establishments, particularly during peak late night hours (Graham & Homel, 2008; Graham et al., 2006; Scott & Dedel, 2006; Graham et al., 2005; Graham et al., 2004; Graham & Wells, 2001; Graham, 2000; Felson et al., 1997; Homel et al., 1997; Block & Block, 1995; Homel & Clark, 1994; Roncek & Maier, 1991; Fishbine & Joelson, 1978). Therefore, disorder calls for service for incidents such as public drunkenness or noise complaints recorded within 50 feet of a bar location can reasonably be attributed to the bar itself. For this reason, both

disorder calls for service for incidents taking place in bars and immediately surrounding them will serve as the units of observation for this study.

This catchment area was completed using ESRI ArcGIS geoprocessing software. Database files on bar locations and citywide disorder calls for service were first imported into the program. Then, using the “select by location function,” all disorder calls for service within 50 feet of an identified bar location were selected. These identified disorder calls for service were then used as this study’s units of observation. Once a count of all disorder calls for service at and within a 50 foot radius of each bar location had been completed, the identified bars were then listed together with their total associated count of bar disorder calls for service.

Timeframe for Study

This study examined data from a two year period, from January 2010 through December 2011. Using Newark police data, two years of reported disorder calls for service at identified bar locations were analyzed and used to determine the existence of a J-curve distribution of disorder calls for police service at bars in Newark, with a J-curve analysis completed for both 2010 and 2011 data for later comparison. The entire two years of data were then used to assess for spatial and temporal hotspots of disorder calls for service at bars.

The use of one year of data to conduct a J-curve analysis is supported by the findings of previous studies. In a given geographic location, crime and disorder in a population of similar facilities will be highly concentrated in only a few of these locations

(Eck, Clarke, & Guerette, 2007). A study with too short a time frame is unlikely to show a pattern of concentration of crime discernible from random variation. However, too long a time frame for study may produce results that are confounded by changes in facilities outside the scope of the study. Some may go out of business, others may come into being, and others may be altered, both physically and managerially (pg. 241). As there are thousands of calls for service in the city of Newark every year, one year's worth of data on disorder calls for service at these locations was sufficient to effectively examine the concentration of bar disorder and assess for a J-curve distribution.

Research Design

Analysis A: Analysis for a J-Curve Distribution

The J-curve distribution of disorder at bar locations can be revealed using a six step procedure. First, a list of all bar locations in Newark, NJ was compiled using Newark Police Department data. A count of all disorder calls for service at and within a 50 foot radius of these bar locations was then completed. Secondly, these bar facilities were ranked from those with the most disorder calls for service to those with the fewest. A bar chart of the frequency of disorder calls for service at bars were drawn, beginning with the bar location with the highest frequency of disorder calls for service and decreasing in order to those with few or none. It was expected that a few facilities at the left end of this distribution would have many disorder calls for service, but as one moves to the right there would be a steep drop-off in disorder calls for service that flattens out at a very few or no crimes for the majority of the facilities. The resulting graph resembles a reclining "J" (Eck, Clarke, & Guerette, 2007).

Third, a percentage of disorder calls for service at each bar location was calculated to determine their contribution to total bar disorder. Fourth, these percentages were cumulated beginning with the identified riskiest location. Fifth, the proportion of the facilities individual bars represent was calculated and cumulated. Finally, the cumulative percentages of bar locations were compared to the cumulative percentage of events in order to identify the riskiest facilities and how much they contribute to the overall problem of disorder at bar location.

This process was completed twice, once with 2010 and again with 2011 disorder data. Once completed, the findings of each analysis were compared to determine what percentage of identified bars from 2010 were also in the fifth percentile, tenth percentile and 25th percentile of riskiest bars in 2011. It was also be assessed if the top ten riskiest bars held steady in their ranking or changed from 2010 to 2011, and what percentage of bars remained in the top ten category.

Analysis B: Temporal Analysis of Disorder Incidents at Bars

Descriptive statistics were compiled on the frequency of bar disorder calls for service during daytime, afternoon, evening, late night, and early morning hours. The hours of the day were examined divided into the following 5 categories: 1) 8 a.m. to 2 p.m.; 2) 2 p.m. to 6 p.m.; 3) 6 p.m. to 9 p.m.; 4) 9 p.m. to 3 a.m.; and 5) 3 a.m. to 8 a.m. Using 2010 data, each hour and hourly block was listed alongside their observed number of disorder calls for service. Then, the percentage each hour and hourly block contributes to the total number of disorder calls for service was calculated. The hours and hourly

blocks were also ranked according to the number of disorder calls for service, from highest to lowest. This process was repeated using 2011 data, and again with the combined 2010 and 2011 disorder calls for service data.

Descriptive statistics were also compiled on what days of the week were most likely to have high numbers of bar disorder calls for service. The week was divided into the seven days of the week. Using 2010 data, each day was listed alongside their observed number of disorder calls for service. Then, the percentage each day of the week contributes to the total number of disorder calls for service were calculated. The days of the week were also ranked according to the number of disorder calls for service, from highest to lowest. This process was repeated using 2011 data, and again with the combined 2010 and 2011 disorder calls for service data.

Monthly and seasonal descriptive statistics on bar disorder calls for service were also recorded. For each month a count of all disorder calls for service in and around bars was tallied. Using 2010 data, each month was listed alongside their observed number of disorder calls for service. Then, the percentage each month contributes to the total number of disorder calls for service was calculated. The months were also ranked according to the number of disorder calls for service, from highest to lowest. This process was repeated using 2011 data, and again with the combined 2010 and 2011 disorder calls for service data.

Seasonal data was also recorded. The year was divided by the meteorological seasons of the northern hemisphere. The meteorological calendar is the official standard of the National Weather Service. This calendar is based on annual temperature cycles

rather than planetary movement and allows for improved record keeping over the astronomical or equinox-based calendar. Rather than seasons beginning in the middle of a calendar month, the meteorological seasons coincide with the start and end of calendar months (NOAA, 2013). The four meteorological seasons were categorized as follows: 1) spring, from March 1st through May 31st; 2) summer, from June 1st through August 31st; 3) autumn, from September 1st through November 30th; and 4) winter, from December 1st through February 28th. Using 2010 data, each season was listed alongside their observed number of disorder calls for service. Then, the percentage each season contributes to the total number of disorder calls for service was calculated. The season was also ranked according to the number of disorder calls for service, from highest to lowest. This process was repeated using 2011 data, and again with the combined 2010 and 2011 disorder calls for service data.

These descriptive statistics provide insight into temporal patterns of bar disorder and their findings were used to guide subsequent hotspot analyses.

Analysis C: Spatiotemporal Hotspots Analysis of Bars Disorder

While prior research has examined and evaluated a wide range of spatial analyses, including point mapping, thematic mapping, spatial ellipses and kernel density estimations (Chainey, Thompson & Uhlig, 2008; Anselin, 2000), the term “hotspot” is prone to misunderstanding and ambiguity. When mapping spatial data, a “hot spot” can be created or changed in a number of ways. The choice of color when displaying information and methods of classification (e.g. standard deviations, natural breaks, etc.)

can be used to make data “visually” appear as a hotspot when in reality there is not statistically significant clustering at the location (Caplan & Moreto, 2013).

For this analysis The Getis-Ord G_i^* statistic were utilized to analyze the data for statistically significant hotspots. There are many different methods for evaluation and estimating spatial autocorrelation. Some of the most well-known statistics include Moran’s I and Geary’s c (Anselin, 2000; Ord & Getis, 1995; Getis & Ord, 1992). These are considered “global statistics” in that they “require measurements from all or many geo-referenced points in a sample” (Ord & Getis, 1995). While these “general” statistical tests examine overall patterns in a large region, “local” or “focused” tests concentration on smaller regions selected based on previously hypothesized clustering (i.e., disorder in and around bars). The Getis-Ord G_i^* is a focused test and is capable of detecting overall concentration or lack of concentration in an area and identifies subtle patterns of localized dependence that are not revealed by global statistics (Ord & Getis, 1995; Getis & Ord, 1992). The Getis-Ord G_i^* has this strength over Moran’s I , which is not able to discriminate between patterns of both high and low concentrations and may prompt the user to dismiss the possibility of significant spatial clustering (Ord & Getis, 1995; Getis & Ord, 1992). As this research requires a focused, localized analysis in a small dataset with varying concentrations, the Getis-Ord G_i^* is the most appropriate statistic for this dissertation.

The ArcGIS software “Hot Spot Analysis” tool calculates the Getis-Ord G_i^* , or z -score for each datum in a dataset. The Getis-Ord G_i^* statistic (Ord & Getis 1995; Getis & Ord, 1992) measures the extent to which high or low levels of concentration at each

location deviate from spatial randomness (Anselin, 2000; Ord & Getis, 1995; Getis & Ord, 1992). The Getis-Ord G_i^* can be expressed as:

The Getis-Ord local statistic is given as:

$$G_i^* = \frac{\sum_{j=1}^n w_{i,j} x_j - \bar{X} \sum_{j=1}^n w_{i,j}}{S \sqrt{\frac{n \sum_{j=1}^n w_{i,j}^2 - \left(\sum_{j=1}^n w_{i,j} \right)^2}{n-1}}} \quad (1)$$

where x_j is the attribute value for feature j , $w_{i,j}$ is the spatial weight between feature i and j , n is equal to the total number of features and:

$$\bar{X} = \frac{\sum_{j=1}^n x_j}{n} \quad (2)$$

$$S = \sqrt{\frac{\sum_{j=1}^n x_j^2}{n} - (\bar{X})^2} \quad (3)$$

The G_i^* statistic is a z-score so no further calculations are required.

Figure 3 The Getis-Ord G_i^* Statistic

Adapted from Mitchell, 2005

Using the ArcGIS “Hot Spot Analysis” tool, a z-score is completed for each feature in a data set. If a feature’s z-score is positive and high (i.e., statistically significant) and the values for all of its neighboring features are also high, it is a part of a hot spot. As these identified hotspots are statistically significant they are not prone to the common interpretations and classification problems arising with hotspot analysis and are considered a more reliable measure of hotspots of crime and disorder (Caplan & Moreto, 2013). For these reasons, the Getis-Ord G_i^* “Hot Spot Analysis” was chosen for this research.

First, base layers were used to create a map of the city of Newark, NJ. Base layers include city boundaries, roads, police precincts and neighborhood and provide a spatial context for analysis. The reported addresses of bar location and disorder calls for service were then geocoded. Geocoding is the process by which locations such as addresses are converted into map coordinates. It is important to note that 100% match rates are uncommon as the geocoding process rarely completely matches the locations of data points to known address coordinates. Previous research suggests that the minimum acceptable rate of geocoded data be 85% (Ratcliffe, 2004).

Once all bar locations and disorder calls for service were geocoded, a new data layer of bar specific disorder calls for service was created. Using the ArcGIS “select by location” tool, all disorder calls for service within 50 ft of a bar location were selected and saved as a new “bar disorder calls for service” layer. With this information, the addresses of the identified bars were listed with the aggregated total number of disorder calls for service that took place within 50 feet of that location.

Using this new data layer, ArcGIS “Hot Spot Analysis” tool was utilized to identify statistically significant clusters of bar disorder. It is recommended that the default settings of the “Hot Spots Analysis” tool be utilized (Caplan & Moreto, 2013). Using the bar disorder data layer as the “input feature,” the counts of disorder calls for service served as the “input field” category for analysis. The “output feature class” was the resultant hotspot analysis. The default “fixed distance band” is often recommended to conceptualize the spatial relationship of the features (Caplan & Moreto, 2013). The fixed distance band can be described as a moving window that momentarily settles on top of

each feature and looks at that feature within the context of its neighbors. By ensuring that each feature is compared to at least one neighbor, the fixed distance band ensures that the “hot spot analysis” tool identifies statistically significant spatial clustering.

However, this fixed distance band is not always the most appropriate option for some datasets. When the values associated with the features in a data set are not normally distributed, it is important that each feature is evaluated within the context of at least eight or so neighbors. The “K nearest neighbors” option is an effective method to ensure there are a minimum number of neighbors for your analysis. In order to do so a spatial weights matrix (SWM) file is constructed to represent the spatial relationships among features in a dataset. It is recommended that spatial weights matrix is created in order to ensure every feature has approximately eight neighbors. This method works best for when the distribution of data varies across a study area. As the locations of bars in Newark vary in concentrations across the study area, the K nearest neighbors option was the most appropriate for conceptualizing their spatial relationships (ESRI, 2013).

The output of this analysis identified statistically significant areas where hotspots of bar disorder cluster spatially. Hotspot maps were generated for a series of different time periods. First, hotspot analyses were conducted for all bar disorder calls for service in 2010, 2011, and then both years of data combined. Next, hot spot analyses of bar disorder calls for service during daytime, afternoon, evening, late night, and early morning hours were conducted for 2010, 2011 and both years of data combined. Hotspot maps were made for the following 5 categories: 1) 8 a.m. to 2 p.m.; 2) 2 p.m. to 6 p.m.; 3) 6 p.m. to 9 p.m.; 4) 9 p.m. to 3 a.m.; and 5) 3 a.m. to 8 a.m. Next, hot spot analyses of bar

disorder calls for service will be conducted for 2010, 2011, and combined data for each of the days of the week.

To assess for monthly changes in concentrations of bar disorder calls for service, hot spot analyses were conducted for each month during 2010, 2011, and over the combined study timeframe. Next, hot spot analysis were conducted for 2010, 2011 and combined data for the following meteorological seasons: 1) spring, from March 1st through May 31st; 2) summer, from June 1st through August 31st; 3) autumn, from September 1st through November 30th; and 4) winter, from December 1st through February 28th. These series of hotspot maps allows for comparisons between where bar disorder concentrates at different times of the day, week, month, season and year.

Sources for Data

For the purposes of this study I have identified two primary sources of data. Firstly, library sources, such as academic studies and texts, can provide background information on all aspects of the topic under consideration. Literature from the criminal justice and criminology fields provides support for the use of spatial analysis and the theoretical framework of this study, grounding it in environmental criminology, situational crime prevention, and drawing from works in rational choice theory. Much of the previous literature on barroom disorder and aggression is from the addiction studies and public health fields. As such, works in these and the medical field are also potential sources for information.

Secondly, I requested two years of spatial data from the Newark Police Department including information on the number of bars in their jurisdiction and the number of reported disorder calls for service at these locations. I also requested GIS data from the Department on a number of features including shapefiles of identified bars in Newark, city and police district boundaries, roads, and neighborhoods. Crime and GIS data are compiled and maintained by the Newark Police Department's Comstat Unit. This Unit provides support for weekly and monthly command meetings to analyze and discuss statistical crime information to determine crime levels and crime trends. The Unit utilizes statistical crime data to plot criminal activity, redirect crime control efforts and institute additional or innovative crime control measures. Within this Unit, the Crime Analyst Unit compiles crime statistics and analyzes crime trends to identify the extent, type and location of criminal activity and the GIS Services Unit is responsible for developing and maintaining mapping resources for the Newark Police Department (Newark Police Department, 2011).

Data Collection

Data collection was a multistep process. First, data from prior research and publications was utilized to establish a basis of knowledge in the study of disorder at drinking establishments, the role of the environment in crime, and spatiotemporal analysis of crime. The previous literature reviewed served as a starting point for this study and identified gaps in the body of knowledge on bar disorder. Issues not addressed in this selection of seminal pieces were incorporated into the final series of research questions. Secondly, police data on disorder calls for service at bars and GIS shapefile

data on bar locations, roads, city boundaries, police precincts and neighborhoods were requested from the Newark Police Department's GIS database.

Chapter Summary

Chapter four discussed the proposed methods for this dissertation. This section outlined the research site, population for study and units of analysis, definitions of key terms, units of observation, and timeframe for this research. The three part research design for this project was also delineated. First, the process for identifying a J-curve of bar disorder was described. Second, the process for deriving descriptive statistics for a series of different temporal timeframes was examined. Third, this section explained the use of ArcGIS mapping and spatial analysis software and the Getis-Ord G_i^* statistic to identify statistically significant clusters of bar disorder. Lastly, this chapter discussed the sources for data and data collection process for this research.

CHAPTER FOUR: RESULTS

Initial Analysis

Bar pairs

There are 189 drinking establishments in Newark, NJ. However, in nine cases there were two bars less than 100 feet from one another. As a result, these nine pairs of bars shared disorder calls for service within their respective 50 foot radius areas of influence. Therefore, these eighteen individual bars were collapsed into nine two-bar units and disorder calls for service were aggregated to these pairs. Consequently there are a combined 180 bars and bar pairs serving as units of analysis for this study.

Treating these paired bars as single units is conceptually sound. While these bars may have different characteristics, clienteles, and may fall into different bar typologies, these drinking establishments ultimately are linked geographically (Lipton, 2011; Graham et al., 2004; Felson et al., 1997; Homel et al., 1997ab; Homel & Clark, 1994). While one bar may in fact have a disproportionate number of disorder calls for service, both locations ultimately experience the associated bar disorder through a shared space. As a result, any efforts at reducing disorder at one of these locations should include both bars.

Disorder Calls for Service v. Disorder Incidents

The data set used for this dissertation included information on both individual disorder calls for service made to the Newark Police Department and identified unique disorder incidents. The initial analysis of the dataset was completed to determine which

measure was the most appropriate for this research. There were 1134 bar disorder calls for service in 2010 and 950 bar disorder calls for service in 2011. There were a total of 2084 bar disorder calls for service made between the study period between January 1st 2010 and December 31st 2011.

In 2010 there were a total of 1006 unique bar disorder incidents reported to the police. There were 114 cases of multiple bar disorder calls for service being made for an individual bar disorder incident. In 2011 there was a total of 873 unique bar disorder incidents reported to the police. There were 70 cases of multiple bar disorder calls for service being made to the police in response to an individual bar disorder incident. For both years, incidents that resulted in more than one call averaged two calls in total.

After reviewing the data, it was determined that the difference in numbers between calls for service, unique disorder incidents and cases of repeat calls were negligible. Disorder calls were service were selected as the units of observation for this dissertation as this measure is more inclusive (Braga & Bond, 2008; Sherman, Gartin & Buerger, 1989). A J-curve analysis and descriptive temporal statistics for unique disorder incidents are included in this dissertation as an appendix.

Results of the J-Curve Analysis

A list of all bar locations in Newark, NJ was compiled using Newark Police Department data. A count of all disorder calls for service at and within a 50 foot radius of these bar locations was completed and these bar facilities were ranked from those with the most disorder calls for service to those with the fewest. A bar chart of the frequency

of disorder calls for service at bars was drawn, beginning with the bar location with the highest frequency of disorder calls for service and decreasing in order to those with few or none. In 2010, 153 bars and bar pairs experienced at least one disorder calls for service while 26 drinking establishments (14 percent of all bars) experienced none.

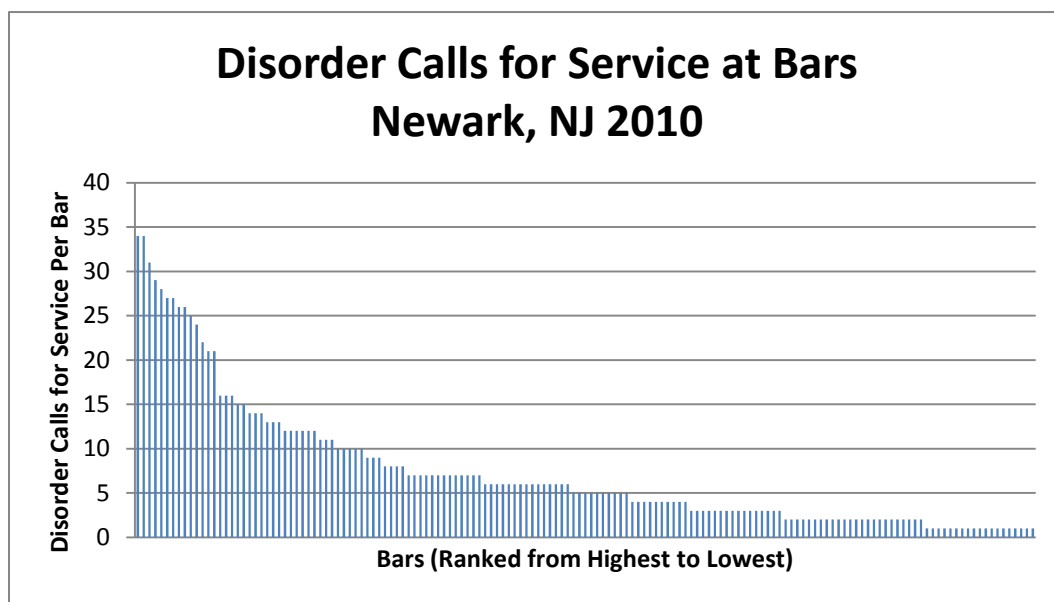


Figure 4: Disorder Calls for Service at Bars Newark, NJ 2010

As was expected, Figure 4 demonstrates that a few facilities at the left end of this distribution had many disorder calls for service, but as one moves to the right there was a steep drop-off in disorder calls for service that flattens out at a very few or no crimes for the majority of the facilities. The resulting graph resembles a reclining “J” described in academic literature (Eck, Clarke, & Guerette, 2007).

This process was completed for 2011 disorder incident data. In 2011, 145 bars and bar pairs experienced at least one disorder calls for service while 34 drinking establishments (19 percent of all bars) experienced none. As seen in Figure 5 a similar

distribution was observed, where a few facilities at the left end of this distribution had many disorder calls for service but the majority of facilities had few or none.

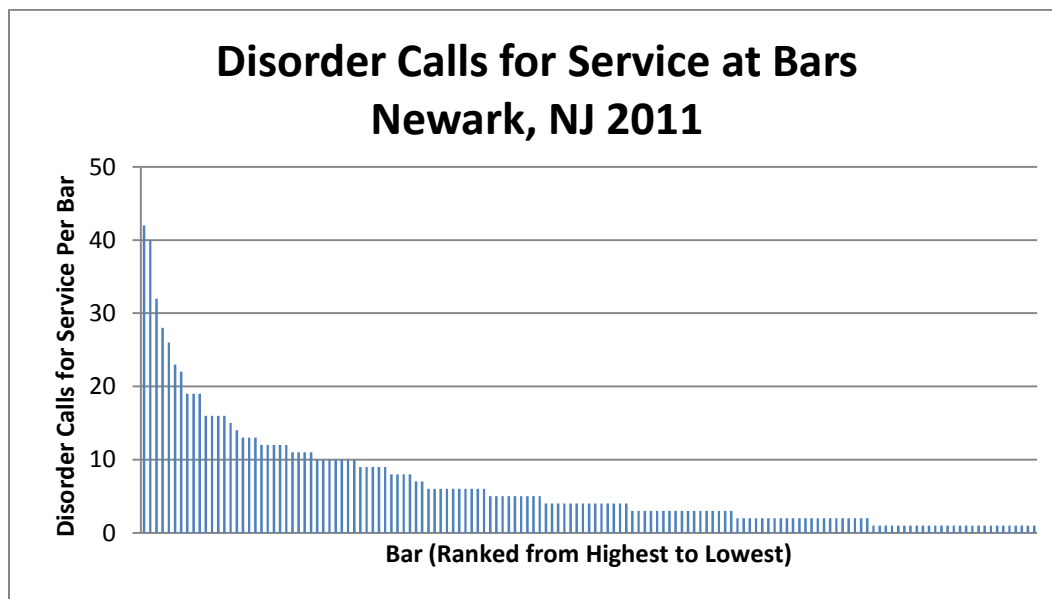


Figure 5: Disorder Calls for Service at Bars Newark, NJ 2011

For each year a percentage of disorder calls for service at each bar location were calculated to determine their contribution to overall bar disorder. The proportion of the facilities individual bars represent was also calculated and cumulated. These cumulative percentages of bar locations were compared to the cumulative percentage of events to identify the riskiest facilities. The rankings and cumulative percentages of disorder calls for service and bars for all Newark drinking establishments for both 2010 and 2011 can be found in Appendix B.

| Rank | 2010 | Cumulative % Bar Disorder | 2011 | Cumulative % Bar Disorder |
|------|--------------------------------------|---------------------------|---|---------------------------|
| 1 | Brisas Del Mar Rest. | 3.00% | Sagres Bar and Rest | 4.42% |
| 2 | La Roca Night Club | 6.00% | Brisas Del Mar Rest. | 8.63% |
| 3 | Misavi Restaurant & Lounge | 8.73% | La Roca Night Club | 12.00% |
| 4 | Sagres Bar and Rest | 11.29% | Nuestra Casa Restaurante | 14.95% |
| 5 | NJ Tu Casa Rest. | 13.76% | April's Lounge/Fleming Ave Bar & Barbeque | 17.68% |
| 6 | Casa Nova Grill/Sol-Mar Bar and Rest | 16.14% | Zepe's Cafe And Bar | 20.11% |
| 7 | Price's Lounge | 18.52% | Casa Nova Grill/Sol-Mar Bar and Rest | 22.42% |
| 8 | The Atmosphere Bar & Lounge | 20.81% | Price's Lounge | 24.42% |
| 9 | (Holiday Inn) Teddy's | 23.10% | (Holiday Inn) Teddy's | 26.42% |
| 10 | Nuestra Casa Restaurante | 25.31% | Keen's Corner | 28.42% |

Table 1: Top Ten Most Disorderly Bars in Newark, NJ in 2010 and 2011

In 2010 and 2011, the ten bars with the highest numbers of disorder calls for service were responsible for 25 percent and 28 percent of total bar disorder respectively. As seen in Table 1, seven of the identified most disorderly bars remained in the top ten from 2010 to 2011. The top ten disorderly bars account for 5.5 percent of all drinking establishments in Newark. These highlighted bars account for 70 percent of the top ten most disorderly bars in Newark, NJ over the two year study period.

Results of the Temporal Analysis of Disorder at Bars

Time of Day

Descriptive statistics were compiled on the frequency of bar disorder calls for service during daytime, afternoon, evening, late night, and early morning hours. The hours of the day were examined and divided into the following five categories: 1) 8 a.m. to 2 p.m.; 2) 2 p.m. to 6 p.m.; 3) 6 p.m. to 9 p.m.; 4) 9 p.m. to 3 a.m.; and 5) 3 a.m. to 8 a.m.

In 2010, the time of day with the most disorder calls for service was the 9pm-3am hourly block with 550 disorder calls for service, or 48.5 percent of all disorder calls for service of that year. The 6 pm-9pm hourly block was the next most populous with 163 disorder calls for service accounting for 14.4 percent of bar disorder. The 2pm-6pm and 8am-2pm hourly blocks contributed 13.3 percent (151 disorder calls for service) and 12.8 percent (145 disorder calls for service) respectively. The hourly block with the least disorder calls for service was 3 am-8am with only 125 disorder calls for service (11 percent).

| Disorder Calls for Service 2010 by Hourly Block | | |
|--|--------------|------------|
| Rank | Hourly Block | Percentage |
| 1 | 9pm-3am | 48.5% |
| 2 | 6pm-9pm | 14.4% |
| 3 | 2pm-6pm | 13.3% |
| 4 | 8am-2pm | 12.8% |
| 5 | 3am-8am | 11.0% |

Table 2: Disorder Calls for Service 2010 by Hourly Block

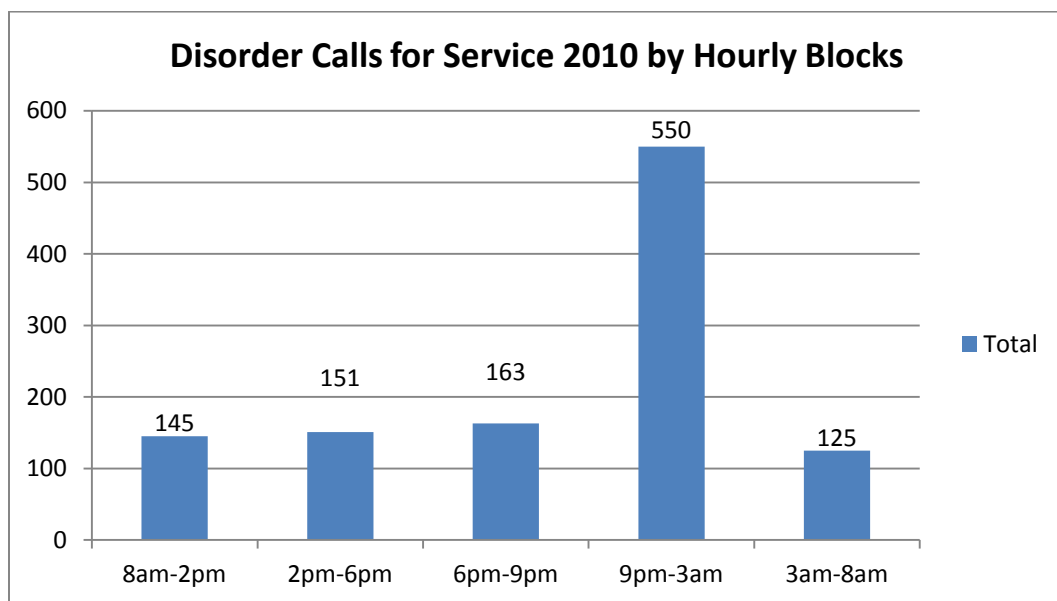


Figure 6: Disorder Calls for Service 2010 by Hourly Blocks

Descriptive statistics were also compiled for 2011 disorder calls for service data. The most disorder calls for service were observed during the 9pm-3am hourly block with 457 disorder calls for service, or 48.1 percent of all disorder calls for service of that year. The 2pm-6pm hourly block was the next most populous with 144 disorder calls for service accounting for 15.2 percent of bar disorder. The 8am-2pm and 6pm-9pm hourly blocks contributed 14.8 percent (141 disorder calls for service) and 14.5 percent (138 disorder calls for service) respectively. The hourly block with the least disorder calls for service was 3 am-8am with only 70 disorder calls for service (7.4 percent).

| Disorder Calls for Service 2011 by Hourly Block | | |
|--|--------------|------------|
| Rank | Hourly Block | Percentage |
| 1 | 9pm-3am | 48.1% |
| 2 | 2pm-6pm | 15.2% |
| 3 | 8am-2pm | 14.8% |
| 4 | 6pm-9pm | 14.5% |
| 5 | 3am-8am | 7.4% |

Table 3: Disorder Calls for Service 2011 by Hourly Block

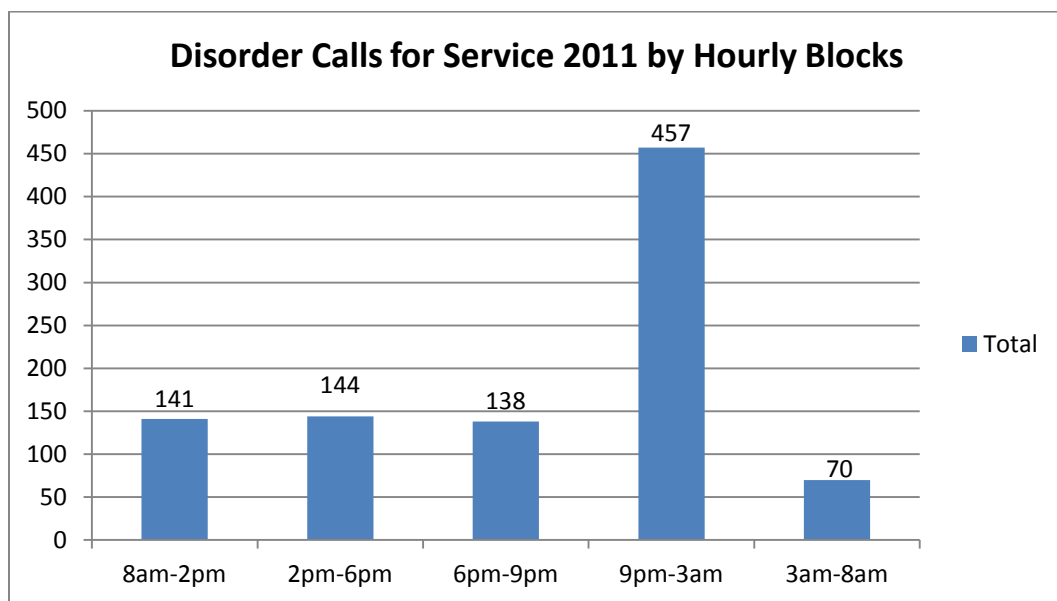


Figure 7: Disorder Calls for Service 2011 by Hourly Block

Combined data from 2010 and 2011 disorder calls for service data indicate similar patterns. The most disorder calls for service were observed during the 9pm-3am hourly block with 1007 disorder calls for service, or 48.3 percent of all disorder calls for service of that year. The 6pm-9pm hourly block was the next most populous with 301 disorder calls for service accounting for 14.4 percent of bar disorder. The 2pm-6pm and 8am-2pm hourly blocks contributed 14.2 percent (295 disorder calls for service) and 13.7 percent (286 disorder calls for service) respectively. The hourly block with the least disorder calls for service was 3am-8am with only 195 disorder calls for service (9.4 percent).

| Disorder Calls for Service 2010-2011 by Hourly Block | | |
|---|--------------|------------|
| Rank | Hourly Block | Percentage |
| 1 | 9pm-3am | 48.3% |
| 2 | 6pm-9pm | 14.4% |
| 3 | 2pm-6pm | 14.2% |
| 4 | 8am-2pm | 13.7% |
| 5 | 3am-8am | 9.4% |

Table 4: Disorder Calls for Service 2010-2011 by Hourly Block

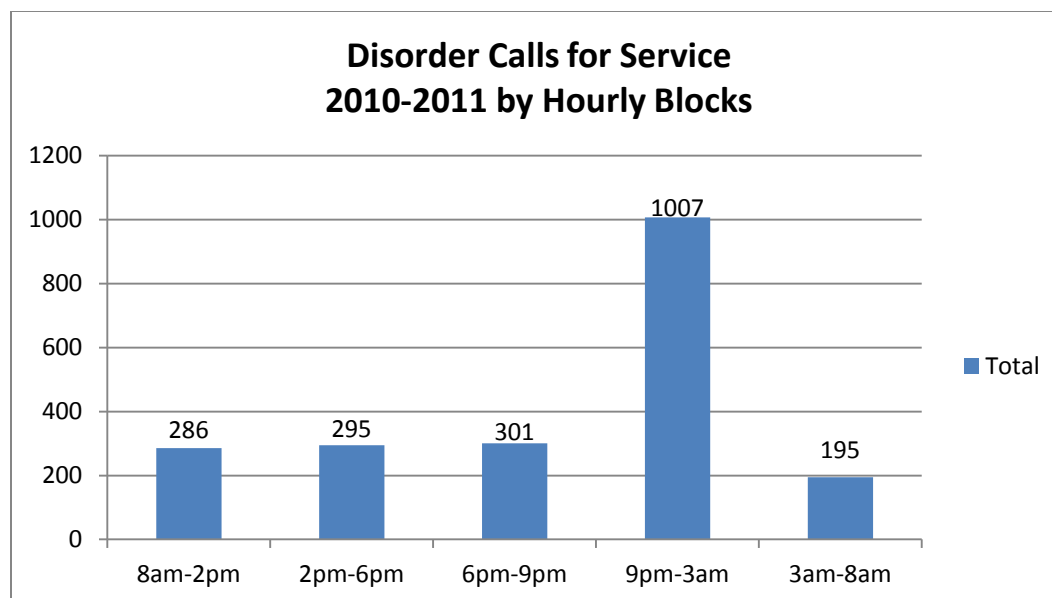


Figure 8: Disorder Calls for Service 2010-2011 by Hourly Block

Day of Week

Descriptive statistics were compiled on what days of the week were most likely to have high numbers of bar disorder calls for service. The week was divided into the seven days of the week. Each day was listed alongside their observed number of disorder calls for service. Then, the percentage each day of the week contributed to the total number of disorder calls for service was calculated. The days of the week were also ranked according to the number of disorder calls for service, from highest to lowest.

In 2010, Sundays, Saturdays and Fridays experienced the most disorder calls for service. Sundays accounted for 273 disorder calls for service, Saturdays experienced 248 disorder calls for service, and 167 disorder calls for service occurred on Fridays. Combined, these three days are responsible for approximately 60 percent of all disorder calls for service. The day of the week with the fewest disorder calls for service was Monday, with only 84 disorder calls for service in 2010.

| Disorder Calls for Service 2010 by Day of Week | | |
|---|-------------|------------|
| Rank | Day of Week | Percentage |
| 1 | Sunday | 24.1% |
| 2 | Saturday | 21.9% |
| 3 | Friday | 14.7% |
| 4 | Thursday | 12.6% |
| 5 | Tuesday | 9.7% |
| 6 | Wednesday | 9.6% |
| 7 | Monday | 7.4% |

Table 5: Disorder Calls for Service 2010 by Day of Week

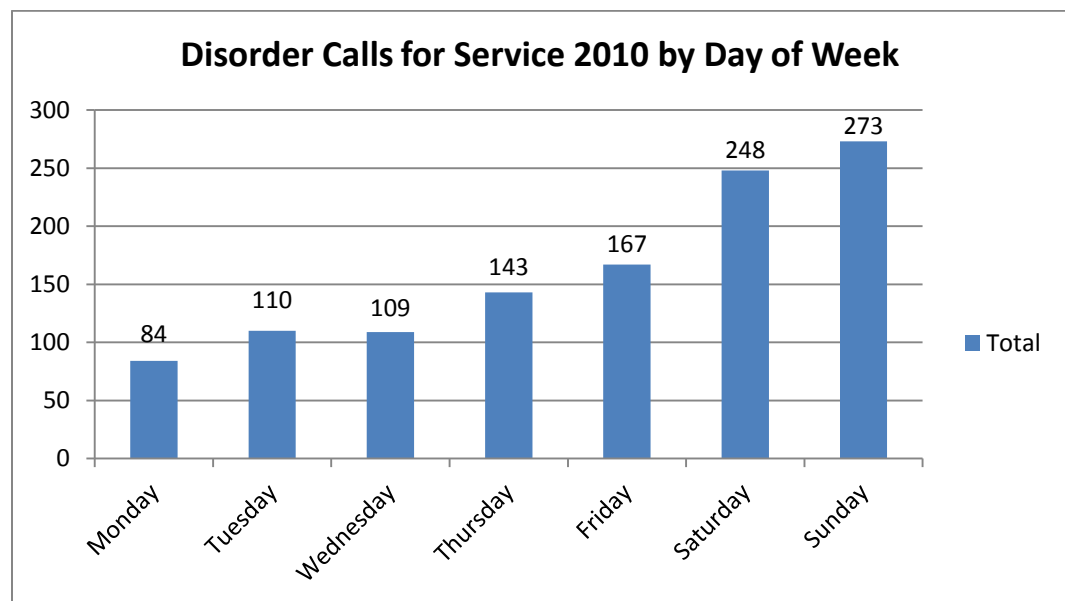


Figure 9: Disorder Calls for Service 2010 by Day of Week

In 2011, Saturdays, Sundays and Fridays experienced the most disorder calls for service. Saturdays accounted for 204 disorder calls for service, Sundays experienced 200 disorder calls for service, and 139 disorder calls for service occurred on Fridays. Combined, these three days are responsible for approximately 57 percent of all disorder calls for service. The day of the week with the fewest disorder calls for service was Wednesday, with only 91 disorder calls for service in 2011.

| Disorder Calls for Service 2011 by Day of Week | | |
|---|-------------|------------|
| Rank | Day of Week | Percentage |
| 1 | Saturday | 21.5% |
| 2 | Sunday | 21.1% |
| 3 | Friday | 14.6% |
| 4 | Monday | 12.1% |
| 5 | Tuesday | 10.9% |
| 6 | Thursday | 10.2% |
| 7 | Wednesday | 9.6% |

Table 6: Disorder Calls for Service 2011 by Day of Week

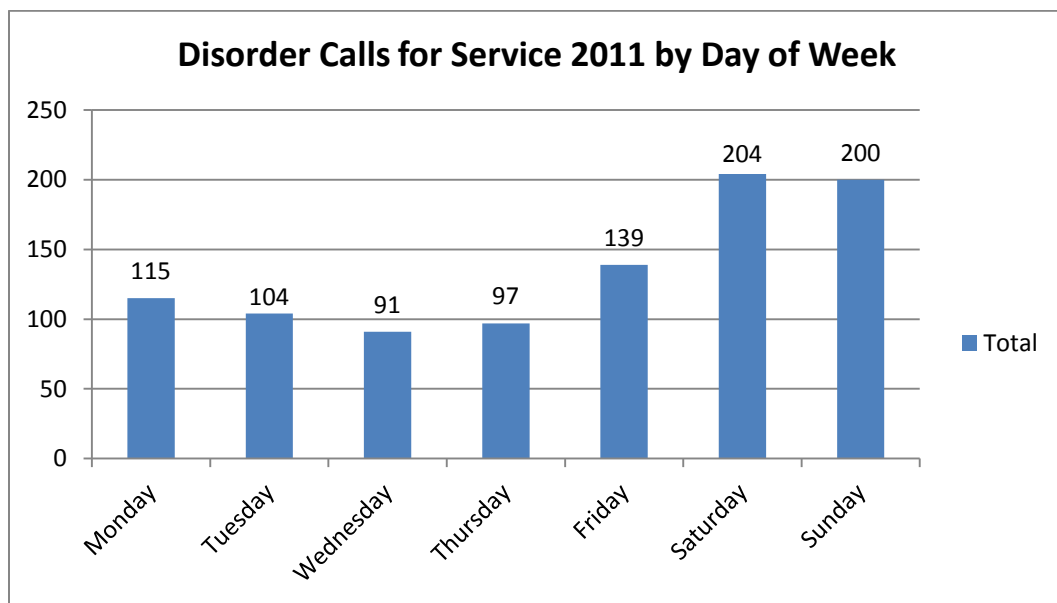


Figure 10: Disorder Calls for Service 2011 by Day of Week

A similar pattern emerged when descriptive statistics were calculated for the combined years of 2010 and 2011. Sundays, Saturdays and Fridays experienced the most disorder calls for service. Sundays accounted for 473 disorder calls for service, Saturdays experienced 252 disorder calls for service, and 306 disorder calls for service occurred on Fridays. Combined, these three days are responsible for approximately 59 percent of all disorder calls for service. The days of the week with the fewest disorder calls for service

were Monday and Wednesdays, with only 199 and 200 disorder calls for service respectively during the two year study period.

| Disorder Calls for Service 2010 -2011 by Day of Week | | |
|---|-------------|------------|
| Rank | Day of Week | Percentage |
| 1 | Sunday | 22.7% |
| 2 | Saturday | 21.7% |
| 3 | Friday | 14.7% |
| 4 | Thursday | 11.5% |
| 5 | Tuesday | 10.3% |
| 6 | Wednesday | 9.6% |
| 7 | Monday | 9.5% |

Table 7: Disorder Calls for Service 2010-2011 by Day of Week

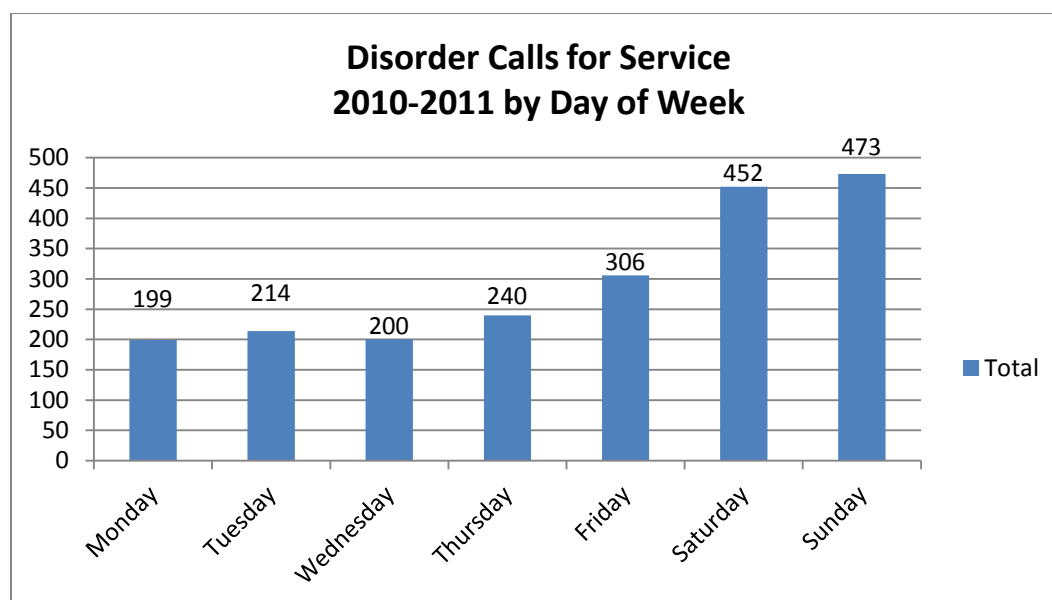


Figure 11: Disorder Calls for Service 2010-2011 by Day of Week

Month

Monthly descriptive statistics on bar disorder calls for service were recorded. For each month a count of all disorder calls for service in and around bars was tallied. Each month was listed alongside their observed number of disorder calls for service. Then, the percentage each month contributed to the total number of disorder calls for service was calculated. The months were ranked according to the number of disorder calls for service, from highest to lowest.

In 2010, the month with the highest number of disorder calls for service was August. August had a total of 115 disorder calls for service, 10.1 percent of total bar disorder for that year. The months of October and May had the second and third highest numbers of bar disorder calls for service, with 106 (9.3 percent of bar disorder) and 104 (9.2 percent of bar disorder) respectively. The month with the fewest disorder calls for service was February with only 71 disorder calls for service (6.3 percent of total bar

disorder) during 2010. The months of March and December had the second and third lowest numbers of bar disorder calls for service, with 78 (6.9 percent of bar disorder) and 85 (7.5 percent of bar disorder) respectively.

| Disorder Calls for Service 2010 by Month | | |
|---|-----------|------------|
| Rank | Month | Percentage |
| 1 | August | 10.1% |
| 2 | October | 9.3% |
| 3 | May | 9.2% |
| 4 | January | 8.8% |
| 5 | September | 8.7% |
| 6 | June | 8.6% |
| 7 | July | 8.4% |
| 8 | November | 8.3% |
| 9 | April | 7.9% |
| 10 | December | 7.5% |
| 11 | March | 6.9% |
| 12 | February | 6.3% |

Table 8: Disorder Calls for Service 2010 by Month

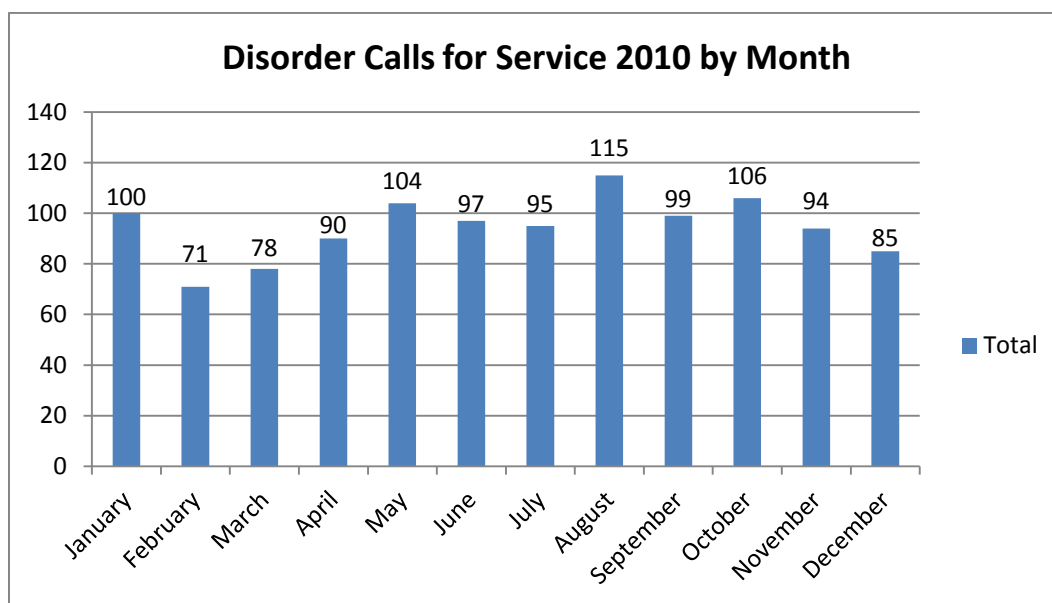


Figure 12: Disorder Calls for Service 2010 by Month

In 2011, the month of July had the highest number of disorder calls for service. During July there were a total of 102 disorder calls for service, 10.7 percent of all disorder calls for service that year. The months of October and September had the second and third highest numbers of bar disorder calls for service, with 100 (10.5 percent of bar disorder) and 99 (10.4 percent of bar disorder) respectively. The month of March had the fewest number of disorder calls for service with 53 (5.6 percent of total bar disorder) in 2011. The months of December and January had the second and third lowest numbers of bar disorder calls for service, with 55 (5.8 percent of bar disorder) and 62 (6.5 percent of bar disorder) respectively.

| Disorder Calls for Service 2011 by Month | | |
|---|-----------|------------|
| Rank | Month | Percentage |
| 1 | July | 10.7% |
| 2 | October | 10.5% |
| 3 | September | 10.4% |
| 4 | August | 9.7% |
| 5 | May | 9.3% |
| 6 | April | 8.3% |
| 7 | November | 8.0% |
| 8 | June | 7.9% |
| 9 | February | 7.3% |
| 10 | January | 6.5% |
| 11 | December | 5.8% |
| 12 | March | 5.6% |

Table 9: Disorder Calls for Service 2011 by Month

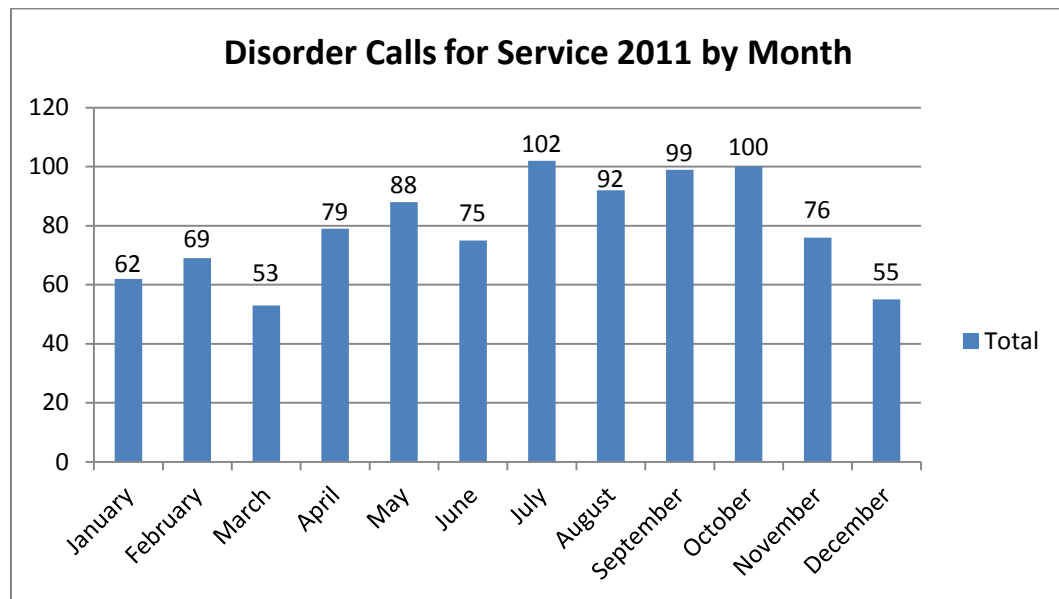


Figure 13: Disorder Calls for Service 2011 by Month

Descriptive statistics were also calculated for the combined data of both 2010 and 2011. The month of August and October tied for the highest frequency of disorder calls for service. While there were 207 disorder calls for service in August and 206 in October, each month contributes approximately 10 percent of bar disorder over the two year study period. The second most disorderly months were September (198 disorder calls for

service) and July (197 disorder calls for service). These months each contributed approximately 9.5 percent of overall bar disorder. The month of March had the fewest number of disorder calls for service with 131 (6.3 percent of total bar disorder). The months of December and January tied for the second lowest numbers of bar disorder calls for service, with 140 disorder calls for service (6.7 percent of bar disorder) each.

| Disorder Calls for Service 2010-2011 by Month | | |
|--|-----------|------------|
| Rank | Month | Percentage |
| 1 | August | 9.9% |
| 2 | October | 9.9% |
| 3 | September | 9.5% |
| 4 | July | 9.5% |
| 5 | May | 9.2% |
| 6 | June | 8.3% |
| 7 | November | 8.2% |
| 8 | April | 8.1% |
| 9 | January | 7.8% |
| 10 | February | 6.7% |
| 10 | December | 6.7% |
| 12 | March | 6.3% |

Table 10: Disorder Calls for Service 2010-2011 by Month

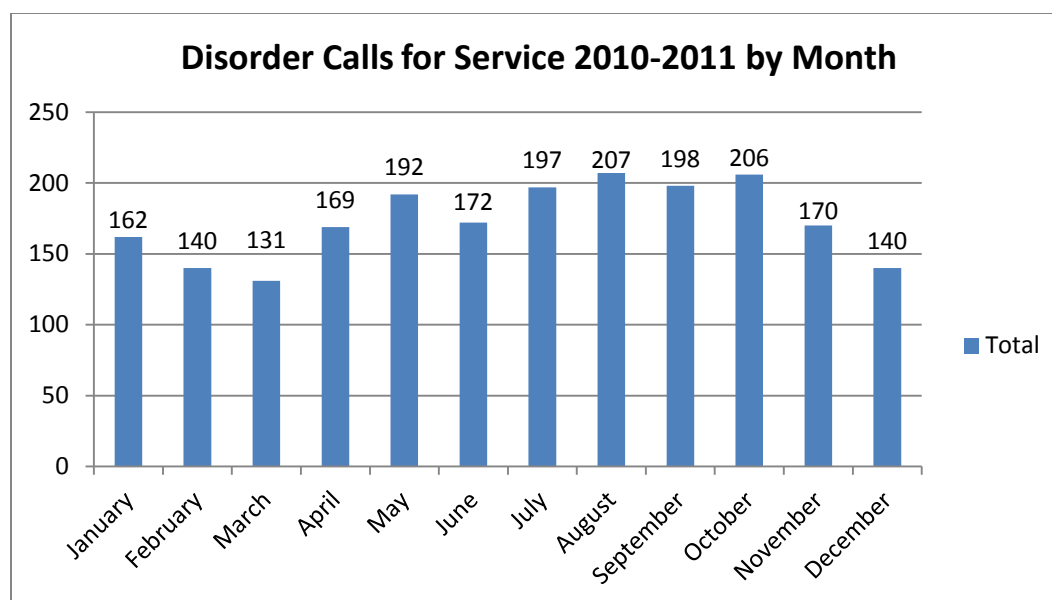


Figure 14: Disorder Calls for Service 2010-2011 by Month

Season

Seasonal data on disorder calls for service was also recorded. Each year was divided into the meteorological seasons of the northern hemisphere. The four meteorological seasons were categorized as follows: 1) spring, from March 1st through May 31st; 2) summer, from June 1st through August 31st; 3) autumn, from September 1st through November 30th; and 4) winter, from December 1st through February 28th.

An analysis of 2010 seasonal data indicated that summer had the most disorder calls for service and accounted for 27.1 percent (307 disorder calls for service) of all bar disorder. Autumn followed closely behind with 26.4 percent of bar disorder (299 disorder calls for service). Spring and winter have fewer disorder calls for service, with 272 (24 percent) and 256 (22.6 percent) disorder calls for service respectively.

| Disorder Calls for Service 2010 by Season | | |
|--|--------|------------|
| Rank | Season | Percentage |
| 1 | Summer | 27.1% |
| 2 | Autumn | 26.4% |
| 3 | Spring | 24.0% |
| 4 | Winter | 22.6% |

Table 11: Disorder Calls for Service 2010 by Season

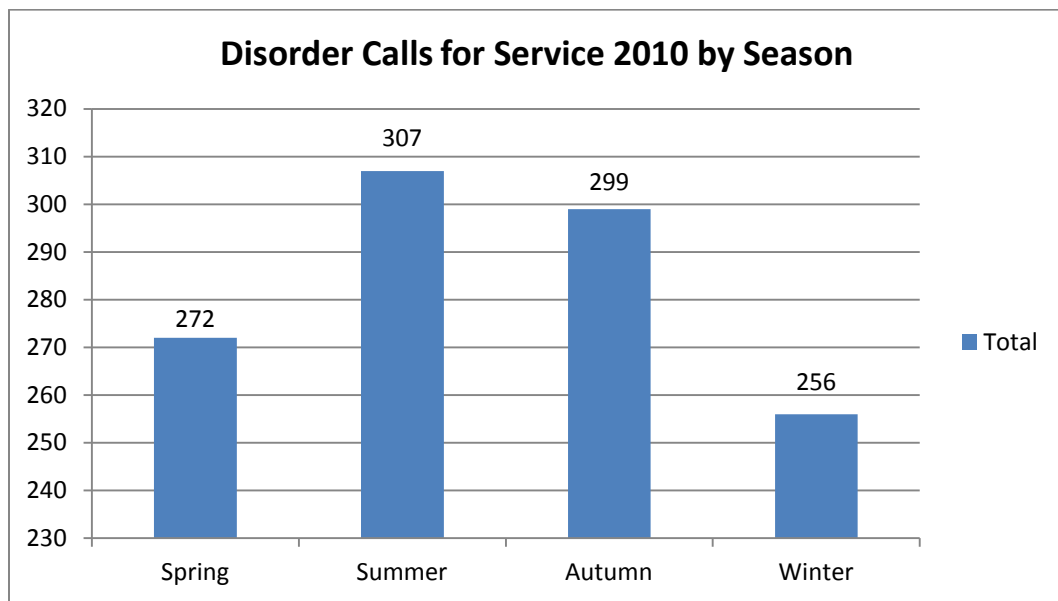


Figure 15: Disorder Calls for Service 2010 by Season

In 2011, autumn had the most disorder calls for service and accounted for 28.9 percent (275 disorder calls for service) of all bar disorder. Summer followed closely behind with 28.3 percent of bar disorder (269 disorder calls for service). Spring and winter have fewer disorder calls for service, with 220 (23.2 percent) and 186 (19.6 percent) disorder calls for service respectively.

| Disorder Calls for Service 2011 by Season | | |
|--|--------|------------|
| Rank | Season | Percentage |
| 1 | Autumn | 28.9% |
| 2 | Summer | 28.3% |
| 3 | Spring | 23.2% |
| 4 | Winter | 19.6% |

Table 12: Disorder Calls for Service 2011 by Season

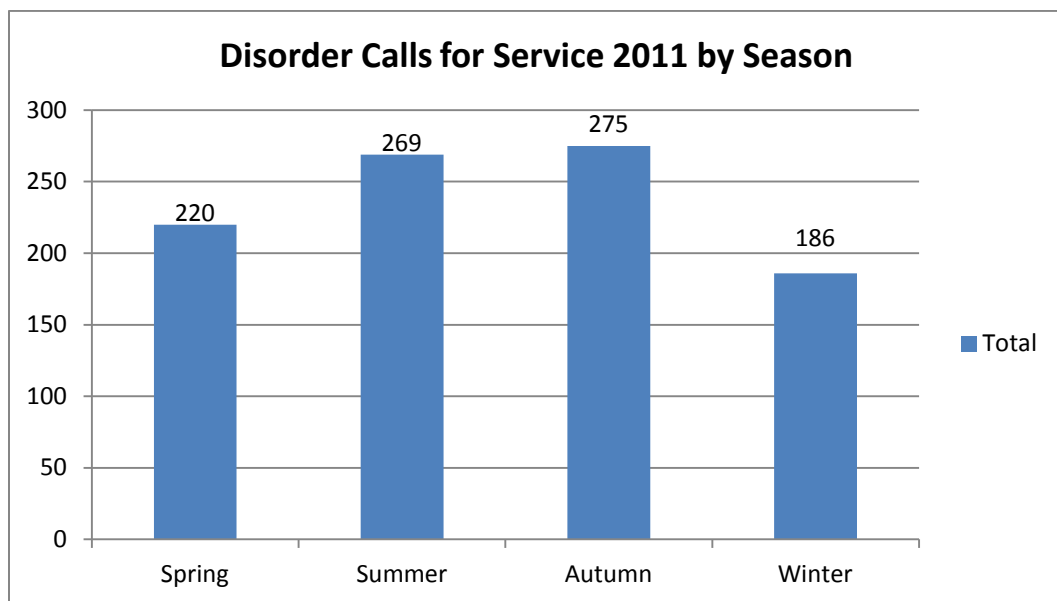


Figure 16: Disorder Calls for Service 2011 by Season

Combined data from 2010 and 2011 disorder calls for service data indicate similar patterns. Summer again had the most disorder calls for service and accounted for 27.6 percent (576 disorder calls for service) of all bar disorder. Autumn followed closely behind with 27.5 percent of bar disorder (574 disorder calls for service). Spring and winter have fewer disorder calls for service, with 492 (23.6 percent) and 442 (21.2 percent) disorder calls for service respectively.

| Disorder Calls for Service 2010-2011 by Season | | |
|---|--------|------------|
| Rank | Season | Percentage |
| 1 | Summer | 27.6% |
| 2 | Autumn | 27.5% |
| 3 | Spring | 23.6% |
| 4 | Winter | 21.2% |

Table 13: Disorder Calls for Service 2010-2011 by Season

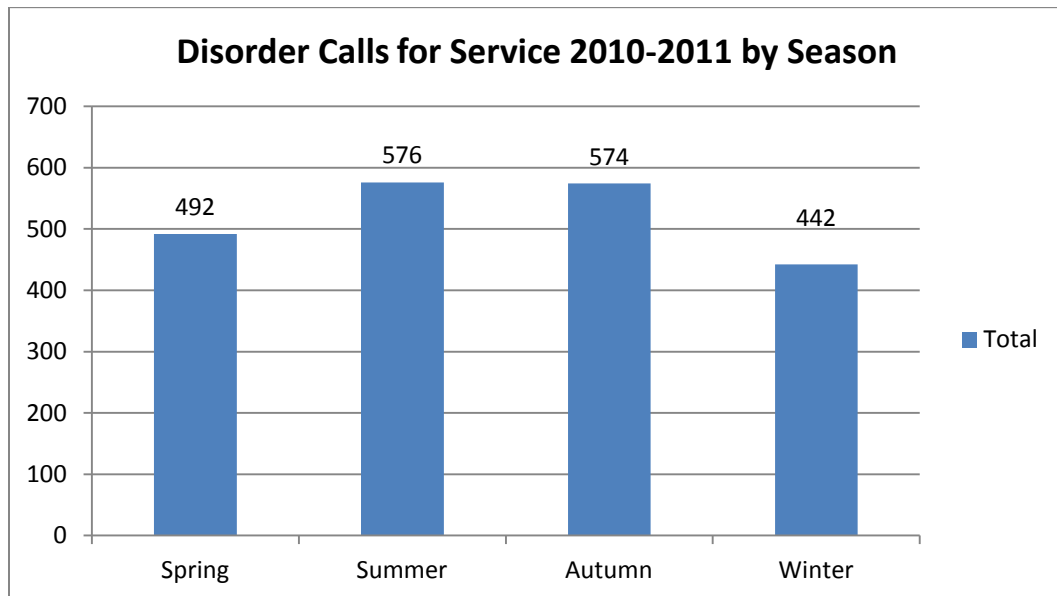


Figure 17: Disorder Calls for Service 2010-2011 by Season

Results of the Spatiotemporal Analysis

ArcGIS software was used to create maps of Newark, NJ and its associated bar disorder. The J-curve analysis identified the ten most disorderly bars in 2010 and 2011. These bars are located in a variety of locations, from popular nightlife centers to predominately residential communities.

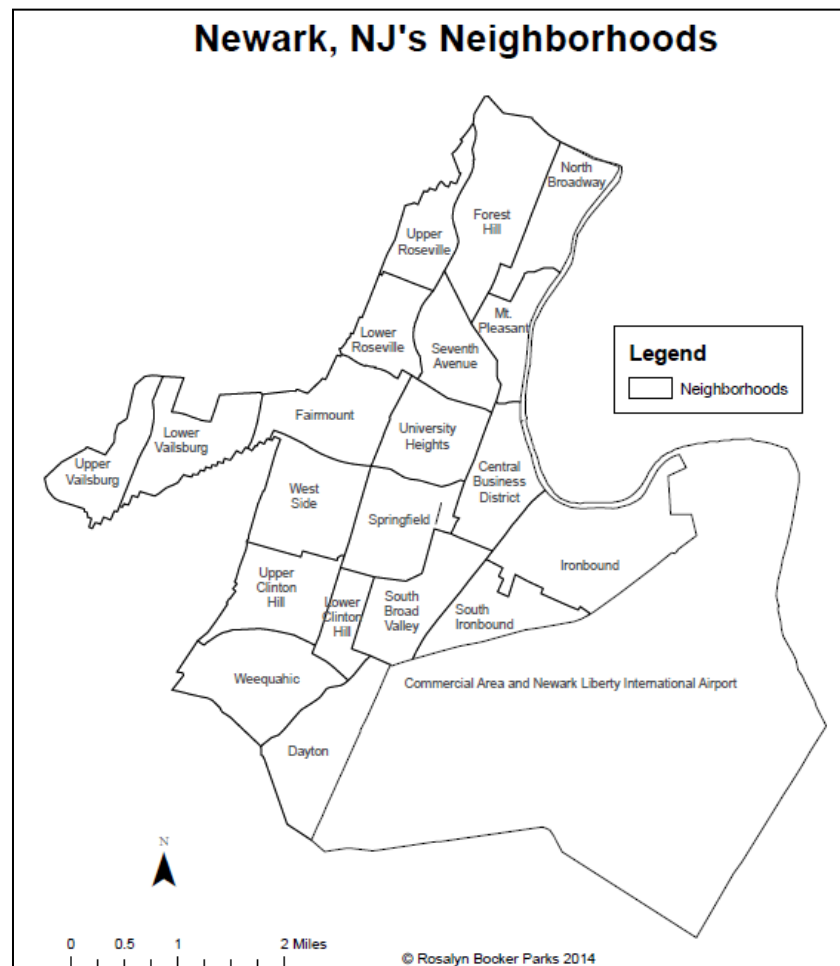


Figure 18: Newark, NJ's Neighborhoods

In 2010, five of these drinking establishments were located in the Ironbound neighborhood located in the East Ward of Newark, NJ. The Ironbound is a close-knit and predominantly Portuguese community known for its businesses, restaurants and cocktail

lounges (Ironbound Business Improvement District, 2014). Four of these most disorderly drinking establishments are located in residential neighborhoods in Newark's North and South Wards. Finally, one drinking establishment is not located in a Newark neighborhood. Teddy's Bar is located at a Holiday Inn near Newark Liberty International Airport and within the jurisdiction of the Newark Police Department. There are several hotels in this area servicing travelers, but this large area is predominantly used for commercial purposes and little to no residential population. In addition to the airport, this area is also home to Port Newark and various industrial businesses.

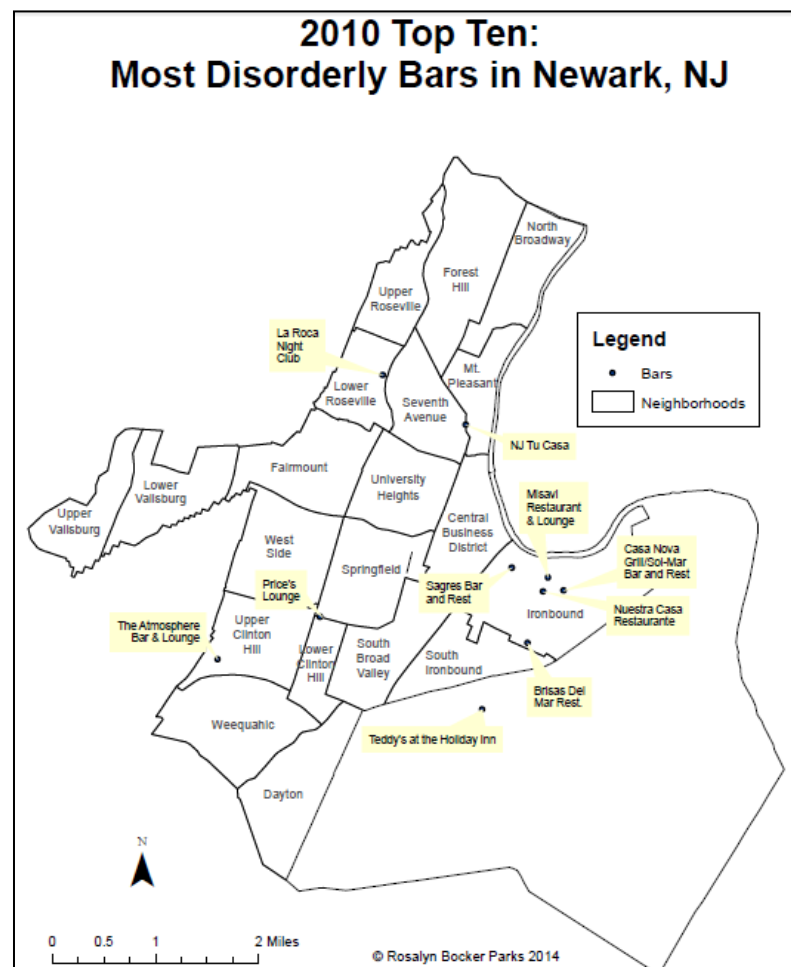


Figure 19: 2010 Top Ten: Most Disorderly Bars in Newark, NJ

In 2011 the J-curve analysis identified the ten most disorderly bars in Newark. Seven of these facilities were also among the most disorderly bars of 2010. Six of these drinking establishments were located in the Ironbound neighborhood. Two bar locations were within the residential Fairmount and Lower Roseville neighborhoods, and one bar was located on the borders of Lower Clinton Hill and Springfield. The drinking establishments in Newark's commercial area were again among the most disorderly.

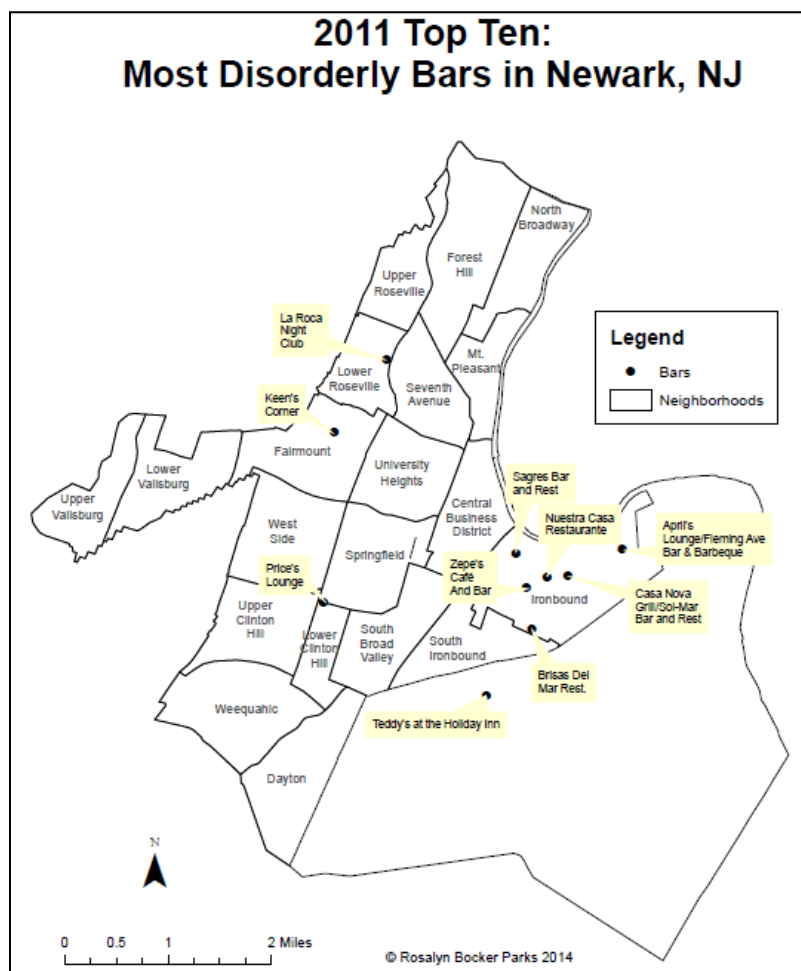


Figure 20: 2011 Top Ten: Most Disorderly Bars in Newark, NJ

Overall Patterns of Bar Disorder

The ArcGIS software “Hot Spot Analysis” tool using the Getis-Ord G_i^* was used to identify statistically significant areas where hotspots of bar disorder clustered spatially. These series of hotspot maps allow for comparisons between where bar disorder concentrates at different times of the day, week, month, season and year. Hotspot maps were generated for this series of different time periods beginning with all disorder calls for service recorded by the Newark Police Department in 2010.

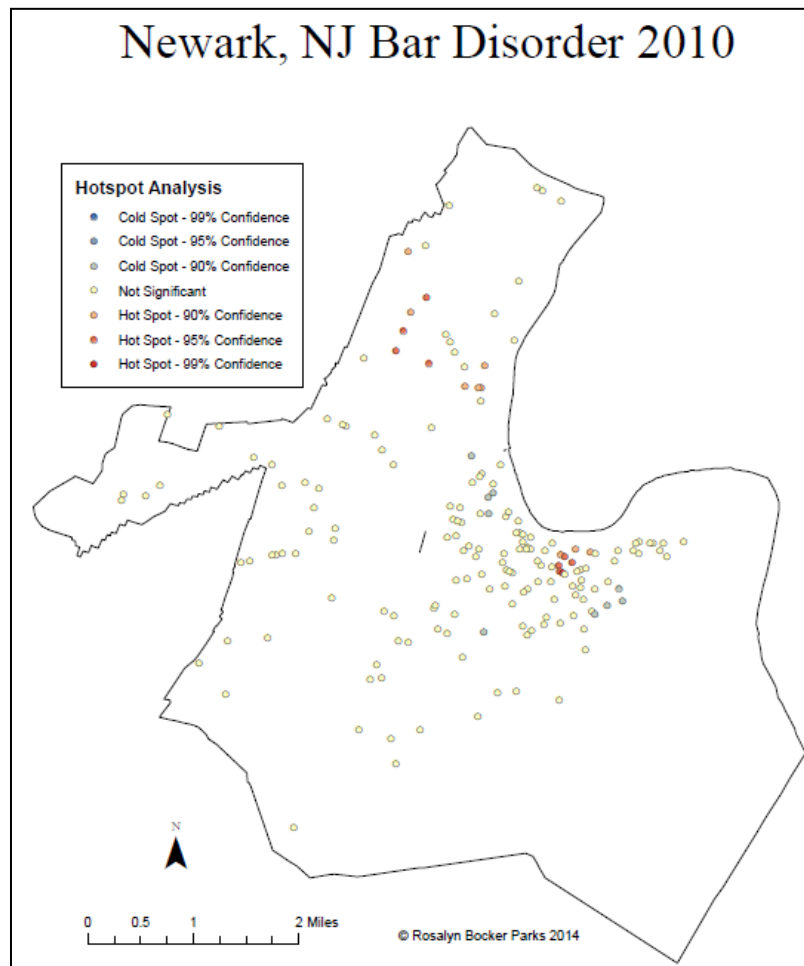


Figure 21: Newark, NJ Bar Disorder 2010

Here statistically significant clusters of bar disorder were observed in the Ironbound ($p < .05$ and $p < .01$) and Seventh Avenue ($p < .05$) neighborhoods. A hotspot analysis was also conducted for all bar disorder calls for service in 2011. A statistically significant cluster of bar disorder was found in the Ironbound neighborhood ($p < .05$).

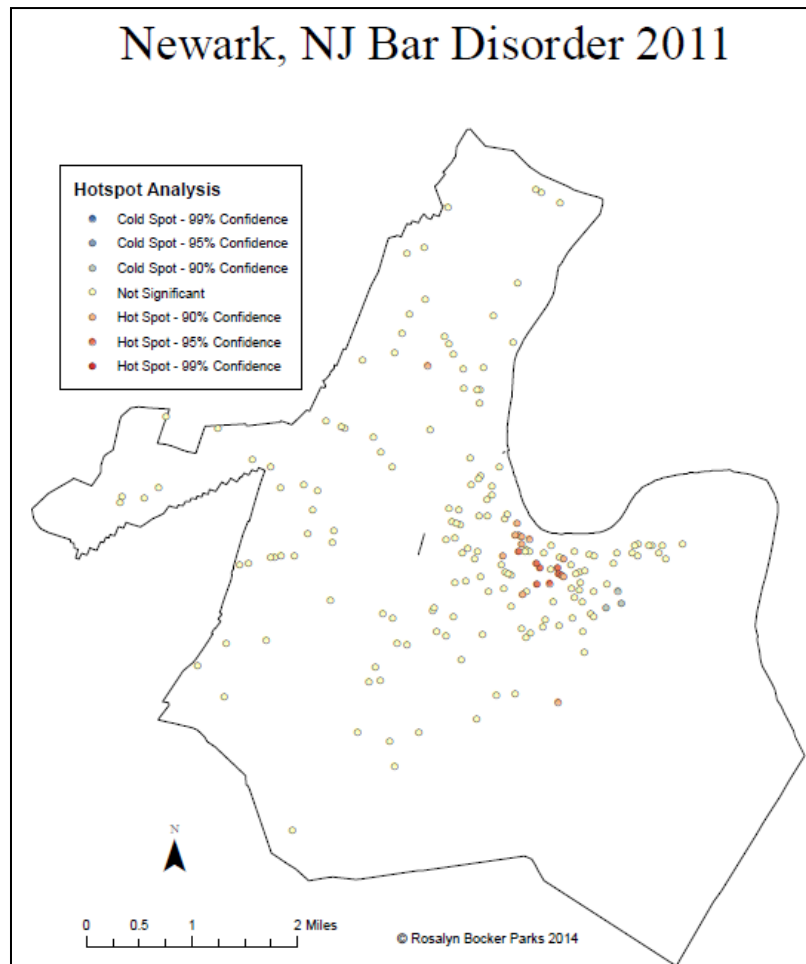


Figure 22: Newark, NJ Bar Disorder 2011

Finally, both years of combined data was analyzed to observe statistically significant clusters of bar disorder over the two year study period. A pattern similar to the observed bar disorder in 2010 emerged. Hotspots of bar disorder were identified in the Ironbound ($p < .05$ and $p < .01$) and Seventh Avenue ($p < .05$) neighborhoods of Newark.

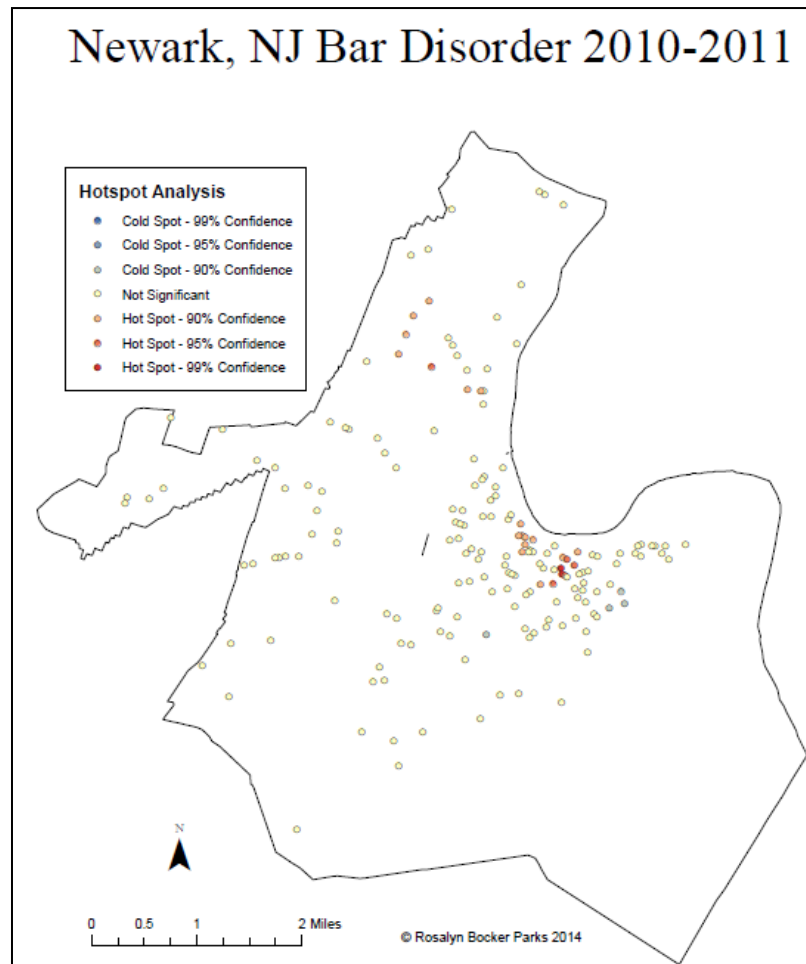


Figure 23: Newark, NJ Bar Disorder 2010-2011

Time of Day

Hotspot analyses of bar disorder calls for service were conducted for daytime, afternoon, evening, late night, and early morning hours for 2010, 2011 and both years of data combined. Hotspot maps were made for the following five categories: 1) 8 a.m. to 2 p.m.; 2) 2 p.m. to 6 p.m.; 3) 6 p.m. to 9 p.m.; 4) 9 p.m. to 3 a.m.; and 5) 3 a.m. to 8 a.m.

As noted in the temporal descriptive statistics, an average of 48 percent of disorder calls for service occurred during the 9 p.m.-3a.m. time period. In 2010, hotspots of bar disorder were identified in the Ironbound ($p < .05$ and $p < .01$) during this time. Between the hours of 3 a.m. and 8 a.m. bar disorder was observed to cluster in the Ironbound ($p < .05$ and $p < .01$) and in smaller areas of the commercial area and Upper Roseville ($p < .05$). Statistically significant clusters of bar disorder were found in Seventh Avenue and Mt. Pleasant neighborhoods ($p < .01$), with smaller clusters in the Central Business District and University Heights ($p < .05$). between 8a .m. and 2 p.m. Between 2 p.m. and 6 p.m. there were statistically significant clusters in Weequahic ($p < .01$), Upper Clinton Hill ($p < .05$ and $p < .01$) and in the and Seventh Avenue, Mt. Pleasant, Forest Hill, North Broadway, Upper and Lower Roseville neighborhoods ($p < .05$). Finally, between 6 p.m. and 9 p.m. hotspots were observed in the commercial area, Dayton, Weequahic and South Broad Valley neighborhoods ($p < .05$).

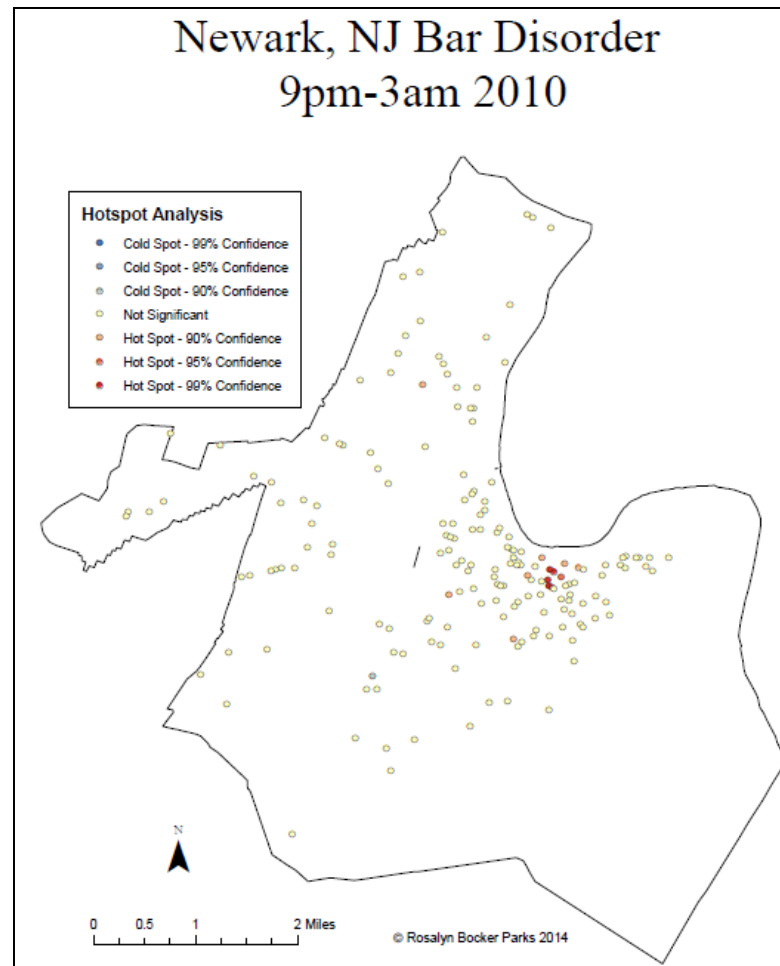


Figure 24: Newark, NJ Bar Disorder 9pm-3am 2010

In 2011, hotspots of bar disorder were identified in the Ironbound and South Ironbound ($p < .05$ and $p < .01$), and the commercial area ($p < .05$) during the 9 p.m. to 3 a.m. hourly time period. Between the hours of 3 a.m. and 8 a.m. bar disorder was observed to cluster in the Ironbound ($p < .05$ and $p < .01$) and the Central Business District ($p < .05$). Statistically significant clusters of bar disorder were found in Seventh Avenue neighborhood ($p < .05$ and $p < .01$), and in the Mt. Pleasant and Upper and Lower Roseville neighborhoods ($p < .05$) between 8 a.m. and 2 p.m. Between 2 p.m. and 6 p.m. there were statistically significant clusters in Weequahic ($p < .01$), Upper Clinton Hill ($p < .05$ and $p < .01$) and in the Seventh Avenue, Mt. Pleasant, Forest Hill, North Broadway,

Upper and Lower Roseville neighborhoods ($p < .05$). Finally, between 6 p.m. and 9 p.m. hotspots were observed in the Ironbound ($p < .05$ and $p < .01$).

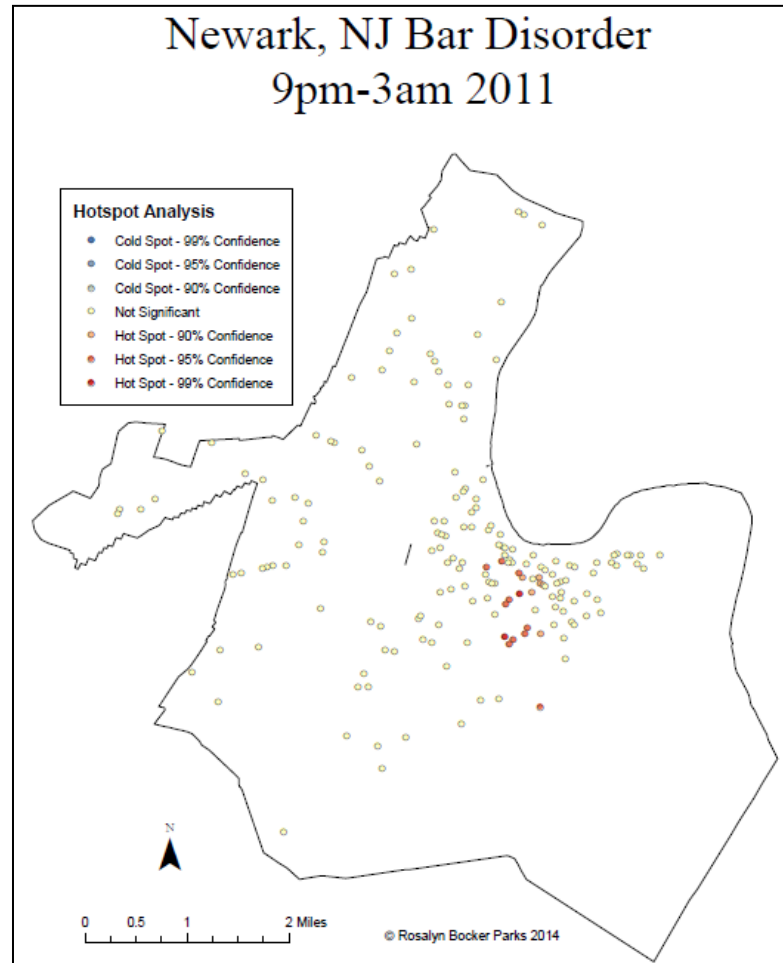


Figure 25: Newark, NJ Bar Disorder 9pm-3am 2011

When both years of data were analyzed together a similar pattern emerged.

Hotspots of bar disorder were identified in the Ironbound ($p < .05$ and $p < .01$) and South Ironbound ($p < .05$) during the 9 p.m. to 3 a.m. hourly time period. Between the hours of 3 a.m. and 8 a.m. bar disorder was observed to cluster in the Ironbound ($p < .05$ and $p < .01$). Statistically significant clusters of bar disorder were found in Mt. Prospect ($p < .01$), Seventh Avenue ($p < .05$ and $p < .01$), and the University Heights and Upper and Lower Roseville neighborhoods ($p < .05$) between 8 a.m. and 2 p.m. Between 2 p.m. and 6 p.m.

hot spots were observed in Upper and Lower Roseville neighborhoods ($p < .01$), in the Forrest Hill, Seventh Avenue, and Mt. Pleasant neighborhoods ($p < .05$ and $p < .01$), and in the North Broadway, Weequahic and Upper Clinton Hill neighborhoods ($p < .05$). Finally, between 6 p.m. and 9 p.m. hotspots were identified in the Ironbound ($p < .05$ and $p < .01$) and Weequahic neighborhoods ($p < .05$).

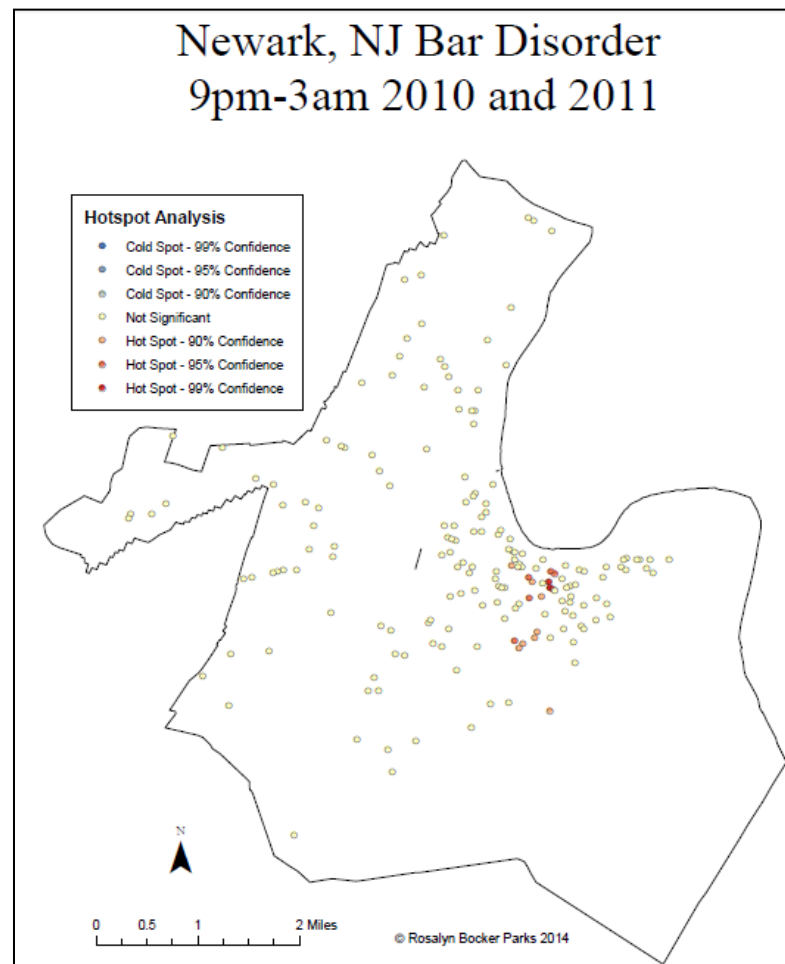


Figure 26: Newark, NJ Bar Disorder 9pm-3am 2010 and 2011

Day of Week

Hotspot analyses of bar disorder calls for service were conducted for 2010, 2011, and combined data for each of the days of the week. For all three time periods, Fridays, Saturdays and Sundays experienced the highest numbers of disorder calls for service and accounted for approximately 59 percent of all bar disorder during the study period.

In 2010, Sundays and Saturdays experienced 24 percent and 22 percent of bar disorder respectively. Bar disorder hotspots were observed in the Ironbound ($p < .05$ and $p < .01$) on Sundays. On Saturdays, hotspots of disorder were observed in the Lower Roseville neighborhood ($p < .01$), Upper Roseville, Seventh Avenue and the Ironbound ($p < .05$ and $p < .01$), and the Mt. Pleasant and North Broadway neighborhoods ($p < .05$). Statistically significant clusters of bar disorder were found in the Ironbound ($p < .05$ and $p < .01$) on Fridays. Between Monday and Thursday, bar disorder concentrated in the Forrest Hill, South Broad Valley and South Ironbound neighborhoods ($p < .01$), the Central Business District, Upper Roseville, Ironbound, North Broadway and commercial area ($p < .05$ and $p < .01$), and the Lower Roseville, Dayton and Weequahic neighborhoods ($p < .05$).

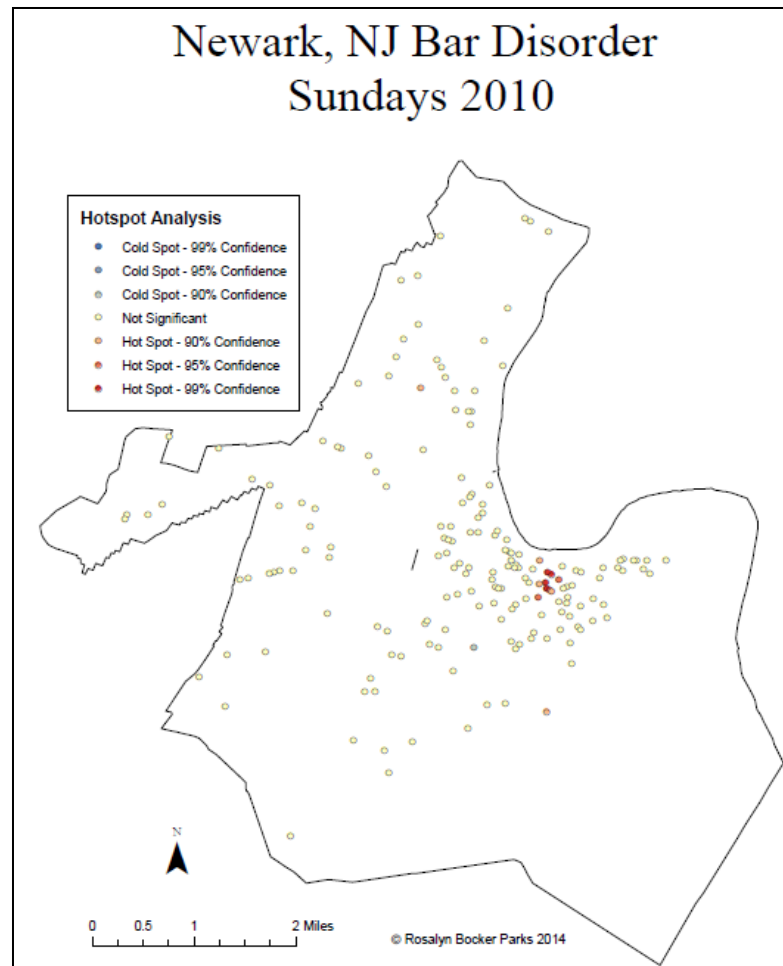


Figure 27: Newark, NJ Bar Disorder Sundays 2010

In 2011, Saturdays and Sundays each experienced approximately 21 percent of all bar disorder. Bar disorder hotspots were observed in the Ironbound ($p < .05$ and $p < .01$) on Saturdays. On Sundays, hotspots of disorder were observed in the South Ironbound ($p < .05$ and $p < .01$), the Ironbound, Central Business District and commercial area ($p < .05$). Statistically significant clusters of bar disorder were found in the Ironbound ($p < .05$ and $p < .01$) on Fridays. Between Monday and Thursday bar disorder concentrated in the Central Business District and the Ironbound ($p < .05$ and $p < .01$), and in the Seventh Avenue, South Broad Valley and Lower Roseville neighborhoods ($p < .05$).

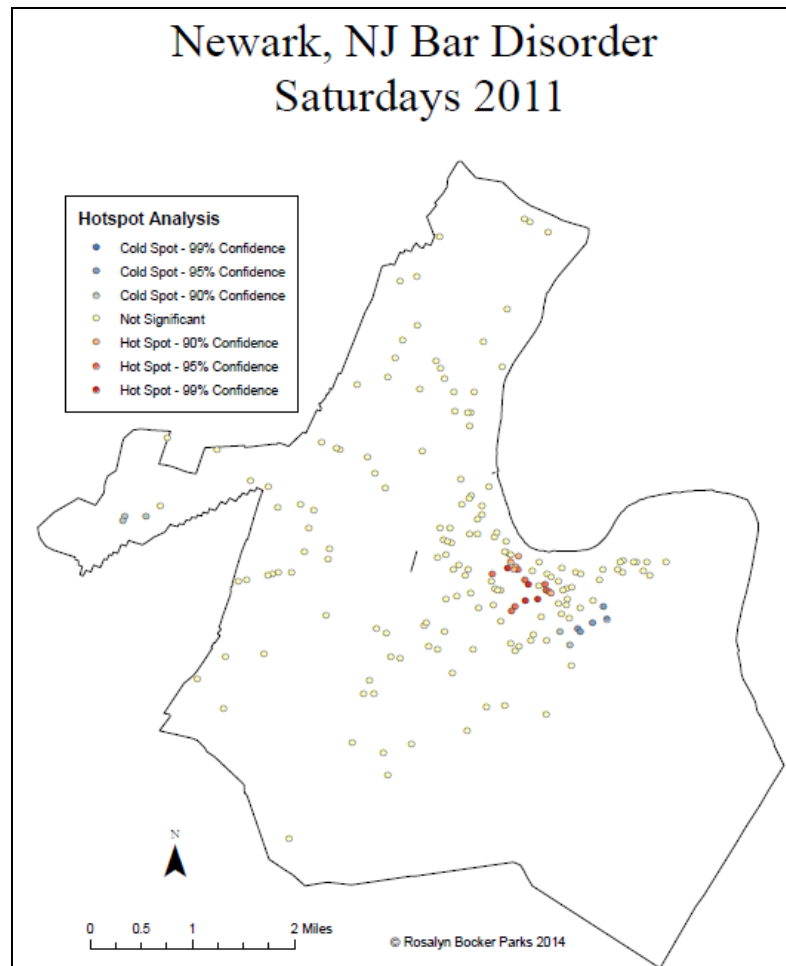


Figure 28: Newark, NJ Bar Disorder Saturdays 2011

When years of data were analyzed together a similar pattern emerged. Sundays and Saturdays experienced approximately 23 percent and 22 percent of bar disorder respectively. Bar disorder hotspots were observed in the Ironbound ($p < .05$ and $p < .01$), and in the South Ironbound and commercial area ($p < .05$) on Sundays. On Saturdays, hotspots of disorder were observed in the Ironbound ($p < .05$ and $p < .01$) and in the Seventh Avenue and Upper and Lower Roseville neighborhoods ($p < .05$). Statistically significant clusters of bar disorder were found in the Ironbound ($p < .05$ and $p < .01$) and in the Central Business District ($p < .05$) on Fridays. Between Monday and Thursday bar disorder concentrated in the Central Business District and Upper Roseville neighborhood

($p < .05$ and $p < .01$) and in the Ironbound, North Broadway, South Ironbound and commercial area ($p < .05$).

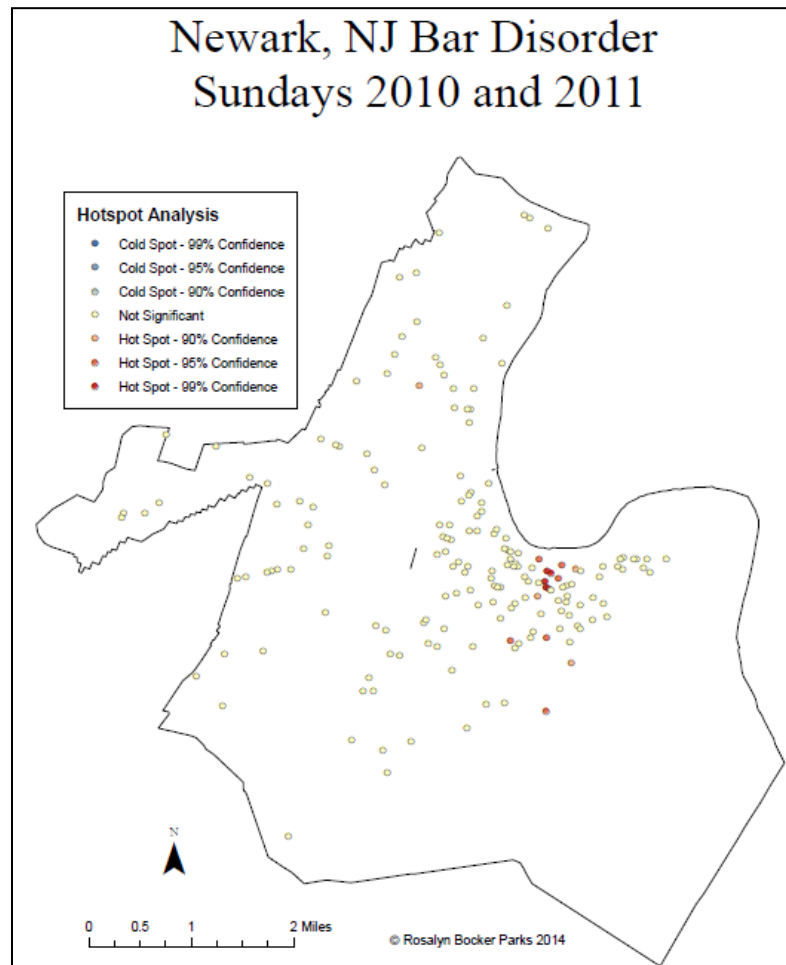


Figure 29: Newark, NJ Bar Disorder Sundays 2010 and 2011

Month

To assess for monthly changes in concentrations of bar disorder calls for service, hotspot analyses were conducted for each month during 2010, 2011, and over the combined study timeframe. When examining data from 2010, 2011 and both years of data combined, statistically significant hotspots of bar disorder were most frequently observed in the Ironbound neighborhood of Newark, NJ.

In 2010, concentrations of bar disorder were found in the Ironbound during June and September ($p < .01$); April, July and August ($p < .01$ and $p < .05$); and October and December ($p < .05$). Hotspots were found in the Seventh Avenue neighborhood during January and May ($p < .01$); and February and March ($p < .05$). Concentrations were observed in Upper Roseville in January and May ($p < .01$ and $p < .05$); and in February and March ($p < .05$). Lower Roseville contained hotspots in January, February and May ($p < .05$). Hotspots were observed in Mt. Pleasant in May and February ($p < .01$); and in March ($p < .05$). The Central Business District contained hotspots of bar disorder in July ($p < .01$) and in April and August ($p < .05$). Bar disorder concentrations were found in University Heights during May and February ($p < .05$). South Broad Valley contained hotspots during July ($p < .01$) and April ($p < .05$). During the month of May hotspots were located in the Forest Hill ($p < .01$ and $p < .05$) and North Broadway 5 ($p < .05$) neighborhoods. In November, statistically significant hotspots were observed in the Weequahic ($p < .01$), Upper Clinton Hill ($p < .01$), and the commercial area ($p < .01$ and $p < .05$). The Upper and Lower Vailsburg, Fairmount, West Side, Springfield, Lower Clinton Hill, South Ironbound and Dayton neighborhoods of Newark experienced no statistically significant hotspots of bar disorder in 2010.

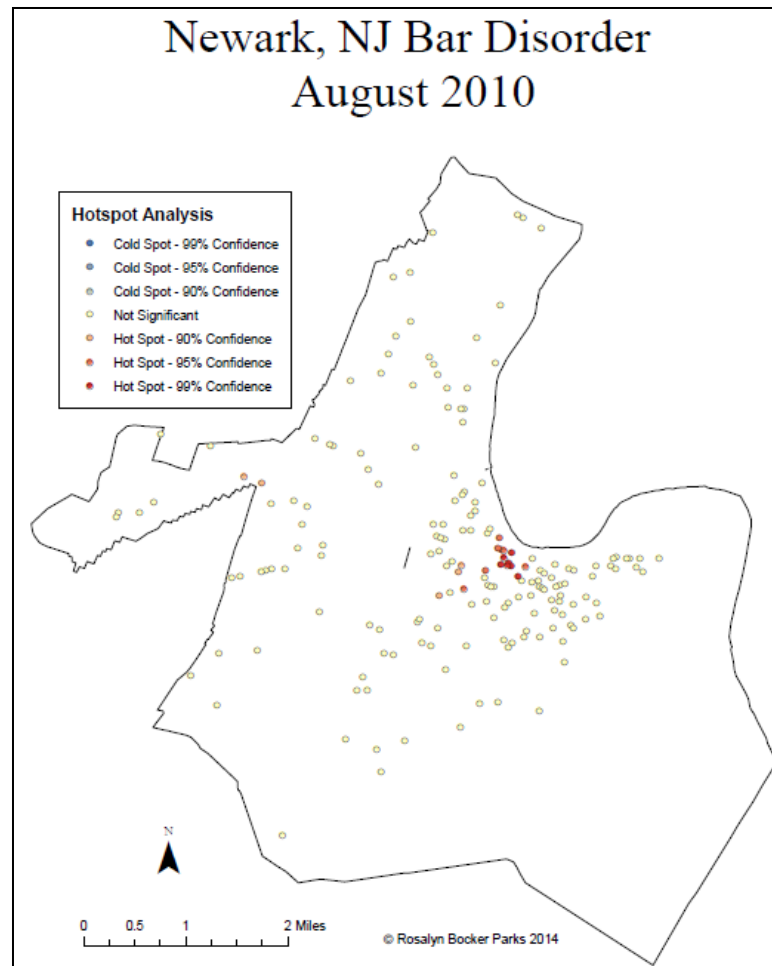


Figure 30: Newark, NJ Bar Disorder August 2010

In 2011, concentrations of bar disorder were found in the Ironbound during December ($p < .01$); March, June, September and November ($p < .01$ and $p < .05$); and in January, February, May, August, July and October ($p < .05$). Hotspots were identified in the Central Business District in September ($p < .01$) and in January, August, October and December ($p < .05$). Statistically significant concentrations of bar disorder were observed in the South Ironbound during January, August and October ($p < .05$). Seventh Avenue contained hotspots in January and February ($p < .05$). Lower Roseville contained hotspots in February and March ($p < .05$), and the commercial area contained hotspots in May ($p < .01$) and June ($p < .05$). Hotspots were observed in the South Broad Valley neighborhood

during June and August ($p < .05$). During the month of February hotspots were located in the Upper Roseville, Mt. Pleasant and Forest Hill neighborhoods ($p < .05$). Hotspots were observed in University Heights and Fairmount during April ($p < .05$), and statistically significant clusters of bar disorder were observed in North Broadway in September ($p < .05$). The Upper and Lower Vailsburg, West Side, Springfield, Upper and Lower Clinton Hill, Weequahic and Dayton neighborhoods of Newark experienced no statistically significant hotspots of bar disorder in 2011.

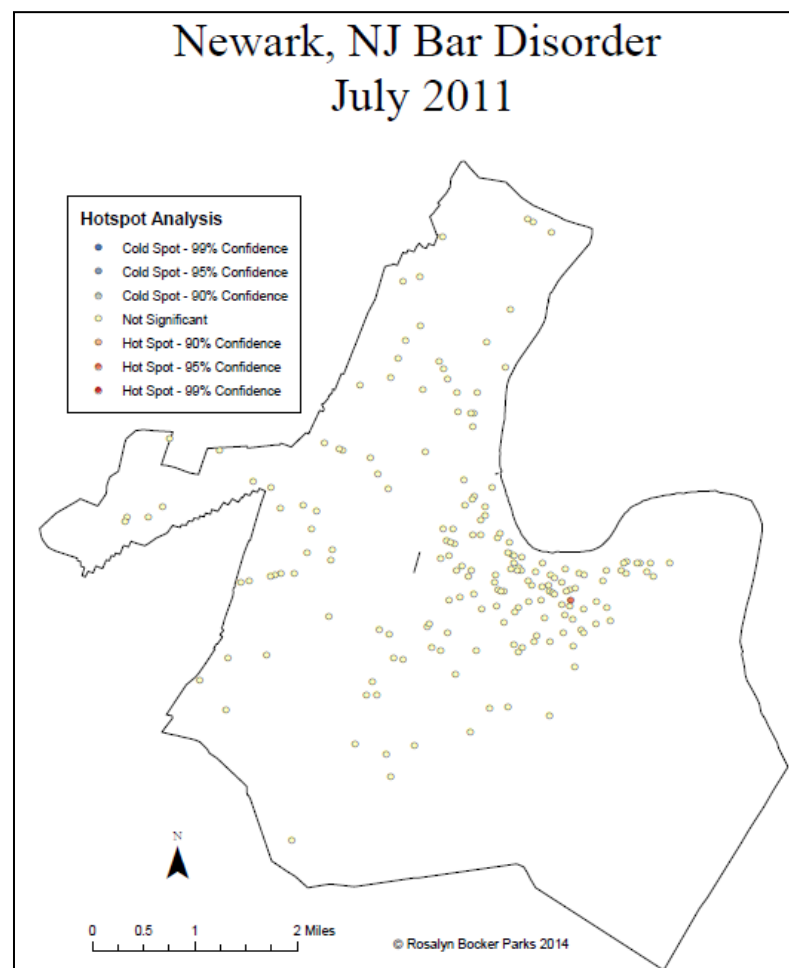


Figure 31: Newark, NJ Bar Disorder July 2011

When analyzing both years of data combined, concentrations of bar disorder were found in the Ironbound during June, August September and December ($p < .01$ and $p < .05$); and in February, March, April, July October and November ($p < .05$). Hotspots were identified in Upper Roseville during February ($p < .01$); January and March ($p < .01$ and $p < .05$); and in May ($p < .05$). In Lower Roseville hotspots were observed in February ($p < .01$ and $p < .05$); and in January, March and May ($p < .05$). Seventh Avenue contained hotspots in January ($p < .01$); February and May ($p < .01$ and $p < .05$); and March ($p < .05$). In Mt. Pleasant, hotspots were identified in February and May ($p < .01$), and in March ($p < .05$). South Broad Valley contained concentrations of bar disorder during July ($p < .01$) and in August and November ($p < .05$). The Central Business District contained hotspots during August and September ($p < .01$). The South Ironbound neighborhood contained hotspots during June and October ($p < .05$). Hotspots were identified in Forest Hill during the month of February ($p < .05$). In November, statistically significant hotspots were observed in the commercial area ($p < .01$), Weequahic and Upper Clinton Hill ($p < .05$). In September hotspots of bar disorder were identified in the North Broadway neighborhood ($p < .05$). The Upper and Lower Vailsburg, University Heights, West Side, Springfield, Fairmount, Lower Clinton Hill and Dayton neighborhoods of Newark experienced no statistically significant hotspots of bar disorder during the two year study period.

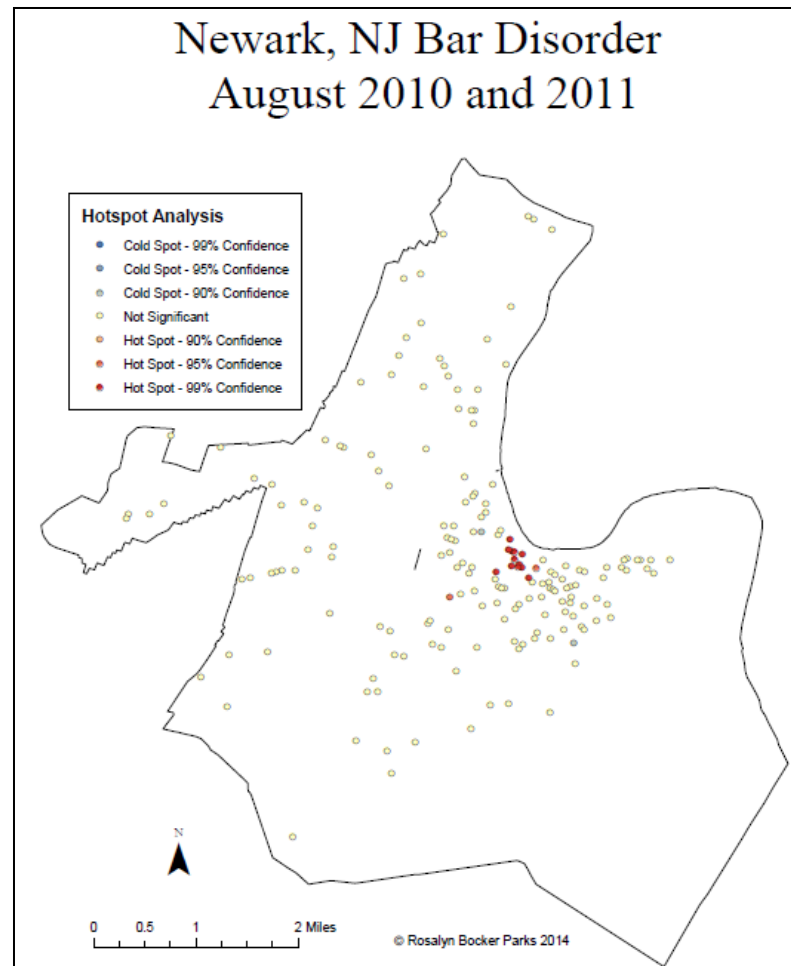


Figure 32: Newark, NJ Bar Disorder August 2010 and 2011

Season

Finally, a Getis-Ord hotspot analysis was conducted for 2010, 2011 and combined data for the following meteorological seasons: 1) spring, from March 1st through May 31st; 2) summer, from June 1st through August 31st; 3) autumn, from September 1st through November 30th; and 4) winter, from December 1st through February 28th.

In 2010, seasonal data indicated that summer had the most disorder calls for service and accounted for 27.1 percent of all bar disorder. Statistically significant clusters of bar disorder were found in the Central Business District and the South Valley and Ironbound neighborhoods ($p < .05$) during the summer months. During autumn hotspots

of disorder were observed in the commercial area ($p < .01$) and in the Ironbound ($p < .01$ and $p < .05$). Clusters of bar disorder were observed in Upper Roseville, Forrest Hill, Seventh Avenue and Mt. Pleasant neighborhoods ($p < .01$ and $p < .05$), and in Lower Roseville, North Broadway, and the Ironbound ($p < .05$) during the spring. Finally, statistically significant disorder hotspots were found in Seventh Avenue and Upper and Lower Roseville ($p < .01$) and in the Fairmount neighborhood ($p < .05$) during the winter.

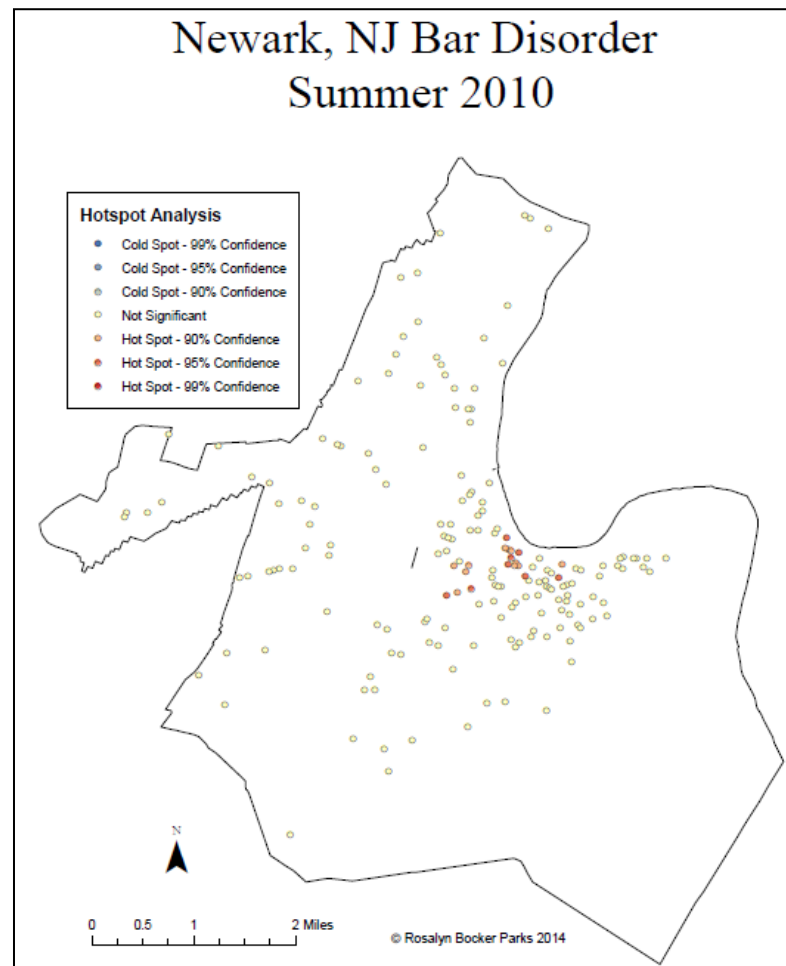


Figure 33: Newark, NJ Bar Disorder Summer 2010

In 2011, autumn had the most disorder calls for service and accounted for 28.9 percent of all bar disorder. Statistically significant clusters of bar disorder were found in the Ironbound ($p < .01$) and South Ironbound ($p < .05$) during the autumn months. During

the summer hotspots of disorder were observed in the Ironbound ($p < .01$ and $p < .05$), the Central Business District and South Broad Valley neighborhood ($p < .05$). Clusters of bar disorder were observed in the commercial area ($p < .01$) and Lower Roseville ($p < .05$) during the spring. Finally, statistically significant disorder hotspots were found in the Ironbound and Central Business District ($p < .01$ and $p < .05$), the Seventh Avenue neighborhood ($p < .05$) during the winter.

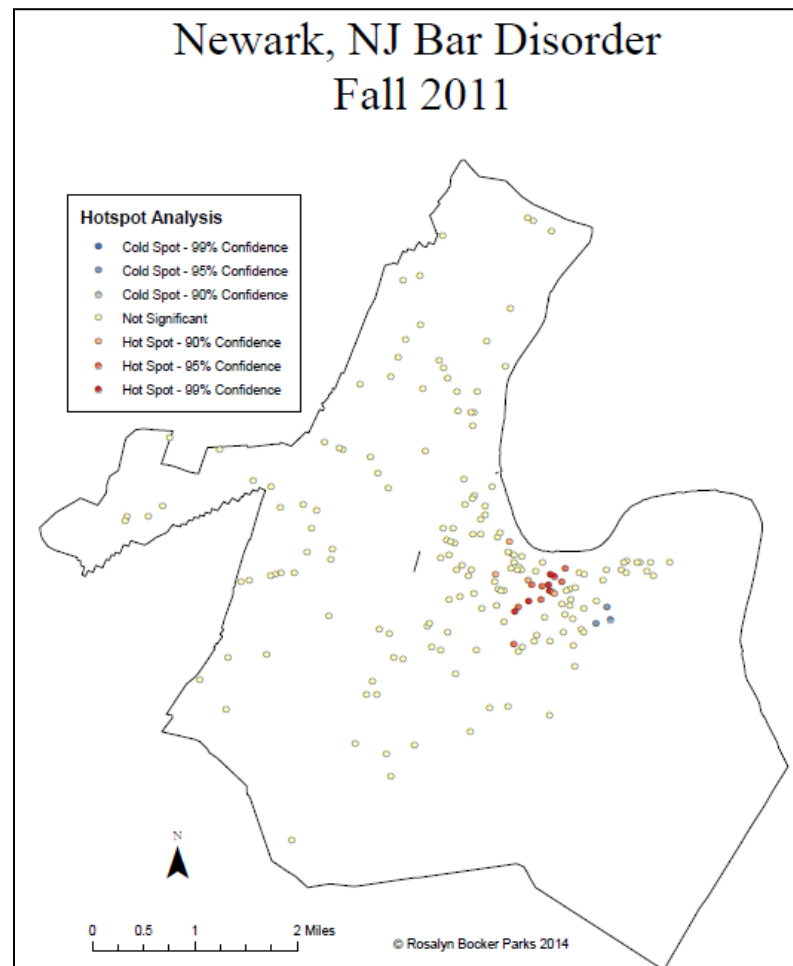


Figure 34: Newark, NJ Bar Disorder Fall 2011

Both years of data were also combined for analysis. Summer again had the most disorder calls for service and accounted for 27.6 percent of all bar disorder. Statistically significant clusters of bar disorder were found in the Ironbound ($p < .01$ and $p < .05$), the

Central Business District and South Broad Valley neighborhood ($p < .05$) during the summer months. During autumn hotspots of disorder were observed in the Ironbound ($p < .01$ and $p < .05$), the commercial area and South Ironbound ($p < .05$). Clusters of bar disorder were observed in the Seventh Avenue and Mt. Pleasant neighborhoods ($p < .01$ and $p < .05$), and in the Ironbound and Upper Roseville neighborhood ($p < .05$) during the spring. Finally, statistically significant disorder hotspots were found in the Lower Roseville and Seventh Avenue neighborhoods ($p < .01$) and in Upper Roseville and the Ironbound ($p < .01$ and $p < .05$) during the winter.

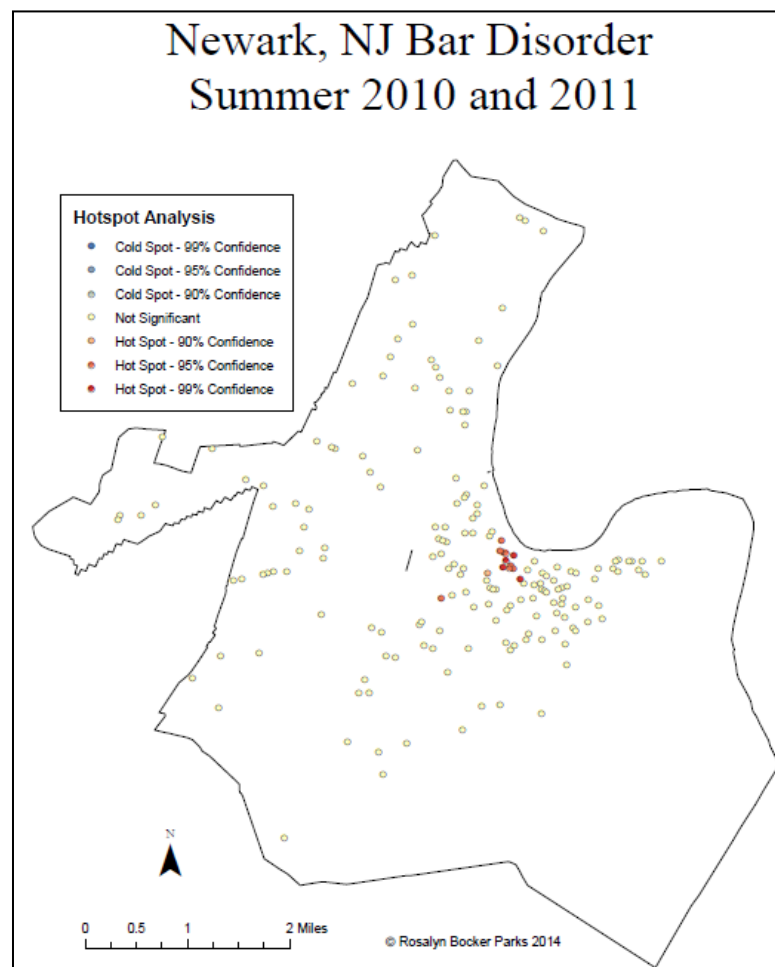


Figure 35: Newark, NJ Bar Disorder Summer 2010-2011

Chapter summary

Chapter five presents the results of the three part method outlined in chapter four. The results of the J-curve analysis, temporal descriptive statistics and spatiotemporal mapping give insights into when and where bar disorder concentrated in Newark, NJ during the two year study period between January 1st 2010 and December 21st 2011. In chapter three the following conceptual research question was posed:

“Where does disorder at bar locations concentrate, and how do these spatial patterns change in response to temporal factors?”

In order to answer this conceptual question, a series of five sub-questions were posed and corresponding hypotheses prepared. Here, each of these research questions and hypotheses were reevaluated using the results of this research. The first research question asked if identified concentrations of bar disorder remained stable over a one year period. I hypothesized that concentrations of bar disorder in Newark, NJ would remain stable over the study period. The results of this research were mixed. In both 2010 and 2011, statistically significant hotspots were observed in the Ironbound neighborhood. However, a hotspot of bar disorder identified in the Seventh Avenue neighborhood in 2010 had dissipated in 2011.

The second research question asked where spatial concentrations of bar disorder were located during weekdays and weekends. I hypothesized that bar disorder would concentrate primarily in the Downtown area of Newark, NJ during weekdays and that bar disorder would concentrate in the nightlife areas of Newark, NJ on Friday nights and during the weekend. The results here were also mixed. Hotspots of disorder were most

frequently located in the popular nightlife areas of the Ironbound and South Ironbound during the weekends. While bar disorder also concentrated most frequently in the Central Business District and Ironbound during the week, there were additional hotspots of bar disorder identified in residential North Ward neighborhoods.

The third research question asked if spatial concentrations of bar disorder were affected by seasons. I hypothesized that there would be a spike in bar disorder calls for service and higher concentrations of bar disorder during the summer months and again during the winter around the holiday season and New Year's Eve. This hypothesis was not supported by the results. While the summer months had some of the highest frequencies of disorder calls for service, the months of December and January (those spanning the winter holiday season) were consistently among those with the fewest.

The fourth research question asked where spatial concentrations of bar disorder were located during different times of day. I hypothesized that there would be high temporal and spatiotemporal concentrations of bar disorder between 9 p.m. and 3 a.m. with a peak in disorder activity around midnight concentrated in the nightlife areas of Newark, NJ. This hypothesis was supported by the findings of this research. The results indicate that bar disorder concentrated during 9 p.m. to 3 a.m. time period (approximately 48 percent of all bar disorder). During this time statistically significant hotspots of bar disorder were located within the Ironbound and South Ironbound neighborhoods, popular nightlife areas in Newark, NJ.

The fifth and final research question asked if the J-curve distribution analysis identified the same bars as having disproportionate levels of disorder over the study

period. I hypothesized that bars identified by the J-curve distribution analysis at the beginning of the study time frame would continue to have disproportionately high numbers of calls for service at bar locations over a one year period. This hypothesis was also supported by the results. Seven of the top ten most disorderly bars identified by the J-curve analysis in 2010 were also among the top ten most disorderly establishments in 2011. This indicates a degree of stability when examining bars with disproportionately high levels of disorder.

CHAPTER FIVE: DISCUSSION AND POLICY IMPLICATIONS

Introduction

The findings of this research provide both contributions to the current body of literature on bar disorder and practical information for use by law enforcement, community leaders, and potential decision makers. While there is a great deal of research on why bar disorder occurs, what are the characteristics of disorderly bars, and what can be done to reduce bar disorder, there is still little information on when and where to undertake these interventions. This dissertation seeks to begin to bridge this gap. As such, Chapter Six offers a discussion of the results of the research, the potential policy implications of the findings, and recommendations for future research.

Discussion

The method and scope of this dissertation sets it apart from other works on bar disorder. Unlike previous works, this study endeavors to examine both the spatial and temporal concentrations of disorder at bars using spatial and hotspots analysis. Some studies have used hotspots mapping to identify spatial concentrations of barroom violence (Graham et al., 2012; Gruenwald et al., 2006; Lipton & Gruenwald, 2002; Felson et al., 1997; Homel et al, 1997; Fishbine et al. 1978). Criminological theories, including crime geography and environmental criminology stress the importance of both time and place in the study of crime; yet research has traditionally focused more on the spatial rather than temporal patterns of crime and disorder (Townesley, 2008; Felson & Poulsen, 2003). This dissertation expands upon the few studies that have examined temporal or spatiotemporal patterns of concentration together.

Violent crimes, police reports, and observed cases of aggressive behaviors are traditional measures of problem behaviors at bars and alcohol related violence (Graham & Homel, 2008; Graham et al., 2006; Scott & Dedel, 2006; Graham et al., 2005; Graham et al., 2004; Leonard et al., 2003; Bromley & Nelson, 2002; Lipton & Gruenewald, 2002; Wallin, Nostrom & Andreasson, 2002; Graham & Wells, 2001; Graham, 2000; Felson et al., 1997; Homel et al., 1997ab; Block & Block, 1995; Roncek & Maier, 1991; Fishbine & Joelson, 1978). This dissertation research uses bars as the units of analysis and disorder calls for service as the units of observation to study bar disorder. As such, the units of observation for this dissertation are a more inclusive measure and can provide new insights into bar disorder (Braga & Bond, 2008; Sherman, Gartin & Buerger, 1989).

Findings from the J-Curve Analysis

The study utilized a three-part method. The first of these analyses was a J-curve analysis of bar disorder at drinking establishments in Newark, NJ. The findings support the large body of prior research that has found that relatively few places account for a majority of crime and disorder problems (Kennedy & Van Brunschot, 2009; Lum, 2008; Chainey et al., 2008; Clarke & Eck, 2007; Eck, Clarke, & Guerette, 2007; Eck et al., 2007; Johnson et al., 2007; Gottfredson & Moriarty, 2006; Gruenewald et al., 2006; Braga, 2005; Eck et al., 2005; Weisburd et al., 2004; Farrell & Pease, 2003; Gorr & Olligschlaeger 2002; Groff & La Vigne 2002; Eck, 2001; Groff & La Vigne, 2001; Anselin et al., 2000; Townsely, Homel & Chaseling, 2000; Harries, 1999; Homel & Clark, 1994; Farrell & Pease, 1993; Clarke & Weisburd, 1990; Sherman 1989; Sherman, Gartin & Buerger, 1989).

As described by Allport (1934), the J-curve hypothesis of conforming behavior states that only a small proportion of a given group or event is responsible for a large proportion of a particular result or outcome, the “80/20” rule (Clarke & Eck, 2007; Kock, 1999). Similar patterns of concentration were observed in the results of this research. In 2010, twenty percent of bars (36 bars and/or bar pairs) accounted for approximately 58 percent of all bar disorders. That year 153 of the 180 bars and bar pairs experienced at least one disorder call for service. Twenty-six drinking establishments (14 percent of all bars) experienced no disorder calls for service during that year.

In 2011, twenty percent of bars (36 bars and/or bar pairs) accounted for approximately 62 percent of all bar disorder. That year 145 bars and bar pairs experienced at least one disorder call for service. Thirty-four drinking establishments (19 percent of all bars) experienced none. In 2010 and 2011, the ten bars with the highest numbers of disorder calls for service were responsible for 25 percent and 28 percent of total bar disorder respectively. These results conform to the patterns of concentration of bar disorder and crime at bars and drinking establishments observed by other researchers (Graham et al. 2012; Gruenewald et al., 2006; Lipton & Gruenewald, 2002; Homel & Clark, 1994). In many cities, a handful of bars have more crime and disorder problems than the rest of the city’s drinking establishments combined (Clarke & Eck, 2007).

The findings here offer an additional insight. While only a few bars contribute to the majority of crime and disorder problems at drinking establishments, many of the top ten most disorderly bars identified at the beginning of the study’s time frame continued to have disproportionately high numbers of calls for service at bar locations over a one year

period. Seven of the top ten most disorderly bars identified by the J-curve analysis in 2010 were also among the top ten most disorderly establishments in 2011. This indicates a degree of continuity when examining bars with disproportionately high levels of disorder.

Findings from the Temporal Descriptive Statistics

Environmental criminology and crime geography emphasize the importance of both time and place in the study of crime. Levels of crime and disorder vary greatly by hour of the day, day of the week and by monthly and seasonal cycles (Uittenbogaard & Ceccato, 2012; Felson & Poulsen, 2003; Harries, 1980). Much of the extant research, however, has observed spatial rather than temporal patterns of crime and disorder (Townsend, 2008; Ratcliffe, 2004; Felson & Poulsen, 1993). This study builds upon this foundation and expands the body of knowledge in this area.

The few studies undertaken on temporal patterns of bar disorder identified concentrations similar to other kinds of crime and disorder. Problem behaviors at bars are most frequently concentrated during specific hourly groups and days of the week, particularly during late night weekend hours (Bieler & Roman, 2013; Felson & Poulsen, 2003; Briscoe & Donnelly, 2001). The results here indicate bar disorder concentrates temporally between the hours of 9 p.m. and 3 a.m. on Sundays, Saturdays and Fridays, supporting these previous findings.

The 9 p.m. to 3 a.m. time block consistently experienced the majority of bar disorder calls for service. During the two-year study period approximately 48 percent of all bar disorder occurred during these hours. The gap between the 9 p.m. and 3 a.m.

timeframe and the next most disorderly timeframes was also considerable. On average, the next most disorder timeframes accounted for approximately 14.5 percent of all bar disorder, less than half the amount observed between 9 p.m. and 3 a.m. The most disorderly days of the week observed here also support prior studies. During 2010 and 2011, Sundays, Saturdays and Fridays experienced the most disorder calls for service. Combined, these three days are responsible for approximately 59 percent of all disorder calls for service. These results add to the small but growing collection of evidence supporting the study of temporal concentrations of bar disorder.

Different months and seasons of the year have also been linked to changes in crime patterns. However, the results of studies into crime seasonality are mixed. While some studies have shown either no change or reversed patterns in seasonality (Farrell & Pease, 1994; Block, 1984), the majority of extant studies indicate seasonal fluctuations in crime -- low rates in the winter and peaks in the summer months (McDowall, Loftin & Pate, 2011; Hipp et al., 2004; Cohn & Rotton, 2000; Lab & Hirschel, 1988).

I hypothesized that this dissertation research would identify a spike in bar disorder calls for service and higher concentrations of bar disorder during the summer months and again during the winter around the holiday season and New Year's Eve. The findings here, however, did not entirely support this hypothesis. While the summer and autumn months had the highest frequencies of disorder calls for service, the months of December and January (those spanning the winter holiday season) were consistently among those with the fewest.

On average there was only a four percent difference between the months with the highest and lowest frequencies of disorder calls for service. Over the two-year study

period, August and October experienced the most bar disorders -- 9.9 percent of all bar disorders each. The month with the lowest percentage of bar disorder, March, experienced 6.3 percent. Aggregating the monthly data to meteorological seasons produced similar results and patterns. Autumn and summer experienced consistently higher percentages of bar disorder, but only by a slim margin. Between 2010 and 2011, the results indicate that while summer and autumn experienced 27.6 percent and 27.5 percent of all bar disorders respectively, winter, the season with the lowest percentage of bar disorder, experienced 21.2 percent. On average there was a difference of only seven percent between the seasons, with the most disorder (summer and autumn) and the lowest (winter). While the monthly and seasonal patterns of bar disorder follow trends similar to previous findings, the more dramatic seasonal highs and lows were not observed in this case.

The findings of prior research suggest that seasonal changes in routine behaviors may affect crime and disorder rates rather than fluctuations in temperature alone (McDowall, Loftin & Pate, 2011). For instance, people may leave their homes more frequently and spend more time outdoors during the warm weather in the summer and the increased hours of daylight (McDowell, Loftin & Pate, 2011; Van Koppen & Jansen, 1999; Cohn, 1990). As opportunities for crime depend on the intersections of a motivated offender and a potential victim in time and place, in the absence of capable guardians (Felson, 1994; Felson, 1986; Cohen & Felson, 1979), changes in season may lead to subsequent changes in the behaviors that affect when and where motivated offenders and potential victims intersect. In the case of bars, however, the findings of this research indicate that disorder at these locations is less responsive to seasonal changes.

This may be a result of the nature and characteristics of drinking establishments. As indoor establishments with climate control, the routine activities of bars (i.e., alcohol consumption and attendant socializing) are unlikely to be affected by the weather. An exception to this might be the popular tropical-themed “Tiki bars” and other drinking establishments on the Jersey Shore and other resort areas. These bars conduct the majority of their business during the summer months when tourist populations are highest. During the “off season” of the fall and winter, these establishments frequently close for a few months or drastically reduce their operating hours. In Newark, however, drinking establishments are not seasonal in nature. While a Tiki bar may experience summer highs and winter lows of bar disorder, the common home territory, attractor and other bar types in Newark have less dramatic rises and falls in bar disorder. As long as there are customers to purchase and consume alcohol at drinking establishments, bar disorder in Newark is year-round in nature, seemingly regardless of the weather.

These sorts of hypotheticals identify potential areas for future research. Studies from the fields of sociology, epidemiology and public health, and alcohol and addiction studies analyze the problem of alcohol related disorder, aggression and violence as complex social and public health problems using qualitative methods. Indeed, extensive qualitative research has been conducted in this area (Graham et al., 2006; Graham, Bernard, Osgood & Wells, 2006; Graham et al., 2005; Graham et al., 2004; Graham & Wells, 2001). Field studies, including observations in bar settings, may provide insight into the seasonal routine activities at these locations and why they do not experience the seasonal fluctuations in disorder prevalent in many other areas of study (McDowall, Loftin & Pate, 2011; Hipp et al., 2004; Cohn & Rotton, 2000; Lab & Hirschel, 1988).

Findings from the Spatiotemporal Hotspots Analysis of Bars Disorder

The spatiotemporal results of this research also support the extant findings on the nature of crime and geography. Even though Newark is a "high crime" city, concentrations of bar disorder were found only in finite locations. Throughout cities or neighborhoods with high numbers of crimes, there are only a few, relatively small places that generate approximately half of all the criminal events (Chainey, Thompson & Uhlig, 2008; Chainey & Ratcliffe, 2005; Brantingham & Brantingham, 1995; Weisburd et al. 1992; Sherman et al. 1989; Pierce et al. 1986; Brantingham & Brantingham, 1981). In 2010 and 2011, ten bars out of 180 with the highest numbers of disorder calls for service were responsible for 25 percent and 28 percent of total bar disorder respectively.

The variability of crime concentration is thus also true of Newark, NJ. While considered one of the most dangerous cities in the United States, (Christie, 2013; Tuttle, 2009; Fried, 1996) it is also important to note that Newark is also the home of numerous businesses and many popular social and cultural events. Thousands of commuters travel into Newark to work in businesses including Prudential, Panasonic, PSE&G and the Port Authority of New York and New Jersey, all of which have headquarters or offices in the city. The Prudential Center is home to the professional hockey team the New Jersey Devils, and a wide array of concert events. The New Jersey Performing Arts Center (NJPAC) hosts comedians, musicians, bands and ballet (City of Newark, 2014; NJPAC, 2014). Just as parts of Newark experience a high number of crimes and disorder, there are also clearly areas that experience little to none.

Crime and disorder are intrinsically linked to the place in which they occur, and their distribution is not random or evenly spread across an area (Block & Block, 1995). Even when examining patterns of concentration at known “risky facilities” like bars and drinking establishments, only a small percentage of these locations may account for the majority of crime and disorder problems experienced by all of the facilities of that type (Bernasco & Block, 2011; Clarke & Eck, 2007; Eck, Clarke, & Guerette, 2007; Anselin et al., 2000; Block & Block, 1995). In Newark, these bars and drinking establishments are also spatially concentrated in areas identified as disorderly in previous research. The current body of literature notes that spatial concentrations of crime and violence are often observed in city centers, in areas with mixed land use (i.e., areas with both residential and commercial properties) and in evening entertainment districts centered around bar locations and late night shopping and dining places (Bromely & Nelson, 2002; Block & Block, 1995). The findings of this research support these observed patterns. While some hotspots of disorder were found in residential neighborhoods, the majority of statistically significant hotspots were located in the expected nightlife and entertainment centers.

Prior to this study, the interaction of time and place was often taken for granted in bar and disorder research. With the exception of Bromley and Nelson (2002), much of what we know about the times and places where bar disorder occurs is colloquial. The research reported here is thus able to contribute to the existing literature and offer a systematic examination of these temporal and spatial patterns of disorder concentrations at bar locations. It is interesting to note that different hotspots patterns were observed during the temporal categories of high and low concentrations of bar disorder. During periods of identified high concentrations (e.g., the 9 p.m.-3 a.m. hourly time block, and

weekend days of the week including Friday, Saturday and Sunday) we find hotspots in the areas predicted by past research. Statistically significant hotspots of bar disorder were located within the Central Business District, Ironbound and South Ironbound neighborhoods during the late night hours and on weekends. These hotspots are characterized by clusters of drinking establishments experiencing high numbers of disorder calls for service, in some cases as many as 34 during the two-year study period. These spatiotemporal hotspots (particularly those in the Ironbound and South Ironbound neighborhoods) were found to be continuous as hotspots and to reflect most of the different temporal frames.

Other spatiotemporal hotspots of bar disorder showed less continuity and were most frequently observed during time categories with lower numbers of disorder calls for service. An example of this is the hotspot of bar disorder identified in the Seventh Avenue neighborhood in 2010 that had dissipated by 2011. Another hotspot was identified during multiple time categories and was observed along the borders of several North Ward neighborhoods. These included the Upper and Lower Roseville, Seventh Avenue and Mt. Pleasant neighborhoods. The shared borders of these residential neighborhoods include Bloomfield Avenue, a major thoroughfare in this area which traverses Branch Brook Park and is the location of bars and other commercial businesses. Hotspots of bar disorder identified in this area were usually within two blocks of Bloomfield Avenue, most commonly on Park Avenue and 5th Street. These hotspots were identified by the Getis-Ord G_i^* analysis to have statistically significant bar disorder, when taken together with and in relation to their neighbors. As a result, the relative “hotness” of a hotspot is determined by the context of the surrounding drinking

establishments. Truly “hot” hotspots were observed to be stable over time, while hotspots with only a few disorder calls for service fluctuated as a result of small changes in the numbers of disorder calls for service in a given time period.

In the nightlife and entertainment areas, hotspots were located in areas that were “hot” overall. These areas experienced widespread bar disorder throughout a neighborhood, and these hot spots were “hot” in “hot” places. In the case of the hotspots near Bloomfield Avenue, these were hotspots in “cold” places; and how “hot” these hotspots were is relative. For instance, whereas the statistically significant hotspots in the Ironbound had as many as 31 disorder calls for service during 2010, the statistically significant hotspots in the Bloomfield Avenue area only had 3 during that same time period. While a bar with three disorder calls for service on Bloomfield Avenue might be statistically significant, a similar bar with the same number of disorder calls for service would not be considered part of a hotspot at all in the Ironbound.

These different patterns of spatiotemporal concentrations of bar disorder are the result of how this research defines a hotspot. The Getis-Ord G_i^* is a focused test that detects overall concentration or lack of concentration in an area, and identifies subtle patterns of localized dependence. A limitation of this method, however, is its sensitivity to small changes in the numbers of disorder calls for service at a given location. As with any statistical analysis, even small fluctuations will appear to be statistically significant when the population is small. This is the case with the hotspots near Bloomfield Avenue. In an area with little to no bar disorder, even a few disorder calls for service are considered statistically significant. When you have a larger population, there is more

stability in the analysis of hotspots, as in the case of the Ironbound. There it takes a greater number of disorder calls for service to register statistically significant hotspots because there are many disorder calls for service.

This method of hotspot analysis is valid and theoretically sound, and as such it can be a very useful tool for researchers to study the patterns of concentrations of bar disorder (or for that matter, any crime or disorder problem) in areas with greatly varying concentrations of crime and disorder. While a hotspot for bar disorder identified by the Getis-Ord G_i^* in Upper Roseville may not be as “hot” compared to hotspots in the South Ironbound, it is still statistically significant and of importance to the people who live, work or visit in that neighborhood. The Getis-Ord G_i^* may not, however, be the best statistical choice for police departments looking to do hotspots analysis, as will be discussed later.

Bar Typologies: An avenue for future research

While this research identifies which bars in Newark have the most disorder calls for service and where they are located, there is still an important question that has yet to be definitively answered: Why? While the most disorderly bars have been identified, the cause of their disorder is not entirely known. The results of this study offer some understanding of what goes on inside these establishments, and the patterns of which bars have high numbers of disorder calls for service and which have none offer some preliminary suggestions for further research. Future research should investigate not only which drinking establishments have the most disorder calls for service but also incorporate qualitative research to be undertaken at these drinking establishments to offer

insights into what makes these locations disorderly. At present, this research can only hypothesize what social, interpersonal and physical environmental characteristics contribute to disorderly bars in Newark, NJ.

There are different theories regarding why certain bars are more prone to disorder than others and what characteristics of the bar environment increase the likelihood of bar related problems (Hughes et al., 2011; Graham & Homel, 2008; Graham, 2006; Gruenewald et al., 2006; Graham & Wells, 2001; Graham, 2000; Homel & Clark, 1994). A number of social and interpersonal factors have been identified as contributing to crime and disorder at bar locations including aggressive staff and patron altercations; drinking culture; competitive situations; sexual activity taking place in bars; rowdiness and permissiveness of disorderly behaviors that would not be tolerated in other social settings (e.g., public drunkenness, shouting, swearing, fighting, displays of sexual affection, etc.); crowding and long lines; drink discounting and drink specials; levels of patron intoxication and continued service to drunk patrons (Graham et al, 2012; Hughes et al., 2011; Graham & Homel, 2008; Graham, 2009; Graham et al., 2006; Graham et al., 2004; Quigley et al., 2003; Graham et al., 2001; Graham & Wells, 2001; Graham, 2000; Homel & Clark, 1994)

As well as the social and interpersonal interactions of patrons and staff, prior ecological studies in bar violence and disorder have also noted the importance of the environmental attributes of place (Hughes et al., 2012; Graham, 2009; Graham, 2006; Gruenewald et al, 2006; Block & Block, 1995). Broken windows theory suggests the concept that the physical environment of a bar should be characterized as more than a

seemingly small, aesthetic issue. Rundown drinking establishments may convey to patrons that the place is uncared for and as such is unmonitored (Hughes et al., 2011; Graham et al., 2006; Scott & Dedel, 2006; Wilson & Kelling, 1982). In addition to bar practices and the social environment, the physical environment of bars, including cleanliness, décor, music, upkeep, layout and size all contribute to observed aggression as a result of frustration, discomfort and disorder at these locations and may indicate to patrons that behaviors like fighting and sexual harassment are tolerated (Hughes et al., 2012; Hughes et al., 2011; Graham, 2009; Graham et al, 2006; Felson et al., 1997).

The characteristics of a drinking establishment's social and physical environments can be used to identify them as members of a particular bar type. The use of bar typologies can assist researchers in organizing diverse bar locations into categories based on shared attributes. In turn, information about a bar's type can be used to examine and identify features of a drinking establishment that contribute to that locations level of bar violence or disorder. Graham and Homel (2008) note that while there is variability among bars there are also distinct shared characteristics across bar typologies.

Using Cavan's (1966) typology of bars, drinking establishments can be identified in one of four categories: 1) convenience bars (bars located in business centers); (2) nightspot bars (locations that offer entertainment and dancing); (3) marketplace bars (a category that includes 'pick-up' or 'meat market' bars that cater to finding sexual partners, as well as bars where drugs, sex, gambling and stolen goods are bought and sold); and (4) home territory bars (locations with regular customers who share common traits such as living in the neighborhood, sexual orientation, ethnicity) (Graham &

Homel, 2008; Cavan, 1966). Following Cavan's research, Graham et al. (1980) categorized drinking establishments into three distinct categories—"attractor bars" and nightclubs where interpersonal environment, the high number of patrons, and the presence of bouncers combined for high levels of aggression; neighborhood drinking establishments with regular customers who more or less controlled the levels of disorder and aggression; and "skid-row" bars with high levels of unreported disorder.

While much of this research has focused on the bars and neighborhoods with the most disorder calls for service, it is just as important to note that a sizable portion of Newark drinking establishments experienced no bar disorder during the study period. Fourteen and 19 percent of bars in Newark, NJ experienced no disorder calls for service in 2010 and 2011 respectively. One proposed explanation from the extant literature for this lack of bar disorder centers on proactive and effective bar management. Using the aforementioned bar typologies, these establishments may be Cavan's home territory or Graham's neighborhood drinking establishments. Eck and colleagues (2005) noted in their research on alcohol-related violence that differences in crime and disorder rates between bars with frequent or many incidents and those that have few or no incidents are likely to be in how bar employees regulate the behavior of patrons to minimize the chances of crime and disorder. In places with little or no disorder, it is possible that these locations are well regulated and disruptive behaviors are not tolerated. While a primarily passive role, the presence of bar staff alone and threat of eviction from the premises may prevent problematic activities from occurring (Graham, 2009).

Well-regulated locations can potentially attract customers who desire a well-regulated location over a weakly regulated place (e.g., such people are less likely to create problems and also serve as de facto place managers) (Eck, Clarke, & Guerette, 2007; Eck et al., 2005; Anselin et al., 2000; Brantingham & Brantingham, 1995). This is particularly true at home territory or neighborhood drinking establishments where a group of regular customers set the tone for what behaviors and activities are tolerated (Graham & Homel, 2008; Cavan, 1966). These guardians and handlers can potentially intervene in situations of escalating violence, whereas permitting small, minor or low-level instances of aggression can lead to more serious aggression. In many cases of barroom aggression, small instances of disorder, such as spilling a drink or bumping into someone, can escalate from feelings of humiliation or frustration into violence without third party intervention (Graham & Homel, 2008). These bars are also capable of enacting changes to reduce the likelihood of bar disorder. Eck, Clarke, and Guerette (2007) argue that in order for any series of preventative measures to be effective the persons who own and operate these bars must be involved in the process. People who control these spaces have the authority and the ability to make the necessary changes needed to reduce concentrations of crime and disorder (pg. 243).

An example of this bar type of is McGovern's, an Irish bar located on the borders of University Heights and the Central Business district in Newark. With no disorder calls for service in 2010 and only two in 2011, this bar is popular with Rutgers students and staff, particularly from the law school and school of criminal justice. It is also popular with off duty police officers, and the bar displays a variety of policing paraphernalia from flags and helmets to nearly an entire wall of police patches. There is a regular customer

base and many patrons can be observed chatting familiarly with bar staff. While there are some drink specials offered and the bar can become crowded at peak times, there is food available for purchase (and it is good!), there is plenty of seating and the music is kept to a reasonable level. When asked if bar disorder was ever a problem here, one staff member laughed and said, “That kind of bullshit doesn’t happen here. We don’t let it.” A nearby patron added, “And neither would we.”

An alternative theory from the current literature for the lack of disorder calls for service posits a directly opposite explanation. Rather than a lack of disorder calls for service indicating a quiet, well run, and orderly establishment, these locations may instead be categorized as Cavan’s marketplace bars or Graham’s skid row bars where there are high rates of unreported bar disorder (Graham & Homel, 2008; Cavan, 1966). These are bars where disorder is expected. Customers who desire a poorly monitored location over a well-regulated place (i.e., patrons “looking for a fight” or seeking a place to carry out illegal activities) are attracted to locations where disorder is tolerated and staff and patrons are unlikely to intervene or call the police (Eck, Clarke, & Guerette, 2007; Eck et al., 2005; Anselin et al., 2000; Brantingham & Brantingham, 1995).

This phenomenon may explain why some of the bars in Newark experienced no reported bar disorder. These skid row type bars and drinking establishments offer opportunities to engage in aggressive or violent behaviors, are places where alcohol is consumed in large quantities at low prices, inhibitions are reduced, and are often located in areas with little guardianship (e.g., commercial or retail areas) (Bernasco & Block, 2011; Graham & Homel, 2008; Graham et al., 2006; Gruenewald et al., 2006; Graham et al., 2005; Graham et al., 2004; Anselin, 2000; Block & Block, 1995; Homel & Clark

1994; Roncek & Maier 1991; Felson, 1994; Felson, 1987; Felson, 1986; Cohen & Felson, 1979). These areas are characterized by activities that generate crime or attract offenders, anonymity, public access, limited surveillance, a close proximate setting and potentially lower standards of behavior (Bernasco & Block, 2011; Gruenewald et al., 2006; Bernasco & Luykx, 2003; Block & Block, 1995; Roncek & Maier, 1991). All of these factors combined potentially contribute to high rates of unreported crime and disorder. Even though disorder is common in skid row bars, these bar locations may have no reported disorder calls for service because no one is willing to call the police.

One example of a potential skid row bar is Don Costa, a strip club located on a residential street in the Ironbound. While no disorder calls for service were recorded at this location, there are signs that it may experience high rates of unreported disorder. They have hired security staff and offer nightly specials and holiday and seasonal promotions. They advertise with sexualized images of women offering multiple drink specials and free food, also indicators of an attractor bar looking to entice customers. Online reviewers note that the club was dark, dirty, the music was too loud and the bouncers were patting people down as they entered the strip club. While there are many indicators that this bar likely experiences high rates of bar disorder, the fact that there were no disorder calls for service during the two year study period suggests that any disorder incidents may either be tolerated by management and staff, or handled privately by their security staff without contacting the police.

According to the prevailing literature, many of the most disorderly bars identified in this study would likely fall into Cavan's nightspot bar or Graham's attractor bar and nightclub typologies. These locations are characterized by popular social activities,

including binge drinking, entertainment and dancing. The interpersonal environment at these drinking locations contributes to bar disorder; the highly charged atmosphere, high number of patrons, and the presence of bouncers combine for high levels of aggression and disorder (Graham & Homel, 2008; Cavan, 1966). Special events held at bars may also contribute to higher rates of reported disorder. Bars and drinking establishments that offer live entertainment, ranging from the common live music to the more exotic mud wrestling, were found to be attractors of aggression and had higher rates of disorder (Block & Block, 1995). In addition to bar practices and the social environment, the physical environment of attractor bars is a contributing factor in bar disorder. Cleanliness, upkeep, layout and size of these drinking establishments all contribute to observed aggression as a result of frustration, discomfort and disorder at these locations (Hughes et al., 2012; Hughes et al., 2011; Graham, 2009; Graham et al, 2006; Felson et al., 1997).

For instance, The Atmosphere Bar and Lounge is located in the Upper Clinton Hill neighborhood of Newark's South Ward. Disorder calls for service at this location are for disorderly persons. It is marketed as a nightclub with karaoke, low priced drink specials and DJs. Dominating three or four lots on the corner of Wainwright Street and Nye Avenue, it is a relatively new building with a fenced and gated parking lot and solid security shutters covering the doors and windows. It also offers takeout dining service and houses three residences on the property above the club. Online reviews describe the surrounding area as a "rough area" and "the hood." One individual wrote that they lived within a few blocks of this establishment and were awoken at 3 a.m. by people shouting and gunfire. The surrounding area is primarily residential, with a small corner store and a

weedy fenced lot across the street. It is known to experience high numbers of violent and property crimes, with known gang activity in the Nye Avenue area.

However, the prior research on bar typologies may not accurately describe all of the most disorderly bars in Newark, NJ. While some of the most disorderly bars in 2010 and 2011 can be described as skid row, attractor or neighborhood bar types, alternative explanations may be necessary to understand the social and physical characteristics of other disorderly bars in Newark. Different examples of bar typologies can be hypothesized from the analyses of this study. This study lets us posit two additional bar typologies- 1) low tolerance bars, which are located in popular nightlife and cultural centers and characterized by vigilant bar staff and management and little tolerance for disorderly behaviors and activities; and 2) transitional bars, located in commercial and mixed use areas and characterized by a constantly changing population, activities outside of individuals' routines, and lowered inhibitions.

Upon review of the most disorderly bars in Newark, more than half of these locations were found in the Ironbound District. Some of these establishments are located near the busy New Jersey Performing Arts Center (NJPAC), Prudential Center and other cultural centers that host musicians, bands, dance companies and ballet (City of Newark, 2014; NJPAC, 2014). While some bars may attract customers with low prices and rowdy entertainment and tolerate disorderly behaviors (i.e., attractor bars, nightspot or marketplace bars) (Graham & Homel, 2008; Cavan, 1966), these "low tolerance" bars are perhaps seeking to attract a different kind of customer. Some of the most disorderly bars were also popular Zagat-rated nightspots. The high rates of disorder calls for service at these locations may not be the result of increased disorderly behaviors but instead

indicate that these place managers and guardians routinely make disorder calls for service as soon as disorderly behavior is observed.

Casanova Grill and Sol-Mar are two Newark landmarks located on opposite corners from one another. The disorder calls for service from these locations are mostly noise complaints with some calls for disorderly persons. Casanova is a brick walled Brazilian steakhouse or “rodizio,” which an online reviewer claimed to translate from the original Portuguese to “meat raining from the sky.” An all-you-can-eat barbeque buffet with an extensive drink menu, Casanova is markedly different from many of the other most disorderly locations. With white tablecloths and neat place settings, this location is known for good food at good prices, with an attentive staff. Social media and online reviews are very positive. While live music and dancing are sometimes featured, an online reviewer described the patrons as a quiet group, and said that the place “was kind of dead” for a Friday night. This dining and drinking establishment markets itself very differently from the attractor and home territory bars on the top ten lists. Zagat rated, Casanova is listed as having “bang for the buck” with “senior appeal” and a “lively” atmosphere. Appealing to a more mature customer base with a comparably sedate ambiance and activities, Casanova attracts order rather than disorder.

Sol-Mar is considered to be fancier than Casanova, slightly more upscale and very popular. The professionally designed website includes a gallery of pictures and video tour of the restaurant and bar. The video shows a granite topped bar, mosaic tile work, and a carefully decorated and well maintained interior. The indoor dining room boasts tablecloths and place settings while a seasonal outdoor dining and bar area is more

casual. Videos show couples, families and patrons of all age groups. Online reviewers mentioned multiple visits to this location, and compare this location favorably to similar drinking establishments. The service is also described as friendly, polite and accommodating. Also Zagat rated, Sol-Mar is described as a “moderately priced Newark ‘stalwart’ where an ‘attentive’ staff ensures a ‘relaxing’ experience; the old world–inspired ‘fancy restaurant side’ is complemented by an ‘easygoing’ bar area where you can ‘absorb the local flavor.’” Sol-Mar’s marketing and advertising also sets it apart as a distinct typology. In addition to using discount dining certificates via Groupon to attract more customers, complimentary shuttle service is offered to and from Newark hotels, Penn Station, the Prudential Center, Red Bull Stadium and NJPAC. This is a clear indication that Sol-Mar seeks to actively attract clientele from the nearby recreational and cultural centers.

If these bars are “low tolerance” in their response to disorder, it is likely that these establishments have effective management and responses to disorder. It is possible that these low tolerance places are also catering to a higher socioeconomic class of customer and associated activities (i.e., karaoke v. ballet) than the other drinking establishments on the top ten lists. This may result in a “you get what you pay for” mentality; if customers are paying high prices for services it is less likely that disorderly persons or behavior will be tolerated. Using the tenets of rational choice theory, routine activities theory and situational crime prevention, different strategies can be used to identify interventions aimed at reducing crime and disorder in bars and drinking establishments. Low tolerance bars may increase the risk of being caught and punished by having clear policies and sufficient levels of staff to enforce them consistently, and barroom aggression and

disorder are known to be unacceptable in these environments. Removing excuses for bad behavior also reduces bar disorder by not allowing disorderly behavior and holding individuals accountable for their actions, as does the increased effort needed to engage in disorderly behavior (e.g., it takes more effort to pick a fight in a clean, orderly bar where staff and patrons do not condone fighting than in a skid row bar) (Graham, 2009; Graham & Homel, 2008; Cornish & Clarke, 2003; Clarke & Homel, 1997; Clarke, 1992).

The second proposed bar type is transitional bars. This type of bar is usually connected or nearby to hotels used for travelers. Unlike home territory of neighborhood bars, these drinking establishments lack a stable population of regulars to control social norms (Graham & Homel, 2008; Cavan, 1966). As is the case in Newark, these hotel bars are often located in areas with little guardianship (e.g., commercial or retail areas) (Bernasco & Block, 2011; Graham & Homel, 2008; Graham et al., 2006; Gruenewald et al., 2006; Graham et al., 2005; Graham et al., 2004; Anselin, 2000; Block & Block, 1995; Homel & Clark 1994; Roncek & Maier 1991; Felson, 1994; Felson, 1987; Felson, 1986; Cohen & Felson, 1979). The patrons of these bars are travelers on their way to somewhere else; the bar is not their destination per se, it is merely a temporary stop in their travels.

For instance, Teddy's bar, among the top ten most disorderly bars in Newark in 2010 and 2011, is located in the commercial area of Newark, NJ. While there are several hotels in this area servicing travelers from nearby Newark Liberty International Airport, this large area is predominantly used for commercial purposes and has little to no residential population. This important international airport and its close proximity to

Newark and New York City attracts many different kinds of travelers, including vacationers, business persons, and conference attendees. In 2010 and 2011, Newark Liberty International Airport served over 33 million passengers per year (Port Authority, 2013).

Located in a predominately industrial and commercial area outside of Newark's neighborhoods, Teddy's at the Holiday Inn has multiple disorder calls for service for both disorderly persons and prostitution. It has been renovated and redecorated since the study period. Now decorated as a sports bar, it has a pool table and many large flat screen TVs most often broadcasting multiple sporting events. Reviews online describe the food as "fair" and one customer said he got the impression that his waiter "doesn't enjoy being a waiter." It's interesting to note that none of the online reviewers were from Newark, but were instead travelers to the Newark area. Many stated that they went to Teddy's since it was near their hotels or they were looking to "kill time" waiting for a shuttle to the airport. One reviewer said that their experience was overall pleasant, but that they were "not sure that it's it worth coming here from any great distance." Another said, "It isn't a place that say[s] 'Hey...Let's plan a dinner at Teddy's.'" While it has some of the earmarks of an attractor bar, Teddy's is unique in that it both lacks a regular customer base and does not attract customers from the surrounding areas. Instead, Teddy's is a place visited out of convenience by people in the area for traveling purposes.

The high volume of travelers in this area contributes to bar disorder. Prior studies have found that individuals on vacations or traveling engage in behaviors outside of their day-to-day routine that they would not otherwise do. In addition to copious alcohol

consumption, travelers also engage in drug use and risky behaviors such as unsafe sex and verbal and physical altercations (Calafat et al., 2013a; Calafat et al., 2013b; Hughes et al., 2008; Bellis et al., 2003). This link between traveling and bar disorder warrant further study and the distinct bar typology of transitional bars.

These suggested new typologies are, of course, merely supposition, but they do highlight some interesting patterns for future researchers to pursue. In order to confirm these patterns of behaviors, qualitative research needs to be undertaken to observe the social, physical and interpersonal environments of these drinking establishments and to understand how these interactions contribute to bar disorder (Graham et al., 2006; Graham, Bernard, Osgood & Wells, 2006; Graham et al., 2005; Graham et al., 2004; Graham & Wells, 2001; Homel et al., 1997ab). While this research offers important findings on spatiotemporal concentrations of bar disorder, there remains a gap in the body of knowledge on what causes these locations to be disorderly. Although outside of the scope of this current research, this limitation could be overcome with future academic study. The addition of qualitative research into bar typologies and environments can complement the research presented here and provide a holistic assessment of the nature of bar disorder in Newark, NJ.

Policy Implications

The findings of this dissertation not only add to the current body of academic literature, but can be put to practical use by practitioners. Police decision makers and crime analysts can use the results of this academically rigorous research to support operational decisions. Many policing paradigms recommend the use of scientific research

in decision making processes and suggest partnerships with local universities. The availability of scientific research to potential decision makers can aid in a number of ways (Scott & Dedel, 2006). Evidence-based and intelligence-led policing utilizes academic research, data analysis and crime intelligence to facilitate crime reduction and prevention (Eck, 2002; Sherman et al., 2002; Ratcliffe, 2003; Ratcliffe, 2008; Sherman, 1998). The Office of Community Oriented Policing Services also advocates the use of deep problem solving and research to target specific problems in specific places (Scott & Dedel, 2006; Clarke & Eck, 2002).

The academic literature already provides a wealth of information on *what* police departments can do to reduce alcohol-related crime and disorder. Much of the research on bar disorder and programs seeking to reduce bar violence has been conducted abroad and in partnership with fields outside of criminal justice (Hughes et al., 2011; Graham, 2009; Bellis et al., 2008; Graham & Homel, 2008; Graham, 2006; Graham et al., 2005; Graham & Wells, 2001; Graham, 2000; Homel et al., 1997ab; Block & Block, 1995). Proactive and preventative law enforcement strategies are recommended when seeking to reduce disorder problems at bars, including consistent enforcement of existing liquor laws (e.g., prohibition of public drunkenness, underage drinking, continued service to intoxicated patrons, etc.) by the police (Bieler & Roman, 2013; Graham, 2009; Graham & Homel, 2008; Scott & Dedel, 2006; Graham, 2000; Homel & Clark, 1994). In Newark, the Newark Police Department can tailor these approaches to the unique needs of their jurisdiction and design an effective, evidence-based response to bar disorder. This research can guide *when and where* these responses should take place. Taken together with this research, interventions seeking to reduce bar disorder in Newark should take

place when and where bar disorder is most likely to occur: on Sundays, Saturdays, and Friday between the hours of 9 p.m. to 3 a.m. in the Ironbound and South Ironbound neighborhoods.

Using the J-curve analysis, the bars in Newark with the highest numbers of calls for service were identified and found to have disproportionate concentrations of disorder in time and space. These “top ten” lists identify potential locations for directed, targeted interventions at specific places and offer efficient solutions to manpower and resource allocation. The J-curve distribution has been found to exist in a variety of situations and is effectively utilized to identify locations with disproportionate crime and disorder (Anselin et al., 2000). Similar research has been used to guide police practice in that past. The study of bar disorder in Shawnee, Kansas aided the police by identifying that out of the 15 bars in the city, three (20 percent) of these locations accounted for 62 percent of calls for police service between 2002 and 2004 (Eck, Clarke, & Guerette, 2007). This study recommends the continued use of this method. The J-curve analysis of this research can continue to provide evidence-based best practices to police departments seeking to concentrate their resources at the bar locations where they will be the most effective.

Crime mapping and hotspots analysis have also been utilized to assess for a variety of crime and disorder problems (Groff & LaVigne, 2001; Townsley et al., 2000) and have been used as an effective predictive tool (Groff & LaVigne, 2002; Harries, 1999; Johnson et al., 2007; Townsley et al., 2000). It has been illustrated here how the incorporation of both spatial and temporal concentrations can be used to guide targeted patrol, problem-solving policing, inform undercover operations, and other police tactics

can be targeted on identified areas of concentrated offending with maximum benefit and efficiency (Braga, 2012; Braga, 2007; Braga, 2005; Groff & La Vigne, 2002; Gorr & Olligschlaeger, 2002; Braga, 2001; Groff & La Vigne, 2001).

While spatial hotspots are often used to identify where crime and disorder concentrate, this research specifically combines spatial and temporal hotspot analysis to identify when and where bar disorder concentrates in Newark, NJ. The ability of the police to prevent crime is improved when actions are focused on the places, times, and people who pose the highest risks to public safety, compared to traditional crime control methods including random patrols of large areas, rapid responses to calls for service, and making large numbers of reactive arrests (Braga, 2001; Sherman 1997; Clarke 1992; Goldstein 1990; Wilson & Kelling 1982).

The use of spatiotemporal hotspots is particularly useful for police departments seeking to reduce disorder at drinking establishments. These findings can be used to guide the allocations of already limited police resources and manpower. The use of hotspots mapping to display spatial and temporal information that can effectively aid in visualizing the temporal patterns of hot spots on multiple levels (e.g., hour blocks, days, months, years, etc.) (Townsend, 2008), and that provide insight into these patterns, can provide guidance to police departments. Not only can they utilize hotspots analysis to determine where crime is concentrated, the incorporation of temporal factors allows them to analyze when these hotspots are at their highest concentrations. This information can in turn direct police managers to alter their shift schedule to have better police coverage on days and hours when crime peaks, and direct police intervention to targeted locations

and times (Ratcliffe, 2002; Nelson, Bromley & Thomas, 2001). The study of the temporal characteristics of bar disorder can inform police officers about when targeted interventions should be undertaken, as there is often a discrepancy between when most calls for service are received and when most police officers are on duty (Felson & Poulsen, 2003; Knutsson, 1994).

While this study used the Getis-Ord G_i^* to identify statistically significant hotspots, it is recommended that police use traditional hotspot density mapping instead, in order to provide day-to-day police intelligence. While a valid method and theoretically sound, the Getis-Ord G_i^* may not be the best choice or most efficient method for police departments, particularly urban jurisdictions with high crime rates and limited police resources. As previously discussed, even “high crime” cities experience great variability in the concentration of crime and disorder (Chainey, Thompson & Uhlig, 2008; Chainey & Ratcliffe, 2005; Brantingham & Brantingham, 1995; Weisburd et al. 1992; Sherman et al. 1989; Pierce et al. 1986; Brantingham & Brantingham, 1981). The Getis-Ord G_i^* can identify locations that, while they may experience less disorder than much of the other locations across the city, they still experience a high number of incidents relative to its surrounding features.

The Getis-Ord G_i^* hotspots of bar disorder identified for 2010 in the Bloomfield Avenue area had fewer than five disorder calls for service. Yet while these hotspots are statistically significant and important to concerned residents, the Newark Police Department may not (likely does not) have the resources to deal with every hotspot identified, and thus must prioritize identified spatiotemporal hotspots or bar disorder.

When compared to the hotspots of disorder in the Ironbound, South Ironbound and Central Business District, with as many as 31 disorder calls for service that year, bar disorder in the North Ward might be statistically significant but not a practical target area for targeted police enforcement.

The Getis-Ord G_i^* is a very useful method for academic research or for police departments seeking to identify statistically significant hotspots in the context of their neighbors. It can also help identify “cold spots;” places that have a statistically significant *low* concentration of crime or disorder (Ord & Getis, 1995; Getis & Ord, 1992). With finite resources, however, an urban police department like Newark may choose to direct their attention to the areas with the highest concentrations of disorder overall (e.g., hotspots identified by traditional density mapping). Parsimony should be the rule in this case. Sometimes it is best to stick with simplicity. This research therefore suggests the use of traditional hotspots analysis methods, combined with temporal frames (i.e., time of day and day of week) to identify the spatiotemporal concentrations of bar disorder, and to help guide the deployment of police resources.

The use of mapping to identify crime hotspots has been recognized as an effective way to target police crime-fighting action (Braga, 2012; Braga, 2005; Groff & La Vigne, 2002). In practice, hotspot mapping utilizes retrospective data to identify the locations where crime is the most densely concentrated, providing insight for resource allocation and targeted enforcement; and it is used to visualize crime rates, patterns, and trends that have come to the attention of law enforcement (Chainey et al., 2008; Braga, 2005; Eck et al., 2005; Groff & La Vigne, 2002; Groff & La Vigne, 2001; Ratcliffe & McCullagh,

2001; Harries, 1999). Hotspot analysis is also a highly accurate method of predictive analysis. Research on crime mapping has found that examining one year of crime data can predict the locations of future crime events with as much as 90 percent accuracy (Spelman, 1995a).

These findings indicate that while hot spots of crime may intensify and dissipate over relatively short periods of time, these patterns nonetheless occur in the same places, creating longer-term trends (Groff & La Vigne, 2002; Adams-Fuller, 2001; Spelman, 1995ab). The findings of hotspots policing and situational crime prevention evaluations also suggest that focused police actions can prevent crime and disorder in crime hotspots without necessarily causing crime displacement (Braga, 2012; Ratcliffe et al., 2011; Taylor, Koper & Woods, 2010; Guerette & Bowers, 2009; Braga, 2007; Braga, 2005; Braga, 2001).

While the Getis-Ord G_i^* may not be the most useful method for police departments, there is a wide range of spatial analyses already deployed in police departments across the country, including point mapping, thematic mapping, spatial ellipses, kernel density estimations and methods for the examination of spatial autocorrelation (e.g., Moran's I and Geary's c) (Chainey, Thompson & Uhlig, 2008; Anselin, 2000; Ord & Getis, 1995; Getis & Ord, 1992). Departments should continue to choose the method best suited for their needs and consider expanding their use or incorporating additional information like temporal factors as demonstrated in this research. The combined insight from the extant body of literature on bar disorder and the findings of this dissertation can help prioritize the delivery of police services and the

allocation of resources (Farrell & Pease, 1993). Many urban police departments face reduced funding, hiring freezes and officer layoffs. Research can provide police departments with access to rigorous, evidence-based studies, can guide resource allocation, and can support police operations.

Although law enforcement plays an important role in responding to alcohol-related crime and disorder, the most effective responses require effective partnerships. Strong partnerships with bar management and community mobilization need to be established before implementing bar disorder interventions. Without the support of bar ownership and the community, the police are limited in their responses. If bar management proves reluctant to enact changes to the environment of drinking establishments, pressure from both law enforcement and the community can persuade bar owners to take responsibility for their part in ongoing bar disorder and support interventions seeking to generate change. Cooperation between stakeholders is a trademark of the most effective bar disorder interventions (Bieler & Roman, 2013; Graham, 2009; Wallin, Nostrom & Andreasson, 2002; Graham, 2000; Homel et al., 1997ab; Homel & Clark, 1994).

Premised-based responsible service interventions that incorporate a number of initiatives, including bar management and staff training, policy developments, law enforcement, and changes to bar environments, both social and physical, are found to be the most successful in preventing and reducing bar disorder (Bieler & Roman, 2013; Graham, 2009; Bellis & Hughes, 2005; Graham et al., 2004; Bellis, Hughes & Lowey, 2002; Graham, 2000; Homel & Clark, 1994). Therefore it is recommended that

responsible serving practices be combined with targeted enforcement. In addition to bar management and staff implementing strategies to reduce the number of intoxicated patrons and excessive drinking, targeted law enforcement should take place in known entertainment and nightlife centers during the days and times most likely to experience bar disorder (Bieler & Roman, 2013; Felson & Poulsen, 2003; Bromely & Nelson, 2002; Briscoe & Donnelly, 2001; Block & Block, 1995; Homel & Clark, 1994). As demonstrated here, departments can use their own data to determine when bar disorder is most likely to concentrate temporally. In the case of Newark, it is suggested that premised-based responsible service interventions should be combined with targeted law enforcement interventions in the Ironbound and South Ironbound neighborhoods between the hours of 9 p.m. and 3 a.m. on Sundays, Saturdays and Fridays.

The characteristics of a bar's environment can increase the likelihood of alcohol-related crime and disorder (Hughes et al., 2011; Graham & Homel, 2008; Graham, 2006; Gruenewald et al., 2006; Graham & Wells, 2001; Graham, 2000; Homel & Clark, 1994). Some aggravating characteristics include aggressive staff and patron altercations; drinking culture; competitive situations; sexual activity taking place in bars; rowdiness and permissiveness of disorderly behaviors that would not be tolerated in other social settings (e.g., public drunkenness, shouting, swearing, fighting, displays of sexual affection, etc.); crowding and long lines; drink discounting and drink specials; levels of patron intoxication and continued service to drunk patrons (Graham et al, 2012; Hughes et al., 2011; Graham & Homel, 2008; Graham, 2009; Graham et al., 2006; Graham et al., 2004; Quigley et al., 2003; Graham et al., 2001; Graham & Wells, 2001; Graham, 2000;

Homel & Clark, 1994). Changing the environment of drinking establishments to prevent or reduce bar disorder requires multifaceted approaches.

For this reason, additional research into the interpersonal, social and environmental characteristics should be undertaken to offer additional information on bar disorder. Research into bar typologies can provide guidance for bars, law enforcement, and the community on how to change the social and physical factors that contribute to crime and disorder in and around drinking establishments. The criminal justice system and academia are not the only stakeholders in the problem of bar disorder. The communities where these businesses operate and all those who frequent these areas are also in a position to benefit from this research. With the addition of further qualitative research, steps can be taken to reduce the risk of crime and disorder by understanding what characteristics of bar locations make them attractive to those seeking to commit crime and create disorder problems (Felson, 2006; Felson, 1998; Clarke, 1997; Clarke & Felson, 1993; Cohen & Felson, 1979). Past program evaluations and qualitative studies have made observations of the attributes and characteristics that contribute to bar disorder. Observations are usually conducted in the late evening and early morning hours and in entertainment and commercial district bars (Graham et al., 2006; Graham, Bernard, Osgood & Wells, 2006; Graham et al., 2005; Graham et al., 2004; Graham & Wells, 2001; Homel et al., 1997ab). The results of this analysis can guide when and where qualitative research should be undertaken to identify the causal factors of bar disorder in Newark, NJ.

The findings of this study offer new insights into the spatiotemporal concentration of bar disorder in Newark, NJ and can help these diverse stakeholders better understand, prevent, and respond to bar disorder in their communities. The use of research can offer guidance on how to reduce disorder in and around these locations (Scott & Dedel, 2006). In addition to police practice, these findings can be used by bar owners and managers, residential groups, and community leaders to guide policies, interventions, and grassroots initiatives to target bar disorder in Newark, NJ

Conclusion

In summary, this dissertation sought to expand the current academic body of literature on spatial and temporal concentration of bar disorders. While much research has been done on the relationship among place, space and the situational characteristics of bar disorder, there has been no clear consensus on whether or not concentrations of bar disorder remain stable over time. Research has been specifically recommended and conducted on the spatial concentrations of alcohol related crime and disorder (Eck, Clarke & Guerette, 2007; Gruenewald, 2006; Briscoe & Donnelly, 2001; Lipton & Gruenewald, 2001; Block & Block, 1995; Sherman, Schmidt & Velke, 1992; Roncek & Maier, 1991; Fishbine & Joelson, 1978). The conceptual framework for this research drew from environmental criminology, routine activities theory, situational crime prevention and rational choice theories. Further, at the policy and practice level, it is clear that in order to direct interventions at disorderly bar locations, the times and places where bar disorders concentrate need to be identified.

The prevailing literature that has identified risk factors for bar disorder also recommends numerous preventive interventions that include bar management and staff training, policy developments, law enforcement, and changes to bar environments -- both social and physical (Graham, 2009; Graham et al., 2004; Graham, 2000; Homel & Clark, 1994). Crime mapping has been successfully used to identify location-based crime patterns and is a well established tool in police efforts to develop responses for law enforcement and the community (Gorr & Olligschlaeger 2002; Groff & La Vigne, 2002; Groff & La Vigne, 2001; Ratcliffe & McCullagh, 2001; Dussault, 1999; Sherman, 1995; Spelman 1995; Sherman et al., 1989). Hot spots analysis has been used to direct police resources, interventions for crime control and preventative measures including problem-oriented policing to produce significant crime prevention gains (Braga et al., 2012; Braga, 2008; Braga, 2007; Braga 2002; Skogan & Frydl, 2004; Weisburd & Eck 2004; Eck 2002; Braga, 2001; Eck 1997).

This study also sought to collect data on bar disorder using an alternative approach. Traditionally, violent crimes, police reports, and observed cases of aggressive behaviors have been used to measure problem behaviors at bars and alcohol related violence (Graham & Homel, 2008; Graham et al., 2006; Scott & Dedel, 2006; Graham et al., 2005; Graham et al., 2004; Leonard et al., 2003; Bromley & Nelson, 2002; Lipton & Gruenewald, 2002; Wallin, Nostrom & Andreasson, 2002; Graham & Wells, 2001; Graham, 2000; Felson et al., 1997; Homel et al., 1997ab; Block & Block, 1995; Roncek & Maier, 1991; Fishbine & Joelson, 1978). However, most police responses are reactions to order maintenance and not criminal complaints. While violent crimes have severe consequences for victims, the consequences of disorder are more evident in the

subsequent investment of public resources (Perez, 2012; Famega, Frank & Mazzerole, 2005; Wilson & Kelling, 1982).

The three part research design for this project, including a J-curve analysis, temporal descriptive statistics, and ArcGIS mapping and spatial analysis, was intended to identify when and where bar disorder concentrates in time and space in Newark, NJ. The results offer confirmation for previously identified patterns of concentration and new findings in this area. Hotspots of disorder were most frequently located in the popular nightlife areas of the Ironbound and South Ironbound during the weekend, and in the Central Business District and Ironbound during the week. Bar disorder concentrated during the 9 p.m. to 3 a.m. time period (approximately 48 percent of all bar disorder) and hotspots of disorder were located within the Ironbound and South Ironbound neighborhoods -- popular nightlife areas in Newark. The J-curve distribution analysis also identified the same bars as having disproportionate levels of disorder over the study period. Seven of the top ten most disorderly bars identified by the J-curve analysis in 2010 were also among the top ten most disorderly establishments in 2011, indicating a degree of stability when examining bars with disproportionately high levels of disorder.

Some of the results of this research offer starting points for future research. In 2010 and 2011, statistically significant hotspots were observed in the Ironbound neighborhood, yet a hotspot of bar disorder identified in the Seventh Avenue neighborhood in 2010 became a “non-hotspot” in 2011. While other forms of crime and disorder peak during the summer months and again during the winter around the holiday season and New Year’s Eve (McDowall, Loftin & Pate, 2011; Hipp et al., 2004; Cohn &

Rotton, 2000; Lab & Hirschel, 1988), these results do not support that finding. Although the summer months had some of the highest frequencies of disorder calls for service, the months of December and January (those spanning the winter holiday season) were consistently among those with the fewest. These mixed results suggest that there are still aspects of spatiotemporal concentrations of bar disorder that are not fully understood.

The policy recommendations from this study suggest that in addition to the J-curve and spatial hotspot analysis, that temporal statistics also be used to guide when and where targeted interventions to reduce bar disorder are implemented. The incorporation of temporal and spatiotemporal elements can augment the tools already available to police departments and can aid in resource allocation and tactical decision making. Future research in this area should explore the spatiotemporal patterns of bar disorder and the proposed new typologies of bars. Exploring these unanswered questions will continue to expand the extant body of literature and offer information on when and where bar disorder concentrates, and what social and environmental characteristics make these locations prone to disorder.

Finally, it is important to remember that research does not exist in a vacuum. While this type of research is useful from an academic perspective, the findings also can inform a much larger population including public safety officials, business owners, and community leaders. From the employees of these establishments to the emergency medical personnel who respond to calls for service, and from the neighboring residents to local government officials, all can learn from and benefit from the products of this research.

REFERENCES

- Abbey, A. (2002). Alcohol Related Sexual Assault; Common Problem Among College Students. *Journal of Studies on Alcohol* , 118-128.
- Abbott, A. (1997). Of time and space: The contemporary relevance of the Chicago. *Social Forces*. 75: 1149-1182.
- Adams-Fuller, T. (2001). "Historical Homicide Hot Spots: The Case of Three Cities." Doctoral dissertation, Howard University, Washington, DC.
- Allport, F. H. (1934). The J-curve hypothesis of conforming behavior. *Journal of Social Psychology*, 5, 141-183
- Anselin, L., Cohen, J., Cook, D., Gorr, W. & Tita, G., (2000). Spatial analyses of crime. In Duffee, D. (ed.), *Measurement and Analysis of Crime and Justice: Criminal Justice 2000* (Vol. 4), National Institute of Justice, Washington, DC, pp. 213-262.
- Beiler, S., & Roman, J. (2013). *Addressing Violence and Disorder around Alcohol Outlets*. Urban Institute.
- Bellis, M. & Hughes, K. (2005). Nightlife in Liverpool: Tackling substance use in a flourishing night time economy. *Nordisk Alkohol & Narkotikatidskrift*, 22.
- Bellis, M. A., Hughes, K., Bennett, A., & Thomson, R. (2003). The role of an international nightlife resort in the proliferation of recreational drugs. *Addiction*, 98(12), 1713-1721.
- Bellis, M. A., Hughes, K., Calafat, A., Juan, M., Ramon, A., Rodriguez, J. A., ... & Phillips-Howard, P. (2008). Sexual uses of alcohol and drugs and the associated health risks: a cross sectional study of young people in nine European cities. *BMC Public Health*, 8(1), 155.
- Bellis, M. A., Hughes, K., & Lowey, H. (2002). Healthy nightclubs and recreational substance use: from a harm minimisation to a healthy settings approach. *Addictive behaviors*, 27(6), 1025-1035.
- Bellis, M., Phillips-Howard, P., Hughes, K., Hughes, S., Cook, P., Morleo, M., ... & Jones, L. (2009). Teenage drinking, alcohol availability and pricing: a cross-sectional study of risk and protective factors for alcohol-related harms in school children. *BMC Public health*, 9(1), 380.
- Bernasco, W. & Block, R. (2011). Robberies in Chicago: a block-level analysis of the influence of crime generators, crime attractors, and offender anchor points. *Journal of Research in Crime and Delinquency*, 48(1), 33-57.

- Bernasco, W. & Luykx, F. (2003). Effects of attractiveness, opportunity and accessibility to burglars on residential burglary rates of urban neighborhoods. *Criminology*, 41(3), 981-1002.
- Bernasco, W. & Nieuwbeerta, P. (2005). How do residential burglars select target areas? A new approach to the analysis of criminal location choice. *British Journal of Criminology*, 45(3), 296-315.
- Block, R., & Bernasco, W. (2009). Finding a Serial Burglar's Home Using Distance Decay and Conditional Origin-Destination Patterns: A Test of Empirical Bayes Journal-to-Crime Estimation in The Hague. *Journal of Investigative Psychology and Offender Profiling*, 6, 187-211.
- Block, R. L., & Block, C. R. (1995). Space, place and crime: Hot spot areas and hot places of liquor-related crime. *Crime and place*, 4(2), 145-184.
- Braga, A. (2007). *Effects of Hot Spots Policing on Crime*. A Campbell Collaboration systematic review, available at: <http://www.aic.gov.au/campbellcj/reviews/titles.html>
- Braga, A. A. (2006). The crime prevention value of hot spots policing. *Psicothema*, 18(3), 630-637.
- Braga, A. (2005). Hot spots policing and crime prevention: A systematic review of randomized controlled trials. *Journal of Experimental Criminology*. 1: 317-342
- Braga, A. (2002). *Problem-oriented policing and crime prevention*. Monsey, NY: Criminal Justice Press.
- Braga, A. (2001). The effects of hot spots policing on crime. *Annals of the American Academy of Political and Social Science* 578, 104 – 25.
- Braga, A. A., & Bond, B. J. (2008). Policing crime and disorder hot spots: A randomized controlled trial. *Criminology*, 46(3), 577-607.
- Braga, A. A., Hureau, D. M., & Papachristos, A. V. (2011). The relevance of micro places to citywide robbery trends: a longitudinal analysis of robbery incidents at street corners and block faces in Boston. *Journal of Research in Crime and Delinquency*, 48(1), 7-32.
- Braga, A. A., Papachristos, A. V., & Hureau, D.M.. (2012). Hot Spots Policing Effects on Crime. Campbell Systematic Reviews:8 DOI: 10.4073/csr.2012.8
- Braga, A. A., Papachristos, A. V., & Hureau, D. M. (2010). The concentration and stability of gun violence at micro places in Boston, 1980–2008. *Journal of Quantitative Criminology*, 26(1), 33-53.

- Braga, A. A., Weisburd, D. L., Waring, E. J., Mazerolle, L. G., Spelman, W., & Gajewski, F. (1999). Problem-Oriented Policing in Violent Crime Places: A Randomized Controlled Experiment. *Criminology*, 37(3), 541-580.
- Brantingham, P.J. & Brantingham, P.L. (1995). Criminality of Place: Crime Generators and Crime Attractors. *European Journal on Criminal Policy and Research* 3:1-26.
- Brantingham, P. J., & Brantingham, P. L. (1993). Nodes paths and edges: Considerations on the complexity of crime and the physical environment. *Journal of Environmental Psychology*, 13, 3-28.
- Brantingham, P.J., & Brantingham, P.L. (1984). *Patterns in Crime*. New York: Macmillan.
- Brantingham, P.J., & Brantingham, P.L. (1982). Mobility, notoriety, and crime: A study of crime patterns in urban nodal points. *Journal of Environmental Systems* 11:89-99.
- Brantingham, P. J., & Brantingham, P. L. (1981). *Environmental Criminology*. Sage. Beverly Hills.
- Braun, K., Graham, K., Bois, C., Tessier, C., Hughes, S., & Prentice, L. (2000). Safer bars trainer's guide. *Toronto: Centre for Addiction and Mental Health*.
- Briscoe, S., & Donnelly, N. (2001). *Liquor licensing enforcement activity in New South Wales*. NSW Bureau of Crime Statistics and Research.
- Bromley, R. D., & Nelson, A. L. (2002). Alcohol-related crime and disorder across urban space and time: evidence from a British city. *Geoforum*, 33(2), 239-254.
- Burns, L., Flaherty, B., Ireland, S. & Frances, M. (1995). Policing pubs: What happens to crime? *Drug and Alcohol Review*, 14, 369-375.
- Burns, T. F. (1980) Getting rowdy with the boys. *Journal of Drug Issues*, 10, 273-286.
- Bushman, B. J. (1997) Effects of alcohol on human aggression: Validity of proposed mechanisms. In M. Galanter (ed.), *Recent developments in alcoholism. Vol. 13, Alcohol and violence* (pp. 227- 244). New York: Plenum Press.
- Bushman, B. J., & Cooper, H. M. (1990). Effects of alcohol on human aggression: An integrative research review. *Psychological bulletin*, 107(3), 341.
- Calafat, A., Bellis, M. A., Fernández del Rio, E., Juan, M., Hughes, K., Morleo, M., ... & Mendes, F. (2013). Nightlife, verbal and physical violence among young European holidaymakers: what are the triggers?. *Public health*, 127(10), 908-915.
- Calafat, A., Blay, N., Juan, M., Adrover, D., Bellis, M. A., Hughes, K., ... & Bohrn, K. (2009). Traffic risk behaviors at nightlife: drinking, taking drugs, driving, and use of public transport by young people. *Traffic injury prevention*, 10(2), 162-169.

- Calafat, A., Hughes, K., Blay, N., Bellis, M. A., Mendes, F., Juan, M., ... & Duch, M. A. (2013b). Sexual Harassment among Young Tourists Visiting Mediterranean Resorts. *Archives of sexual behavior*, 42(4), 603-613.
- Caplan, J. M. & Kennedy, L. Risk Terrain Modeling Manual (2011) Theoretical framework and technical steps.
- Caplan, J. M., & Kennedy, L. (2009, February). *Drug arrests, shootings, and gang residences in Irvington, NJ: An exercise in data discovery*. Paper presented at Threat Assessments: Innovations and Applications in Data Integration and Analysis Conference at the Regional Operations Intelligence Center, West Trenton, NJ.
- Caplan, J. & Moreto, W. (2013) *GIS Mapping for Public Safety: An annotated guide to ArcGIS tools and Procedures*. Rutgers Center on Public Safety.
- Cavan, S. (1966). *Liquor license: An ethnography of bar behavior*. Chicago, US: Aldine Publishing Company.
- Center for Problem Oriented Policing (2013). The Problem Analysis Triangle. *What is Problem Oriented Policing?* Retrieved from: <http://www.popcenter.org/about/?p=triangle>
- Chainey, S. & Ratcliffe, J.H. (2005) *GIS and Crime Mapping*, Federation Press: Sydney.
- Chainey, S., Tompson, L., & Uhlig, S. (2008). The utility of hotspot mapping for predicting spatial patterns of crime. *Security Journal*. 21: 4-28.
- Christie, L. (2013). "Most dangerous U.S. cities." *CNN Money Magazine*. Retrieved on June 15th, 2013 from http://money.cnn.com/gallery/real_estate/2013/01/23/dangerous-cities/6.html.
- City of Newark, NJ. (2009) "Businesses and Visitors." *City of Newark, NJ*. Retrieved on July 26, 2014 from <http://www.ci.newark.nj.us/>.
- Clark, W. B. (1981) The contemporary tavern. In Y. Isreal, F.B. Galser, H. Kalant, R.E. Popham, W. Schmidt and R.G. Smart (eds.), *Research advances in alcohol and drug problems*. (Vol. 6. Pp. 425-471). Toronto: Addition Research Foundation.
- Clarke, Ronald V. (1997). Introduction. In Clarke, Ronald V. (ed.). *Situational Crime Prevention: Successful Case Studies* (2nd ed.). (pp. 1-43). Albany: Harrow and Heston.
- Clarke, R. V. (1996). The distribution of deviance and exceeding the speed limit. *British Journal of Criminology*, 36(2), 169-181.
- Clarke, R.V.G. (1992). "Introduction." In: R.V Clarke (ed.), *Situational Crime Prevention: Successful Case Studies*. Albany, NY: Harrow and Heston.

- Clarke, R.V.G., and Eck, J. (2007). *Understanding risky facilities*. Washington, DC: US Department of Justice, Office of Community Oriented Policing Services.
- Clarke, R. V.G., and Felson, M. (1993). *Routine activity and rational choice*. Vol. 5. Transaction Publishers.
- Clarke R.V.G., Homel R. (1997) A revised classification of situational prevention techniques. In: Lab SP, ed. *Crime prevention at the crossroads*. Cincinnati: Anderson, 17–30.
- Clarke, R.V.G., & Weisburd, D. (1990). On the distribution of deviance. In D. M. Gottfredson & R. V. Clarke (Eds.), *Policy and theory in criminal justice* (pp. 10- 27). Hants, England: Aldershot.
- Cohen, L. E. & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review*, 44: 588-608.
- Cohn E.G. & Rotton J. (2000) Weather, seasonal trends and property crimes in Minneapolis, 1987–1988: a moderator-variable time series analysis of routine activities. *Journal of Environmental Psychology* 20:257–272
- Cohn, E.G. (1990) Weather and crime. *British Journal of Criminology*,30:51–64
- Cohn, E.G., & Rotten, J. (2000). Weather, Seasonal Trends and Property Crime in Minneapolis, 1987-1988: A moderate-variable time-series analysis of routine activities, *Journal of Environmental Psychology*, Volume 20, Issue 3, September:257-272.
- Cornish, D. B., & Clarke, R. V. (2003). Opportunities, precipitators and criminal decisions: A reply to Wortley's critique of situational crime prevention. *Crime prevention studies*, 16, 41-96.
- Cornish, D. B., & Clarke, R.V.G. (eds.) (1986) *The reasoning criminal: Rational choice perspectives on offending*. New York: Springer-Verlag.
- Dussault, R., "Betting on Intelligence," *Government Technology* (April 1999) Volume, 12, No. 3, pp. 26-28.
- Dyck N. (1980) Booze, barrooms and scrapping: masculinity and violence in a western Canadian town. *Canadian Journal of Anthropology*,;1:191–8.
- Eck, J. E. (2002). Preventing crime at places. In L. W. Sherman, D. Farrington, B. Welsh & D. L. MacKenzie (Eds.), *Evidence-based crime prevention* (pp. 241- 294). New York: Routledge.
- Eck, J. E. (2001). Policing and crime event concentration. In R. Meier, L. Kennedy and V. Sacco (Eds.), *The process and structure of crime: Criminal events and crime analysis* (pp. 249-276). New Brunswick, NJ: Transactions.

- Eck, J. E. (1997). Preventing crime at places. In University of Maryland, Department of Criminology and Criminal Justice (Eds.), *Preventing crime: What works, what doesn't, what's promising* (pp. 7-62). Washington, DC: Office of Justice Programs, U.S. Department of Justice.
- Eck, J. E., Chaaney, S., Cameron, J. G., Leitner, M., & Wilson, R. E. (2005). Mapping Crime: Understanding Hot Spots, National Institute of Justice. Washington, DC
- Eck, J. E., Clarke, R. V., & Guerette, R. T. (2007). Risky facilities: Crime concentration in homogeneous sets of establishments and facilities. *Crime prevention studies*, 21, 235..
- Eck, J. E. & Weisburd, D. (eds.) (1995), *Crime and place: Crime Prevention Studies* (Vol. 4), Willow Tree Press, Modney, NJ.
- Engineer, R., A. Phillips, J. Thompson, and J. Nicholls (2003). *Drunk and Disorderly: A Qualitative Study of Binge Drinking Among 18- to 24-Year-Olds. Home Office Research Study*, No. 262. London: Great Britain Home Office Research, Development, and Statistics Directorate.
- ESRI (2013). ArcGIS Help 10.1 Resource: Modeling Spatial Relationships: Conceptualization of Spatial Relationships.
- Famega, C. N., Frank, J., & Mazerolle, L. (2005). Managing police patrol time: The role of supervisor directives. *Justice Quarterly*, 22(4), 540-559.
- Farrell, G., & Pease, K. (2003). Measuring and interpreting repeat victimization using police data: An analysis of burglary data and policy for Charlotte, North Carolina. In M. J. Smith and D. B. Cornish (Eds.), *Theory for practice in situational crime prevention*. Crime Prevention Studies, vol. 16 (pp. 265-289). Monsey, NY: Criminal Justice Press.
- Farrell, G., & Pease, P. (1994). Crime Seasonality: Domestic Disputes and Residential Burglary in Merseyside 1988–90. *British Journal of Criminology*, 34(4), 487-498.
- Farrell, G., & Pease, K. (1993). Once bitten, twice bitten: Repeat victimization and its implications for crime prevention. London: Home Office.
- Felson, M. (2006). *Crime and Nature*. Thousand Oaks, California: Sage Publications, Inc.
- Felson, M. (2002). *Crime & Everyday Life* (3rd ed.). Thousand Oaks, California: Pine Forge Press.
- Felson, M. (1998). *Crime & Everyday Life* (2nd ed.). Thousand Oaks, California: Pine Forge Press.
- Felson, M. (1995). Those who discourage crime. In J.E. Eck & D. Weisburd (eds.), *Crime and Place: Crime Prevention Studies. Vol. 4*. Washington, D.C.: Police Executive Research Forum.

- Felson, M. (1994) *Crime & Everyday Life* (1st ed.). Thousand Oaks, California: Pine Forge Press.
- Felson, M. (1987) Routine Activities and Crime Prevention in the Developing Metropolis. *Criminology*, 25, 911-931.
- Felson, M. (1986) Routine Activities, Social Controls, Rational Decisions, and Criminal Outcomes. In: D. Cornish and R.V.G. Calrke (eds.), *The Reasoning Criminal*. New York, NY: Springer-Verlag.
- Felson, M., Berends, R., Richardson, B., & Veno, A. (1997). Reducing pub hopping and related crime. In R. Homel (Ed.), *Policing for prevention: Reducing crime, public intoxication and injury*. Crime Prevention Studies, vol. 7 (pp. 115-132). Monsey, NY: Criminal Justice Press.
- Felson, M., & Poulsen, E. (2003). Simple indicators of crime by time of day. *International Journal of Forecasting*, 19(4), 595-601.
- Fishbine, G. M., & Joelson, M. R. (1978). *Crime impact statements: A strategy suggested from the study of crime around bars*. Minnesota Crime Prevention Center.
- Forsyth, A. J. (2009). 'Gritos de cerveza, cerveza': el rol de la música y de los DJs en el control del desorden en los clubes nocturnos 'Lager, lager shouting': The role of music and DJs in nightclub disorder control. *Adicciones*, 21(4), 327-345.
- Fried, C. (1996). America's Safest City: Amherst, NY; the Most Dangerous: Newark, NJ. *Money Magazine*, 27.
- Gell-Mann, M. (1994). *The Quark and the Jaguar: Adventures in the simple and the complex*. New York: W. H. Freeman.
- Getis, A., & Ord. J.K. 1992. The analysis of spatial association by use of distance statistics. *Geographical Analysis* 24:189-206.
- Gorr, W. & Olligschlaeger, A. (2002). Crime Hot Spot Forecasting: Modeling and Comparative Evaluation, National Institute of Justice, Washington, DC.
- Gottfredson, S. D. & Moriarty, L. J. (2006). Statistical risk assessment: Old problems and new applications. *Crime and Delinquency*, 52, 178-200.
- Groff, E. R. & La Vigne, N.G. (2002). Forecasting the future of predictive crime mapping. *Crime Prevention Studies*. 13: 29-57.
- Groff, E. R. & La Vigne, N. G. (2001). Mapping an opportunity surface of residential burglary. *Journal of Research in Crime and Delinquency*. 38: 257-278.
- Graham, K. (2009). They fight because we let them! Applying a situational crime prevention model to barroom violence. *Drug & Alcohol Review*, 28(2), 103-109.

- Graham, K. (2000). Preventive interventions for on-premise drinking: a promising but underresearched area of prevention. *Contemporary Drug Problems*, 27, 593.
- Graham, K. (1999). *Safer bars: Assessing and reducing risks of violence*. Centre for Addiction and Mental Health.
- Graham, K., Bernards, S., Osgood, D. W., Homel, R., & Purcell, J. (2005). Guardians and handlers: The role of bar staff in preventing and managing aggression. *Addiction*, 100(6), 755-766.
- Graham, K., Bernards, S., Osgood, D. W., & Wells, S. (2012). 'Hotspots' for aggression in licensed drinking venues. *Drug and alcohol review*, 31(4), 377-384.
- Graham, K., Bernards, S., Osgood, D. W., & Wells, S. (2006). Bad nights or bad bars? Multi-level analysis of environmental predictors of aggression in late-night large-capacity bars and clubs. *Addiction*, 101(11), 1569-1580.
- Graham, K., & Homel, R. (2008). *Raising the bar*. Taylor & Francis US.
- Graham, K. & Homel, R. (1997) Creating safer bars. In M. Plant, E. Single and T. Stockwell (eds.) *Alcohol: minimizing the harm* (pp. 171- 192). London: Free Association Press.
- Graham, K., Leonard, K. E., Room, R., Wild, T. C., Pihl, R. O., Boise, C. & Single, E. (1998) Current directions in research in understanding and preventing intoxicated aggression. *Addiction*, 93, 659-676.
- Graham, K., Osgood, D.W., Wells, S., & Stockwell, T. (2006). To what extent is intoxication associated with aggression in bars? A multilevel analysis. *Journal of Studies on Alcohol and Drugs*, 67(3), 382.
- Graham K, Osgood D.W., Zibrowski E, Purcell J, Gliksman L, Leonard K, Pernanen K, Saltz, R.F., & Toomey, T.L. (2004) "The effect of the Safer Bars programme on physical aggression in bars: results of a randomized controlled trial." *Drug and Alcohol Review* 23.1: 31-41.
- Graham, K., Rocque, L. L., Yetman, R., Ross, T. J., & Guistra, E. (1980). Aggression and barroom environments. *Journal of Studies on Alcohol and Drugs*, 41(03), 277.
- Wells, S., & Graham, K. (2003). Aggression involving alcohol: relationship to drinking patterns and social context. *Addiction*, 98(1), 33-42.
- Graham, K., & Wells, S. (2001). Aggression among young adults in the social context of the bar. *Addiction Research & Theory*, 9(3), 193-219.
- Graham, K., & West, P. (2001). Alcohol and crime: Examining the link. In Heather, N., Peters, T. J., Stockwell, T. (Eds). *International handbook of alcohol dependence and problems*. New York: John Wiley & Sons 2001, pp. 439-470.

- Gruenewald, P. J., Freisthler, B., Remer, L., LaScala, E. A. & Treno, A. (2006), Ecological models of alcohol outlets and violent assaults: crime potentials and geospatial analysis. *Addiction*, 101: 666–677. doi: 10.1111/j.1360-0443.2006.01405.x
- Guerette, R. T., & Bowers, K. J. (2009). Assessing the extent of crime displacement and diffusion of benefits: a review of situational crime prevention evaluations. *Criminology*, 47(4), 1331-1368.
- Gunby, C., Carline, A., Bellis, M. A., & Beynon, C. (2012). Gender differences in alcohol-related non-consensual sex; cross-sectional analysis of a student population. *BMC public health*, 12(1), 216.
- Harries, K. D. (1999). *Mapping Crime: Principles and Practice*, National Hills, CA;
- Harries, K. D. (1980). *Crime and the Environment*. Thomas.
- Hawley, A. (1950). *Human ecology: A theory of community structure*. New York, Ronald Press.
- Hauritz, M., Homel, R., McIlwain, G., Burrows, T., & Townsley, M. (1998a). Reducing violence in licensed venues through community safety actions projects: The Queensland experience. *Contemporary Drug Problems*, 25, 511-551.
- Hauritz, M., Homel, R., Townsley, M., Burrows, T. & McIlwain, G. (eds.) (1998b) *An evaluation of the local government safety actions project in Cairns, Townsville and Mackay: A report to the Queensland department of Health, the Queensland Police Service and the Criminology Research Council*, Australia: Griffith University, Centre for Crime Policy and Public Safety: School of Justice Administration.
- Hipp J.R., Bauer D.J., Curran P.J., & Bollen K.A. (2004) Crimes of opportunity or crimes of emotion? Testing two explanations of seasonal change in crime. *Social Forces* 82:1333–1372
- Holder, H. D., Janes, K., Mosher, J., Saltz, R., Spurr, S. & Wagenaar, A. C. (1993). Alcoholic beverage server liability had the reduction of alcohol-related problems. *Journal of Studies on Alcohol*, 54, 23-36.
- Homel, R., Burrows, T., Gross, J., Herd, B., Ramsden, D., & Teague, R. (1999). Preventing violence. *A review of the literature on violence and violence prevention*. Sydney: Crime Prevention Division, NSW Attorney General's Department.
- Homel, R., & Clark, J. (1994). The prediction and prevention of violence in pubs and clubs. In R. V. Clarke (Ed.), *Crime prevention studies*. Crime Prevention Studies, vol. 3 (pp. 1-46). Monsey, NY: Criminal Justice Press.
- Homel, R., Hauritz, M., McIlwain, G., Wortley, R., & Carvolth, R. (1997a) "Preventing alcohol-related crime through community action: the Surfers Paradise Safety Action Project." *Crime Prevention Studies* 7: 35-90.

- Homel, R., Hauritz, M., McIlwain, G., Wortley, R., & Carvolth, R. (1997b). Preventing drunkenness and violence around nightclubs in a tourist resort. In R. V. Clarke (Ed.), *Situational crime prevention: Successful case studies* (2nd ed., pp. 263-282). Monsey, NY: Criminal Justice Press.
- Homel, R., Hauritz, M., Wortley, R., Clark, J. & Carvolth, R. (1994). *The Impact of the Surfers Paradise Safety Action Project: Key Findings of the Evaluation*. Brisbane, AUS: Centre for Crime Policy and Public Safety, Griffith University.
- Hughes, K., Anderson, Z., Morleo, M., & Bellis, M. A. (2008). Alcohol, nightlife and violence: the relative contributions of drinking before and during nights out to negative health and criminal justice outcomes. *Addiction*, 103(1), 60-65.
- Hughes, K., Bellis, M. A., Whelan, G., Calafat, A., Juan, M., & Blay, N. (2008). Alcohol, drugs, sex and violence: health risks and consequences in young British holidaymakers to the Balearics. *Adicciones*, 21(4), 265-277.
- Hughes, K., Quigg, Z., Bellis, M. A., Calafat, A., Hasselt, N. V., Kosir, M., ... & Juan, M. (2012). Drunk and disorganised: relationships between bar characteristics and customer intoxication in European drinking environments. *International journal of environmental research and public health*, 9(11), 4068-4082.
- Hughes, K., Quigg, Z., Bellis, M., van Hasselt, N., Calafat, A., Kosir, M., ... & Voorham, L. (2011). Drinking behaviours and blood alcohol concentration in four European drinking environments: a cross-sectional study. *BMC public health*, 11(1), 918.
- Hughes, K., Quigg, Z., Eckley, L., Bellis, M., Jones, L., Calafat, A., ... & van Hasselt, N. (2011). Environmental factors in drinking venues and alcohol-related harm: the evidence base for European intervention. *Addiction*, 106(s1), 37-46.
- Ireland, C. S. & Thommeny, J. L. (1993). The crime cocktail: Licensed premises, alcohol and street offences. *Drug and Alcohol Review*, 12, 143-150.
- Ironbound Business Improvement District. (2014). Meet Me in the Ironbound. Retrieved from: <http://www.goironbound.com/ibidsite/>
- Jeffery, C. Ray. (1971). *Crime Prevention Through Environmental Design*. Beverly Hills, CA: Sage Publications
- Jeffs, B. W. & Saunders, W. M. (1983). Minimizing alcohol-related offences by enforcement of the existing licensing regulation. *Drug and Alcohol Review*, 12, 143-150.
- Johnson, S., Birks, D. J., McLaughlin, L., Bowers, K. J., & Pease, K. (2007). *Prospective Crime Mapping in Operational Context*, Home Office, London

- Kennedy, L. W. & Van Brunschot, E. G. (2009). *The Risk in Crime*. New York: Roman and Littlefield.
- Knutsson, J. (1994). More crimes while police resources remain constant-what will happen with the clearance rate in the future? *Studies on Crime and Crime Prevention*, 3, 132-145.
- Kock, R. (1999). *80-20 Principle: The Secret to Success by Achieving More with Less*. New York: Doubleday.
- Lab S.P. & Hirschel J.D. (1988) Climatological conditions and crime: the forecast is? *Justice Quarterly* 5:281-299
- Lang E, Rumbold G. (1997) The effectiveness of community based interventions to reduce violence in and around licensed premises: a comparison of three Australian models. *Contemporary Drug Problems*;24:805-26.
- Lang, E., Stockwell, T., Rydon, P. & Beel, A. (1998) Can training bar staff in responsible serving practices reduce alcohol-related harm? *Drug and Alcohol Review*, 17, 39-50.
- Leonard, K. E., Quigley, B. M., & Collins, R. L. (2003). Drinking, personality, and bar environmental characteristics as predictors of involvement in barroom aggression. *Addictive Behaviors*, 28(9), 1681-1700.
- Lipton, R., & Gruenewald, P. (2002). The spatial dynamics of violence and alcohol outlets. *Journal of Studies on Alcohol and Drugs*, 63(2), 187.
- Lipton, R., Yang, X., A. Braga, A., Goldstick, J., Newton, M., & Rura, M. (2013). The geography of violence, alcohol outlets, and drug arrests in Boston. *American journal of public health*, 103(4), 657-664.
- Lum, C. (2008). The geography of drug activity and violence: Analyzing spatial relationships of non-homogenous crime event types. *Substance Use & Misuse*. 43: 179-201.
- MacDonald, J. M. (1961). *The murderer and his victim*. Springfield, IL: Charles C. Thomas.
Charles C Thomas.
- McDowall, D., Loftin, C., & Pate, M. (2012). Seasonal cycles in crime, and their variability. *Journal of quantitative criminology*, 28(3), 389-410.
- Madensen, T. D., & Eck, J. E. (2008). Violence in bars: Exploring the impact of place manager decision-making. *Crime Prevention & Community Safety*, 10(2), 111-125.
- Marsh, P. & Kibby, K. (1992) *Drinking and public disorder*. London: Victor Gollancz.
- Mitchell, A. (2005) *The ESRI Guide to GIS Analysis, Volume 2*. ESRI Press.
- Mumford, K. (2008). *Newark: A History of Race, Rights, and Riots in America*. New York: New York University Press.

- Murdoch, D., & Ross, D. (1990). Alcohol and crimes of violence: Present issues. *Substance use & misuse*, 25(9), 1065-1081.
- National Committee on Violence (1990). Violence: *Directions for Australia*. Canberra. AUS: Australian Institute of Criminology.
- National Oceanic and Atmospheric Administration [NOAA]. (2013). Meteorological Versus Astronomical Summer— What's the Difference?. Retrieved from: <http://www.ncdc.noaa.gov/news/>
- Nelson, A. L., Bromley, R. D., & Thomas, C. J. (2001). Identifying micro-spatial and temporal patterns of violent crime and disorder in the British city centre. *Applied Geography*, 21(3), 249-274.
- Newark Police Department. (2011). ComStat. Retrieved on June 14, 2013 from: <http://newarkpdonline.org/comstat/comstat.php>
- Newman, O. (1972). *Defensible Space: Crime Prevention Through Urban Design*. New York: Collier Books.
- NJPAC. (2014) "Events Listings." *New Jersey Performing Arts Center*. Retrieved on July 26, 2014 from www.njpac.org.
- Ord, J.K., & Getis, A. 1995. Local spatial autocorrelation statistics: Distributional issues and a application. *Geographical Analysis* 27:286–306.
- Parker, R.N. & Rebhun, L. (1993). "Alcohol and Homicide: A Deadly Combination of Two American Traditions." Manuscript (October). Berkeley, CA: Prevention Research Center.
- Perez, D. W. (2010). *Paradoxes of Police Work*. Independence, KY: Cengage Learning.
- Pernanen, K. (1993). "Alcohol Related Violence: Conceptual Models and Methodological Issues." In: S. Martin (ed.), *Alcohol and Interpersonal Violence: Fostering Multidisciplinary Perspectives*. NIAAA Research Monograph No. 24. Washington, DC: U.S. Department of Health and Human Services.
- Pierce, G.L., Sparr, S., & Briggs, L.R. (1986). *The Character of Police Work: Strategic and Tactical Implications*. Boston, MA: Center for Applied Social Research, Northeastern University.
- Port Authority (2013) "About the Airport: Facts and Information." *Newark Liberty International Airport*. Retrieved on August 14, 2013 from www.panynj.gov.
- Putnam, S.L., Rockett, I. R. & Campbell, M.K. (1993). "Methodological Issues in Community-Based Alcohol-Related Injury Prevention Projects: Attribution of Program Effects." In:

T.K. Greenfield and R. Zimmerman (eds.), *Center for Substance Abuse Prevention Monograph 14*. Rockville, MD: U.S. Department of Health and Human Services.

Quigg, Z., Hughes, K., & Bellis, M. A. (2011). *Pub Crawl: Alcohol use among students attending organized drinking events*. Liverpool, UK: Centre for Public Health, Liverpool John Moores University.

Quigg, Z., Hughes, K., & Bellis, M. A. (2013). Student drinking patterns and blood alcohol concentration on commercially organised pub crawls in the UK. *Addictive behaviors*, 38(12), 2924-2929.

Quigley, B. M., Leonard, K. E., & Collins, R. L. (2003). Characteristics of violent bars and bar patrons. *Journal of Studies on Alcohol and Drugs*, 64(6), 765.

Ratcliffe, J.H. (2008) 'Knowledge management challenges in the development of intelligence-led policing', in T. Williamson (Ed) *The Handbook of Knowledge-Based Policing: Current Conceptions and Future Directions* (Chichester: John Wiley and Sons). pp. 205-220.

Ratcliffe, J. H. (2004). Geocoding crime and a first estimate of a minimum acceptable hit rate. *International Journal of Geographical Information Science*, 18(1), 61-72.

Ratcliffe, J. H. (2004). The hotspot matrix: A framework for the spatio-temporal targeting of crime reduction. *Police practice and research*, 5(1), 5-23.

Ratcliffe, J.H. (2003) Intelligence led policing. Trends and Issues in Crime and Criminal Justice, Paper 248, April 2003.

Ratcliffe, J. H. & McCullagh, M. J. (2001). Chasing ghosts? Police perception of high crime areas. *British Journal of Criminology*, 41:330-341.

Ratcliffe, J. H. & Rengert, G. F. (2008). Near repeat patterns in Philadelphia shootings, *Security Journal*, 21(1-2): 58-76.

Ratcliffe, J. H., Taniguchi, T., Groff, E. R., & Wood, J. D. (2011). Philadelphia Foot Patrol Experiment: A Randomized Controlled Trial of Police Patrol Effectiveness in Violent Crime Hotspots. *Criminology*, 49(3), 795.

Roncek, D. W., & Maier, P. A. (1991). Bars, blocks and crimes revisited: Linking the theory of routine activities to the empiricism of "hot spots." *Criminology*. 29: 725-753.

Roncek, D.W. & Pravatiner, M. A. (1989). "Additional Evidence that Taverns Enhance Nearby Crime." *Sociology and Social Research* 73:185-188.

Rossmo, K. (1994). "Strategic Crime Patterning: Problem-Oriented Policing and Displacement." In: C.R. Block and M. Dabdou (eds.), *Workshop on Crime Analysis through Computer Mapping: Proceedings, 1993*. Chicago, IL: Illinois Criminal Justice Information Authority.

- Sacco, V. F. & Kennedy, L. W. (2002). *The Criminal Event: Perspectives in Space and Time*, Second Edition . Belmont, CA: Wadsworth.
- Sampson, R. J., & Groves, W. B. (1989). Community structure and crime: Testing social-disorganization theory. *American journal of sociology*, 774-802.
- Schnitzer, S., Bellis, M. A., Anderson, Z., Hughes, K., Calafat, A., Juan, M., & Kokkevi, A. (2010). Nightlife violence: a gender-specific view on risk factors for violence in nightlife settings: a cross-sectional study in nine European countries. *Journal of interpersonal violence*, 25(6), 1094-1112.
- Schroeder, M. R. (1991). *Fractals, chaos, power laws: Minutes from an infinite paradise*. Courier Dover Publications.
- Scott, M. S., & Dedel, K. (2006). *Assaults in and around bars*. US Department of Justice, Office of Community Oriented Policing Services.
- Scribner, R. A., MacKinnon, D. P. & Dwyer, J. H. (1995). "The Risk of Assaultive Violence and Alcohol Availability in Los Angeles County." *American Journal of Public Health* 85(3):335-340).
- Sherman, L. W. (1998) *Evidence-based policing*. Washington, DC: Police Foundation.
- Sherman, L.W. (1995), "Hot Spots of Crime and Criminal Careers of Places," in J.E. Eck and D. Weisburd (eds.) *Crime and Place*, Monsey, NY: Criminal Justice Press.
- Sherman, L.W., Farrington, D. P., Welsh, B. C., & MacKenzie, D. L. (2002). *Evidence-based crime prevention* (p. 10). London: Routledge.
- Sherman, L. W, Gartin, P. R. & Buerger, M. E. (1989). Hot spots of predatory crime: Routine activities and the criminology of place. *Criminology*. 27: 821-849.
- Sherman, L. W., Schmidt, J. D., & Velke, R. J. (1992). *High crime taverns: A RECAP Project in Problem-Oriented Policing*. Washington, DC: Crime Control Institute.
- Sherman, L. W., & Weisburd, D. (1995). General deterrent effects of police patrol in crime "hot spots": A randomized, controlled trial. *Justice Quarterly*, 12(4), 625-648.
- Skogan, W., & Frydl, K. (Eds.). (2004). *Fairness and effectiveness in policing: the evidence*. National Academies Press.
- Spelman, W. (1995a). Criminal careers of public places. In J. E. Eck& D. Weisburd (Eds.), *Crime and place*. Crime Prevention Studies, vol. 4 (pp. 115-144). Monsey, NY: Criminal Justice Press.
- Spelman, W. (1995b). Once bitten, then what? Cross-sectional and time-course explanations of repeat victimization. *British Journal of Criminology*, 35, 366-383.

- Stockwell, T., Norberry, J. & Solomon, R. (1995). Liquor laws and the prevention of violence in and around Australian pubs and clubs. Paper presented at an International Conference on the Social and Health Effects of Different Drinking Patterns, Toronto, Canada, November 1995.
- Stockwell, T., Rydon, P., Lang, E. & Beel, A. (1993) An evaluation of the 'Freo Respects You' responsible alcohol service project. Report of the National Centre for Research into the Prevention of Drug Abuse, Curtin University, Perth, Australia.
- Taylor, B., Koper, C. S., & Woods, D. J. (2011). A randomized controlled trial of different policing strategies at hot spots of violent crime. *Journal of Experimental Criminology*, 7(2), 149-181.
- Taylor, N., & Mayhew, P. (2002). *Patterns of victimisation among small retail businesses* (Vol. 221). Canberra: Australian Institute for Criminology.
- Taylor, R. B. (1997). Social order and disorder of street-blocks and neighborhood: Ecology, microecology and the systemic model of social disorganization. *Journal of Research in Crime and Delinquency* 24, 113-155
- Taylor, R. B. & Harrell, A. V. (1996). *Physical Environment and Crime*. Washington, D.C.: National Institute of Justice.
- Tomsen S., Homel, R. & Thommeny, J. (1991). "The Causes of Public Violence: Situational "versus" Other Factors in Drinking Related Assaults." In: D. Chappell, P. Grabosky and H. Strang (eds.), *Australian Violence, Contemporary Perspectives*. Canberra: Australian Institute of Criminology.
- Townsend, M. (2008). Visualising space time patterns in crime: the hotspot plot. *Crime patterns and analysis*, 1(1), 61-74.
- Townsend, M., Homel, R., & Chaseling, J. (2000). Repeat burglary victimisation: Spatial and temporal patterns. *Australian and New Zealand Journal of Criminology*, 33, 37-63.
- Tuttle, B. (2009). *How Newark became Newark: the rise, fall, and rebirth of an American City* Rutgers University Press.
- Uniform Crime Report [UCR]. (2012). Crime in the United States 2011: Annual Uniform Crime Report, U.S. Department of Justice, Federal Bureau of Investigation Washington, DC.
- Uniform Crime Report [UCR]. (2007). Crime in the United States 2006: Annual Uniform Crime Report, U.S. Department of Justice, Federal Bureau of Investigation Washington, DC.

- Uittenbogaard, A., & Ceccato, V. (2012). Space-time clusters of crime in Stockholm, Sweden. *Review of European studies*, 4(5), p148.
- U.S. Census Bureau (2010). Census 2010. "Profile of General Population and Housing Characteristics: 2010, Newark, NJ." 2010 Demographic Profile Data. Retrieved on June 15th, 2013 from <http://factfinder2.census.gov>.
- Van Kopen P.J. & Jansen R.W.J. (1999) The time to rob: variation in time of number of commercial robberies. *Journal of Research in Crime and Delinquency* 36:7–29
- Wallin, E., Norström, T., & Andréasson, S. (2003). Alcohol prevention targeting licensed premises: a study of effects on violence. *Journal of Studies on Alcohol and Drugs*, 64(2), 270.
- Weisburd, D. L. and Braga, A.A. (2003). "Hot Spots Policing." In *Crime Prevention: New Approaches*, edited by Helmut Kury and Joachim Obergfell-Fuchs. Mainz, Germany: Weisser Ring.
- Weisburd, D.L., Bushway, S., Lum, C., & Yang, S.M. (2004). Trajectories of crime at places: A longitudinal study of street segments in the city of Seattle. *Criminology*, 42, 283-322
- Weisburd, D.L., Maher, L. & Sherman, L. (1992) Contrasting crime general and crime specific theory: the case of hot-spots of crime. *Advances in Criminological Theory*, 4: 45-70.
- Wiles, P., & Costello, A. (2000). *Home Office Research Study 207: The 'Road to Nowhere': The Evidence for Travelling Criminals*. London: Crown.
- Wilson, J. Q., & Kelling, G. L. (1982). Broken windows. *Atlantic monthly*, 249(3), 29-38.
- Zipf, G. K. (1949). *Human behavior and the principle of least effort: An introduction to human ecology*. Cambridge, MA: Addison-Wesley Press.

APPENDIX A:**DISORDER CALLS FOR SERVICE CUMULATIVE J-CURVE TABLE FOR 2010**

| Rank | Bars | Calls for Service | % Bar Disorder | Cumulative % Bar Disorder | Cumulative % Bars |
|------|---|-------------------|----------------|---------------------------|-------------------|
| 1 | Brisas Del Mar Rest. | 34 | 3.00% | 3.00% | 0.56% |
| 1 | La Roca Night Club | 34 | 3.00% | 6.00% | 1.11% |
| 3 | Misavi Restaurant & Lounge | 31 | 2.74% | 8.74% | 1.67% |
| 4 | Sagres Bar and Rest | 29 | 2.56% | 11.30% | 2.22% |
| 5 | NJ Tu Casa Rest. | 28 | 2.47% | 13.77% | 2.78% |
| 6 | Casa Nova Grill/Sol-Mar Bar and Rest | 27 | 2.38% | 16.15% | 3.33% |
| 6 | Price's Lounge | 27 | 2.38% | 18.53% | 3.89% |
| 8 | The Atmosphere Bar & Lounge | 26 | 2.29% | 20.83% | 4.44% |
| 8 | (Holiday Inn) Teddy's | 26 | 2.29% | 23.12% | 5.00% |
| 10 | Nuestra Casa Restaurante | 25 | 2.21% | 25.33% | 5.56% |
| 11 | El Consorcio Tavern | 24 | 2.12% | 27.45% | 6.11% |
| 12 | Guitar Bar | 21 | 1.85% | 29.30% | 6.67% |
| 12 | Ecuadominican Sports Bar | 21 | 1.85% | 31.16% | 7.22% |
| 12 | Spain Restaurant Inc | 21 | 1.85% | 33.01% | 7.78% |
| 15 | Miller's Café | 16 | 1.41% | 34.42% | 8.33% |
| 15 | April's Lounge/Fleming Ave Bar & Barbeque | 16 | 1.41% | 35.83% | 8.89% |
| 15 | Tony's Marisqueira | 16 | 1.41% | 37.25% | 9.44% |
| 18 | Keen's Corner | 15 | 1.32% | 38.57% | 10.00% |
| 18 | El Morro Bar | 15 | 1.32% | 39.89% | 10.56% |
| 20 | Boardwalk Saloon | 14 | 1.24% | 41.13% | 11.11% |
| 20 | Oasis 93 | 14 | 1.24% | 42.37% | 11.67% |
| 20 | Esther's Place | 14 | 1.24% | 43.60% | 12.22% |
| 23 | Courtyard by Marriott | 13 | 1.15% | 44.75% | 12.78% |
| 23 | Hell's Kitchen Lounge | 13 | 1.15% | 45.90% | 13.33% |
| 23 | Zepe's Café And Bar | 13 | 1.15% | 47.04% | 13.89% |

| | | | | | |
|----|--|----|-------|--------|--------|
| 26 | Andros Diner | 12 | 1.06% | 48.10% | 14.44% |
| 26 | The Arena Bar | 12 | 1.06% | 49.16% | 15.00% |
| 26 | Barbeque | 12 | 1.06% | 50.22% | 15.56% |
| 26 | El Merenque Rest. | 12 | 1.06% | 51.28% | 16.11% |
| 26 | Cervejaria Vianense | 12 | 1.06% | 52.34% | 16.67% |
| 26 | Club Espana | 12 | 1.06% | 53.40% | 17.22% |
| 32 | Mercedes Mink | 11 | 0.97% | 54.37% | 17.78% |
| 32 | Boi Na Brasa Bar & Grill | 11 | 0.97% | 55.34% | 18.33% |
| 32 | Ms. Theresa's | 11 | 0.97% | 56.31% | 18.89% |
| 35 | Iberias Tavern & Rest./Mompou Tapas Bar | 10 | 0.88% | 57.19% | 19.44% |
| 35 | Pat's Bill's Bar | 10 | 0.88% | 58.08% | 20.00% |
| 35 | Portugalia Bar and Rest | 10 | 0.88% | 58.96% | 20.56% |
| 35 | The Hideout | 10 | 0.88% | 59.84% | 21.11% |
| 35 | North End Grill | 10 | 0.88% | 60.72% | 21.67% |
| 40 | The Players Club/El Bachatipico Restaurant | 9 | 0.79% | 61.52% | 22.22% |
| 40 | Hilton Newark Penn Station | 9 | 0.79% | 62.31% | 22.78% |
| 40 | New Cozy Corner | 9 | 0.79% | 63.11% | 23.33% |
| 43 | Garde Sports Snack Bar | 8 | 0.71% | 63.81% | 23.89% |
| 43 | Fonte Dos Namorados Night Club | 8 | 0.71% | 64.52% | 24.44% |
| 43 | Thomas Bar | 8 | 0.71% | 65.23% | 25.00% |
| 43 | River Bank | 8 | 0.71% | 65.93% | 25.56% |
| 47 | Best Western Nwk Airport | 7 | 0.62% | 66.55% | 26.11% |
| 47 | Oasis Liquor Bar | 7 | 0.62% | 67.17% | 26.67% |
| 47 | Kalypso Bar & Grill | 7 | 0.62% | 67.78% | 27.22% |
| 47 | City Chop House | 7 | 0.62% | 68.40% | 27.78% |
| 47 | Palacio Europa | 7 | 0.62% | 69.02% | 28.33% |
| 47 | Dark Shadows | 7 | 0.62% | 69.64% | 28.89% |

| | | | | | |
|----|------------------------------------|---|-------|--------|--------|
| 47 | The Lunch Place | 7 | 0.62% | 70.26% | 29.44% |
| 47 | Titanic | 7 | 0.62% | 70.87% | 30.00% |
| 47 | Madrid/Lisbon Restaurant | 7 | 0.62% | 71.49% | 30.56% |
| 47 | Seabra's | 7 | 0.62% | 72.11% | 31.11% |
| 47 | Flamboyant Manor | 7 | 0.62% | 72.73% | 31.67% |
| 47 | Alice's Pioneer Pub | 7 | 0.62% | 73.35% | 32.22% |
| 47 | New Silver Key Tavern | 7 | 0.62% | 73.96% | 32.78% |
| 60 | Fernandez Restaurant and Bar | 6 | 0.53% | 74.49% | 33.33% |
| 60 | Morgans Whitey's | 6 | 0.53% | 75.02% | 33.89% |
| 60 | In The Mood | 6 | 0.53% | 75.55% | 34.44% |
| 60 | Vivo Tapas Lounge& Delicias Bakery | 6 | 0.53% | 76.08% | 35.00% |
| 60 | Play House | 6 | 0.53% | 76.61% | 35.56% |
| 60 | Assagini Di Roma | 6 | 0.53% | 77.14% | 36.11% |
| 60 | O Emigrante Bar & Rest. | 6 | 0.53% | 77.67% | 36.67% |
| 60 | Newark Sheraton | 6 | 0.53% | 78.20% | 37.22% |
| 60 | Fornos of Spain Restaurant | 6 | 0.53% | 78.73% | 37.78% |
| 60 | 27 Mix | 6 | 0.53% | 79.26% | 38.33% |
| 60 | Club Chester | 6 | 0.53% | 79.79% | 38.89% |
| 60 | Norwood Lounge | 6 | 0.53% | 80.32% | 39.44% |
| 60 | Poor Tuga Bar and Rest. | 6 | 0.53% | 80.85% | 40.00% |
| 60 | Days Hotel Newark Airport | 6 | 0.53% | 81.38% | 40.56% |
| 60 | A Tasca Do Pedras | 6 | 0.53% | 81.91% | 41.11% |
| 75 | Xcape Café | 5 | 0.44% | 82.35% | 41.67% |
| 75 | Nick's Bar/Killkenny Alehouse | 5 | 0.44% | 82.79% | 42.22% |
| 75 | Epps Lounge | 5 | 0.44% | 83.23% | 42.78% |
| 75 | Lounge 13 | 5 | 0.44% | 83.67% | 43.33% |
| 75 | Famous Rest & Cocktail Long. | 5 | 0.44% | 84.11% | 43.89% |

| | | | | | |
|----|------------------------------|---|-------|--------|--------|
| 75 | Rio Douro Bar and Rest | 5 | 0.44% | 84.55% | 44.44% |
| 75 | Wiggles Go-Go | 5 | 0.44% | 85.00% | 45.00% |
| 75 | Casa Vasca Rest | 5 | 0.44% | 85.44% | 45.56% |
| 75 | Hobby's Rest | 5 | 0.44% | 85.88% | 46.11% |
| 75 | Lancers Rest | 5 | 0.44% | 86.32% | 46.67% |
| 85 | Sammy's Place | 4 | 0.35% | 86.67% | 47.22% |
| 85 | Hollywood Lounge | 4 | 0.35% | 87.03% | 47.78% |
| 85 | Chateau of Spain | 4 | 0.35% | 87.38% | 48.33% |
| 85 | MMM Bello's Pub | 4 | 0.35% | 87.73% | 48.89% |
| 85 | Lillian's Treatmount | 4 | 0.35% | 88.08% | 49.44% |
| 85 | Club Vanity | 4 | 0.35% | 88.44% | 50.00% |
| 85 | Temple Sheba | 4 | 0.35% | 88.79% | 50.56% |
| 85 | Crystal Café | 4 | 0.35% | 89.14% | 51.11% |
| 85 | People's Choice Lounge | 4 | 0.35% | 89.50% | 51.67% |
| 85 | Lucky 7 Night Club | 4 | 0.35% | 89.85% | 52.22% |
| 95 | Club Kanesshie | 3 | 0.26% | 90.11% | 52.78% |
| 95 | 60 Park Grill/Key Club | 3 | 0.26% | 90.38% | 53.33% |
| 95 | The Priory | 3 | 0.26% | 90.64% | 53.89% |
| 95 | A&R Lounge | 3 | 0.26% | 90.91% | 54.44% |
| 95 | Lefty's | 3 | 0.26% | 91.17% | 55.00% |
| 95 | Coimbra Bar and Rest. | 3 | 0.26% | 91.44% | 55.56% |
| 95 | Brasilia Grill | 3 | 0.26% | 91.70% | 56.11% |
| 95 | Lugo Bar | 3 | 0.26% | 91.97% | 56.67% |
| 95 | The Sensation Entert. Complx | 3 | 0.26% | 92.23% | 57.22% |
| 95 | Primabel Bar and Rest | 3 | 0.26% | 92.50% | 57.78% |
| 95 | Ben's Sports Bar & Rest | 3 | 0.26% | 92.76% | 58.33% |
| 95 | QXT's/City Café Bar & Rest. | 3 | 0.26% | 93.03% | 58.89% |

| | | | | | |
|-----|------------------------------------|---|-------|--------|--------|
| 95 | Villa Indio | 3 | 0.26% | 93.29% | 59.44% |
| 95 | Gandarez Bar & Rest/Tony Da Caneca | 3 | 0.26% | 93.56% | 60.00% |
| 95 | Scully's Publick House | 3 | 0.26% | 93.82% | 60.56% |
| 95 | House of Stars | 3 | 0.26% | 94.09% | 61.11% |
| 111 | The Spot Lounge | 2 | 0.18% | 94.26% | 61.67% |
| 111 | Cacchacaria Agua Doce | 2 | 0.18% | 94.44% | 62.22% |
| 111 | Cortico Cervejaria Paulino | 2 | 0.18% | 94.62% | 62.78% |
| 111 | George and I Tavern | 2 | 0.18% | 94.79% | 63.33% |
| 111 | Day After | 2 | 0.18% | 94.97% | 63.89% |
| 111 | Estrela Da Ponderosa | 2 | 0.18% | 95.15% | 64.44% |
| 111 | Tio Pepe Restaruant | 2 | 0.18% | 95.32% | 65.00% |
| 111 | Don Pepe Rest & Cocktail Long. | 2 | 0.18% | 95.50% | 65.56% |
| 111 | Muralhas Restaurant | 2 | 0.18% | 95.68% | 66.11% |
| 111 | Hawks Patio Lounge | 2 | 0.18% | 95.85% | 66.67% |
| 111 | La Luna Night Club | 2 | 0.18% | 96.03% | 67.22% |
| 111 | Campino Mercado XL Lounge | 2 | 0.18% | 96.20% | 67.78% |
| 111 | Passions Sports Bar & Café | 2 | 0.18% | 96.38% | 68.33% |
| 111 | Beira Mar of Spain | 2 | 0.18% | 96.56% | 68.89% |
| 111 | New Paul's Cocktail Lounge | 2 | 0.18% | 96.73% | 69.44% |
| 111 | Spanish Tavern II | 2 | 0.18% | 96.91% | 70.00% |
| 111 | Applebee's Neighborhood Grill | 2 | 0.18% | 97.09% | 70.56% |
| 111 | Starlight (Ramada) | 2 | 0.18% | 97.26% | 71.11% |
| 111 | Uncle Sal's Play Bar 2 | 2 | 0.18% | 97.44% | 71.67% |
| 111 | Offside Bar and Rest | 2 | 0.18% | 97.62% | 72.22% |
| 111 | Don Costa Lounge | 2 | 0.18% | 97.79% | 72.78% |
| 111 | Knockouts | 2 | 0.18% | 97.97% | 73.33% |
| 111 | El Criollo Rest | 2 | 0.18% | 98.15% | 73.89% |

| | | | | | |
|-----|---------------------------------------|---|-------|---------|--------|
| 111 | Agarimo Tapas Bar Inc | 2 | 0.18% | 98.32% | 74.44% |
| 135 | After Dark | 1 | 0.09% | 98.41% | 75.00% |
| 135 | Knobby's Lounge | 1 | 0.09% | 98.50% | 75.56% |
| 135 | Sophis. Ladies and Gentlemen | 1 | 0.09% | 98.59% | 76.11% |
| 135 | Ideal Bar and Rest | 1 | 0.09% | 98.68% | 76.67% |
| 135 | Spanish Sangria Rest | 1 | 0.09% | 98.76% | 77.22% |
| 135 | Allegro Bar | 1 | 0.09% | 98.85% | 77.78% |
| 135 | Taste of Portugal | 1 | 0.09% | 98.94% | 78.33% |
| 135 | Pepino Bar & Liquor | 1 | 0.09% | 99.03% | 78.89% |
| 135 | Paleio Bar & Grill | 1 | 0.09% | 99.12% | 79.44% |
| 135 | La Conga Bar | 1 | 0.09% | 99.21% | 80.00% |
| 135 | Spanish Manor | 1 | 0.09% | 99.29% | 80.56% |
| 135 | Je's Coffee Shop | 1 | 0.09% | 99.38% | 81.11% |
| 135 | Happy Hour Café | 1 | 0.09% | 99.47% | 81.67% |
| 135 | Club Internacional | 1 | 0.09% | 99.56% | 82.22% |
| 135 | El Pastor bar & Rest | 1 | 0.09% | 99.65% | 82.78% |
| 135 | Maite | 1 | 0.09% | 99.74% | 83.33% |
| 135 | Mediterranean Manor | 1 | 0.09% | 99.82% | 83.89% |
| 135 | Blitz Sports Bar/Blue Ocean Snack Bar | 1 | 0.09% | 99.91% | 84.44% |
| 135 | Krugs Tavern | 1 | 0.09% | 100.00% | 85.00% |

APPENDIX B:**DISORDER CALLS FOR SERVICE CUMULATIVE J-CURVE TABLE FOR 2011**

| Rank | Bars | Calls for Service | % Bar Disorder | Cumulative % Bar Disorder | Cumulative % Bars |
|------|---|-------------------|----------------|---------------------------|-------------------|
| 1 | Sagres Bar and Rest | 42 | 4.42% | 4.42% | 0.56% |
| 2 | Brisas Del Mar Rest. | 40 | 4.21% | 8.63% | 1.11% |
| 3 | La Roca Night Club | 32 | 3.37% | 12.00% | 1.67% |
| 4 | Nuestra Casa Restaurante | 28 | 2.95% | 14.95% | 2.22% |
| 5 | April's Lounge/Fleming Ave Bar & Barbeque | 26 | 2.74% | 17.68% | 2.78% |
| 6 | Zepe's Café And Bar | 23 | 2.42% | 20.11% | 3.33% |
| 7 | Casa Nova Grill/Sol-Mar Bar and Rest | 22 | 2.32% | 22.42% | 3.89% |
| 8 | Price's Lounge | 19 | 2.00% | 24.42% | 4.44% |
| 8 | (Holiday Inn) Teddy's | 19 | 2.00% | 26.42% | 5.00% |
| 8 | Keen's Corner | 19 | 2.00% | 28.42% | 5.56% |
| 11 | Thomas Bar | 16 | 1.68% | 30.11% | 6.11% |
| 11 | NJ Tu Casa Rest. | 16 | 1.68% | 31.79% | 6.67% |
| 11 | El Consorcio Tavern | 16 | 1.68% | 33.47% | 7.22% |
| 11 | Madrid/Lisbon Restaurant | 16 | 1.68% | 35.16% | 7.78% |
| 15 | The Atmosphere Bar & Lounge | 15 | 1.58% | 36.74% | 8.33% |
| 16 | Fornos of Spain Restaurant | 14 | 1.47% | 38.21% | 8.89% |
| 17 | Club Espana | 13 | 1.37% | 39.58% | 9.44% |
| 17 | 60 Park Grill/Key Club | 13 | 1.37% | 40.95% | 10.00% |
| 17 | Hell's Kitchen Lounge | 13 | 1.37% | 42.32% | 10.56% |
| 20 | Portugalia Bar and Rest | 12 | 1.26% | 43.58% | 11.11% |
| 20 | Nick's Bar/Killkenny Alehouse | 12 | 1.26% | 44.84% | 11.67% |
| 20 | El Morro Bar | 12 | 1.26% | 46.11% | 12.22% |
| 20 | In The Mood | 12 | 1.26% | 47.37% | 12.78% |
| 20 | Andros Diner | 12 | 1.26% | 48.63% | 13.33% |
| 25 | Tony's Marisqueira | 11 | 1.16% | 49.79% | 13.89% |

| | | | | | |
|----|--|----|-------|--------|--------|
| 25 | Misavi Restaurant & Lounge | 11 | 1.16% | 50.95% | 14.44% |
| 25 | Villa Indio | 11 | 1.16% | 52.11% | 15.00% |
| 25 | Barbeque | 11 | 1.16% | 53.26% | 15.56% |
| 29 | 27 Mix | 10 | 1.05% | 54.32% | 16.11% |
| 29 | Cervejaria Vianense | 10 | 1.05% | 55.37% | 16.67% |
| 29 | Hilton Newark Penn Station | 10 | 1.05% | 56.42% | 17.22% |
| 29 | Agarimo Tapas Bar Inc | 10 | 1.05% | 57.47% | 17.78% |
| 29 | Ecuadominican Sports Bar | 10 | 1.05% | 58.53% | 18.33% |
| 29 | Miller's Café | 10 | 1.05% | 59.58% | 18.89% |
| 29 | El Merenque Rest. | 10 | 1.05% | 60.63% | 19.44% |
| 36 | Happy Hour Café | 9 | 0.95% | 61.58% | 20.00% |
| 36 | Spain Restaurant Inc | 9 | 0.95% | 62.53% | 20.56% |
| 36 | El Pastor bar & Rest | 9 | 0.95% | 63.47% | 21.11% |
| 36 | Newark Sheraton | 9 | 0.95% | 64.42% | 21.67% |
| 36 | People's Choice Lounge | 9 | 0.95% | 65.37% | 22.22% |
| 41 | River Bank | 8 | 0.84% | 66.21% | 22.78% |
| 41 | Hobby's Rest | 8 | 0.84% | 67.05% | 23.33% |
| 41 | The Players Club/El Bachatipico Restaurant | 8 | 0.84% | 67.89% | 23.89% |
| 41 | Mediterranean Manor | 8 | 0.84% | 68.74% | 24.44% |
| 45 | Lucky 7 Night Club | 7 | 0.74% | 69.47% | 25.00% |
| 45 | Lugo Bar | 7 | 0.74% | 70.21% | 25.56% |
| 47 | City Chop House | 6 | 0.63% | 70.84% | 26.11% |
| 47 | Garde Sports Snack Bar | 6 | 0.63% | 71.47% | 26.67% |
| 47 | Oasis 93 | 6 | 0.63% | 72.11% | 27.22% |
| 47 | Wiggles Go-Go | 6 | 0.63% | 72.74% | 27.78% |
| 47 | Campino Mercado XL Lounge | 6 | 0.63% | 73.37% | 28.33% |
| 47 | Play House | 6 | 0.63% | 74.00% | 28.89% |

| | | | | | |
|----|---|---|-------|--------|--------|
| 47 | The Hideout | 6 | 0.63% | 74.63% | 29.44% |
| 47 | Ideal Bar and Rest | 6 | 0.63% | 75.26% | 30.00% |
| 47 | Maite | 6 | 0.63% | 75.89% | 30.56% |
| 47 | Chateau of Spain | 6 | 0.63% | 76.53% | 31.11% |
| 57 | Iberias Tavern & Rest./Mompou Tapas Bar | 5 | 0.53% | 77.05% | 31.67% |
| 57 | Poor Tuga Bar and Rest. | 5 | 0.53% | 77.58% | 32.22% |
| 57 | Sammy's Place | 5 | 0.53% | 78.11% | 32.78% |
| 57 | Fonte Dos Namorados Night Club | 5 | 0.53% | 78.63% | 33.33% |
| 57 | Oasis Liquor Bar | 5 | 0.53% | 79.16% | 33.89% |
| 57 | QXT's/City Café Bar & Rest. | 5 | 0.53% | 79.68% | 34.44% |
| 57 | Boardwalk Saloon | 5 | 0.53% | 80.21% | 35.00% |
| 57 | Esther's Place | 5 | 0.53% | 80.74% | 35.56% |
| 57 | Knockouts | 5 | 0.53% | 81.26% | 36.11% |
| 66 | Norwood Lounge | 4 | 0.42% | 81.68% | 36.67% |
| 66 | Applebee's Neighborhood Grill | 4 | 0.42% | 82.11% | 37.22% |
| 66 | The Priory | 4 | 0.42% | 82.53% | 37.78% |
| 66 | Lancers Rest | 4 | 0.42% | 82.95% | 38.33% |
| 66 | Boi Na Brasa Bar & Grill | 4 | 0.42% | 83.37% | 38.89% |
| 66 | Lillian's Treamount Ig. | 4 | 0.42% | 83.79% | 39.44% |
| 66 | Epps Lounge | 4 | 0.42% | 84.21% | 40.00% |
| 66 | Mercedes Mink | 4 | 0.42% | 84.63% | 40.56% |
| 66 | Famous Rest & Cocktail Long. | 4 | 0.42% | 85.05% | 41.11% |
| 66 | Morgans Whitey's | 4 | 0.42% | 85.47% | 41.67% |
| 66 | A Tasca Do Pedras | 4 | 0.42% | 85.89% | 42.22% |
| 66 | Ms. Theresa's | 4 | 0.42% | 86.32% | 42.78% |
| 66 | O Emigrante Bar & Rest. | 4 | 0.42% | 86.74% | 43.33% |
| 66 | Gandarez Bar & Rest/Tony Da Caneca | 4 | 0.42% | 87.16% | 43.89% |

| | | | | | |
|----|------------------------------------|---|-------|--------|--------|
| 80 | John's Place | 3 | 0.32% | 87.47% | 44.44% |
| 80 | Scully's Publick House | 3 | 0.32% | 87.79% | 45.00% |
| 80 | New Paul's Cocktail Lounge | 3 | 0.32% | 88.11% | 45.56% |
| 80 | Beira Mar of Spain | 3 | 0.32% | 88.42% | 46.11% |
| 80 | Taste of Portugal | 3 | 0.32% | 88.74% | 46.67% |
| 80 | Palacio Europa | 3 | 0.32% | 89.05% | 47.22% |
| 80 | Robert Treat Hotel | 3 | 0.32% | 89.37% | 47.78% |
| 80 | Pat's Bill's Bar | 3 | 0.32% | 89.68% | 48.33% |
| 80 | North End Grill | 3 | 0.32% | 90.00% | 48.89% |
| 80 | Spanish Tavern II | 3 | 0.32% | 90.32% | 49.44% |
| 80 | Fernandez Restaurant and Bar | 3 | 0.32% | 90.63% | 50.00% |
| 80 | The Arena Bar | 3 | 0.32% | 90.95% | 50.56% |
| 80 | Flamboyant Manor | 3 | 0.32% | 91.26% | 51.11% |
| 80 | Muralhas Restaurant | 3 | 0.32% | 91.58% | 51.67% |
| 80 | Vivo Tapas Lounge& Delicias Bakery | 3 | 0.32% | 91.89% | 52.22% |
| 80 | Offside Bar and Rest | 3 | 0.32% | 92.21% | 52.78% |
| 80 | Estrela Da Ponderosa | 3 | 0.32% | 92.53% | 53.33% |
| 97 | Temple Sheba | 2 | 0.21% | 92.74% | 53.89% |
| 97 | Sophis. Ladies and Gentlemen | 2 | 0.21% | 92.95% | 54.44% |
| 97 | Club Chester | 2 | 0.21% | 93.16% | 55.00% |
| 97 | Escorial Bar | 2 | 0.21% | 93.37% | 55.56% |
| 97 | Coimbra Bar and Rest. | 2 | 0.21% | 93.58% | 56.11% |
| 97 | Cacchacaria Agua Doce | 2 | 0.21% | 93.79% | 56.67% |
| 97 | The Newark Club | 2 | 0.21% | 94.00% | 57.22% |
| 97 | Day After | 2 | 0.21% | 94.21% | 57.78% |
| 97 | Hollywood Lounge | 2 | 0.21% | 94.42% | 58.33% |
| 97 | Don Manuel Rest | 2 | 0.21% | 94.63% | 58.89% |

| | | | | | |
|-----|--------------------------------|---|-------|--------|--------|
| 97 | Club Kanesshie | 2 | 0.21% | 94.84% | 59.44% |
| 97 | Don Pepe Rest & Cocktail Long. | 2 | 0.21% | 95.05% | 60.00% |
| 97 | La Luna Night Club | 2 | 0.21% | 95.26% | 60.56% |
| 97 | Ben's Sports Bar & Rest | 2 | 0.21% | 95.47% | 61.11% |
| 97 | George and I Tavern | 2 | 0.21% | 95.68% | 61.67% |
| 97 | McGovern's Tavern | 2 | 0.21% | 95.89% | 62.22% |
| 97 | Titanic | 2 | 0.21% | 96.11% | 62.78% |
| 97 | Club Internacional | 2 | 0.21% | 96.32% | 63.33% |
| 97 | Xcape Café | 2 | 0.21% | 96.53% | 63.89% |
| 97 | Rio Douro Bar and Rest | 2 | 0.21% | 96.74% | 64.44% |
| 97 | Seabra's | 2 | 0.21% | 96.95% | 65.00% |
| 97 | Casa Vasca Rest | 2 | 0.21% | 97.16% | 65.56% |
| 119 | The Village Bar & Rest | 1 | 0.11% | 97.26% | 66.11% |
| 119 | Crystal Café | 1 | 0.11% | 97.37% | 66.67% |
| 119 | MMM Bello's Pub | 1 | 0.11% | 97.47% | 67.22% |
| 119 | Felor Do Minho Bar | 1 | 0.11% | 97.58% | 67.78% |
| 119 | Je's Coffee Shop | 1 | 0.11% | 97.68% | 68.33% |
| 119 | Fernandes Restaurant II | 1 | 0.11% | 97.79% | 68.89% |
| 119 | Three Friends Tavern | 1 | 0.11% | 97.89% | 69.44% |
| 119 | Spanish Manor | 1 | 0.11% | 98.00% | 70.00% |
| 119 | Alice's Pioneer Pub | 1 | 0.11% | 98.11% | 70.56% |
| 119 | Best Western Nwk Airport | 1 | 0.11% | 98.21% | 71.11% |
| 119 | Club Vanity | 1 | 0.11% | 98.32% | 71.67% |
| 119 | Sport Club Portugues | 1 | 0.11% | 98.42% | 72.22% |
| 119 | Allegro Bar | 1 | 0.11% | 98.53% | 72.78% |
| 119 | Lounge 13 | 1 | 0.11% | 98.63% | 73.33% |
| 119 | Hawks Patio Lounge | 1 | 0.11% | 98.74% | 73.89% |

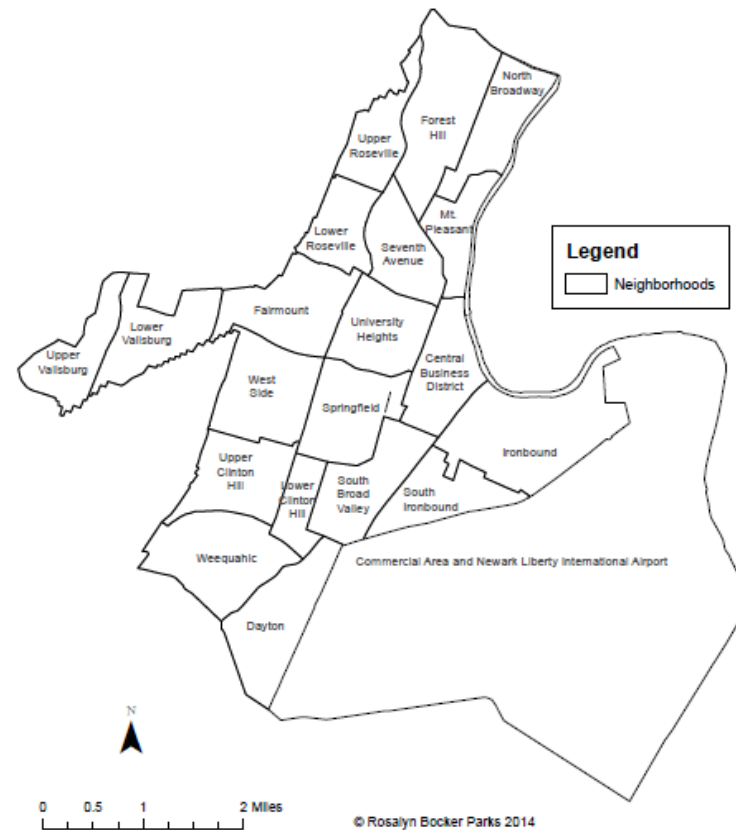
| | | | | | |
|-----|---------------------------------------|---|-------|---------|--------|
| 119 | Dark Shadows | 1 | 0.11% | 98.84% | 74.44% |
| 119 | Tio Pepe Restaruant | 1 | 0.11% | 98.95% | 75.00% |
| 119 | New Silver Key Tavern | 1 | 0.11% | 99.05% | 75.56% |
| 119 | Blitz Sports Bar/Blue Ocean Snack Bar | 1 | 0.11% | 99.16% | 76.11% |
| 119 | Uncle Sal's Play Bar 2 | 1 | 0.11% | 99.26% | 76.67% |
| 119 | Green Street Café | 1 | 0.11% | 99.37% | 77.22% |
| 119 | A&R Lounge | 1 | 0.11% | 99.47% | 77.78% |
| 119 | The Lunch Place | 1 | 0.11% | 99.58% | 78.33% |
| 119 | Knobby's Lounge | 1 | 0.11% | 99.68% | 78.89% |
| 119 | El Criollo Rest | 1 | 0.11% | 99.79% | 79.44% |
| 119 | Skipers Plane Street Pub | 1 | 0.11% | 99.89% | 80.00% |
| 119 | Arcos Viseu | 1 | 0.11% | 100.00% | 80.56% |

APPENDIX C:

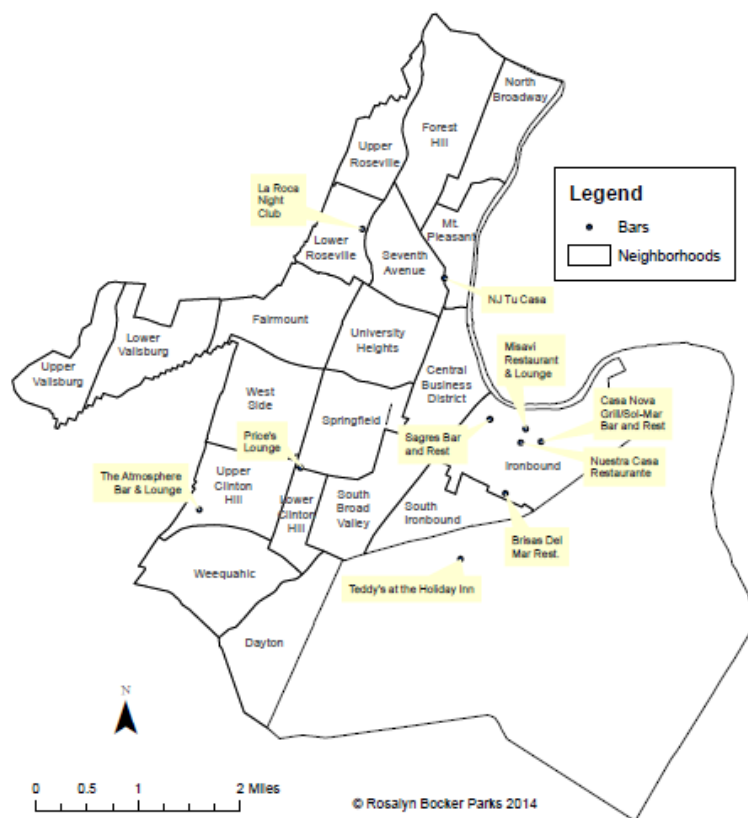
DESCRIPTIVE MAPS OF NEWARK, NEW JERSEY AND RESULTS OF THE

SPATIOTEMPORAL HOTSPOTS ANALYSIS OF BARS DISORDER

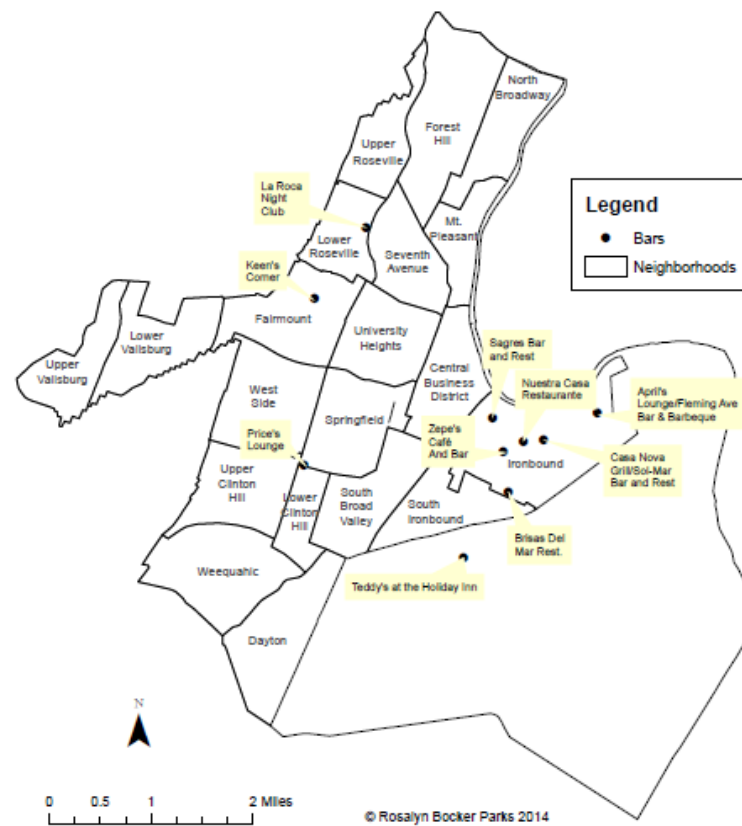
Newark, NJ's Neighborhoods



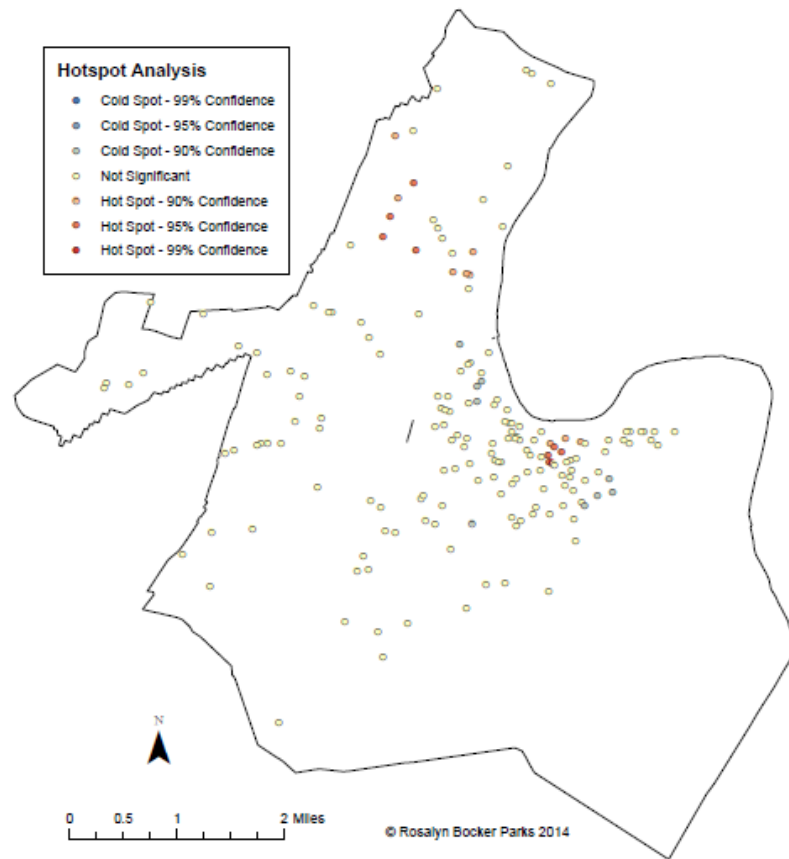
2010 Top Ten: Most Disorderly Bars in Newark, NJ



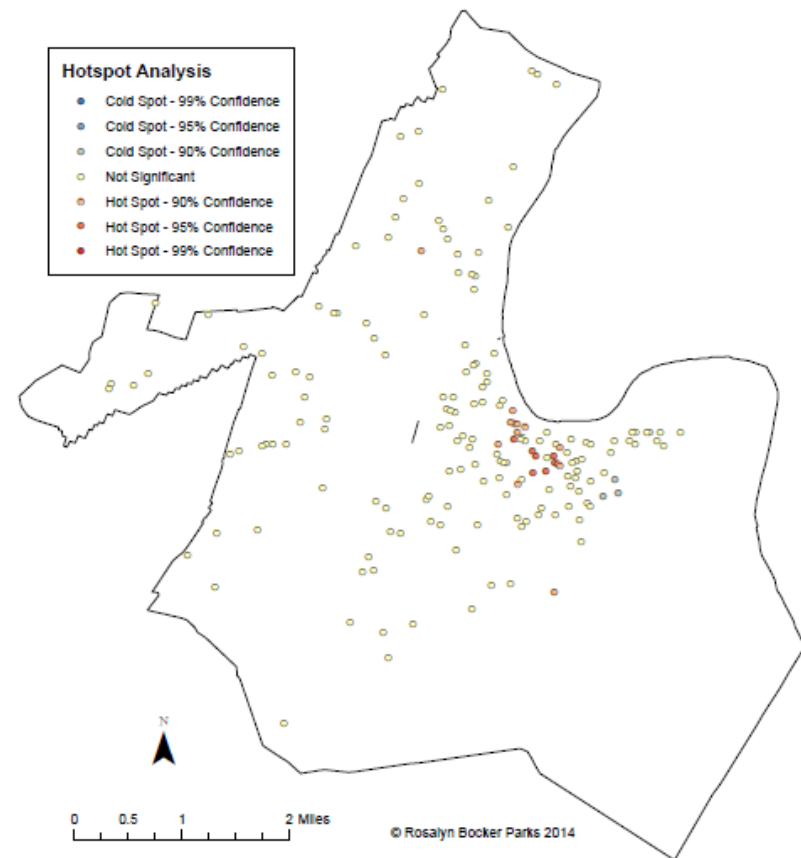
2011 Top Ten: Most Disorderly Bars in Newark, NJ



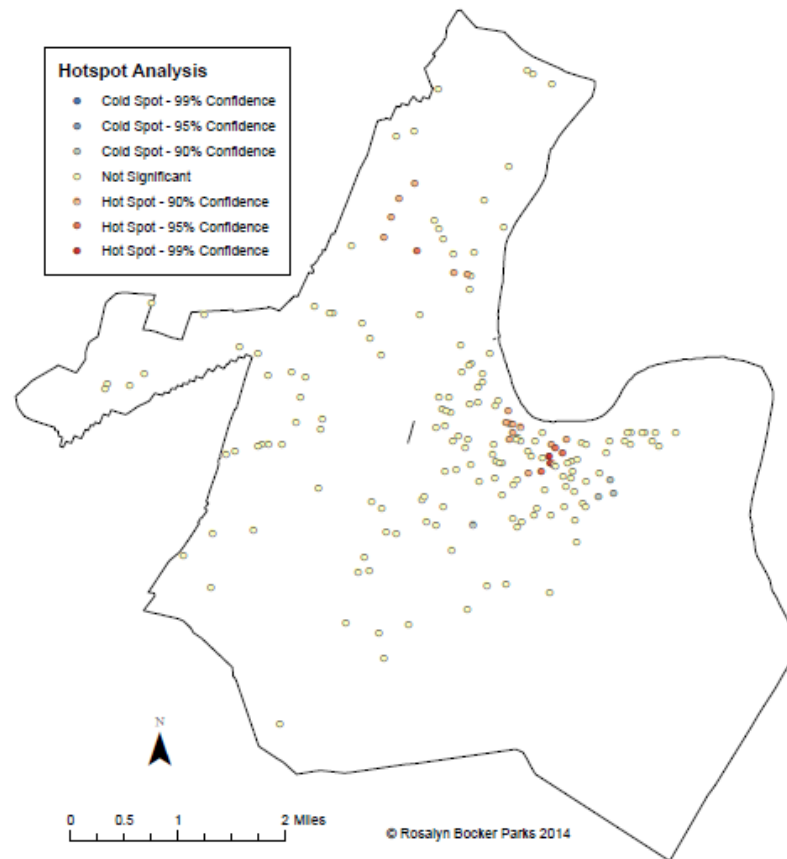
Newark, NJ Bar Disorder 2010



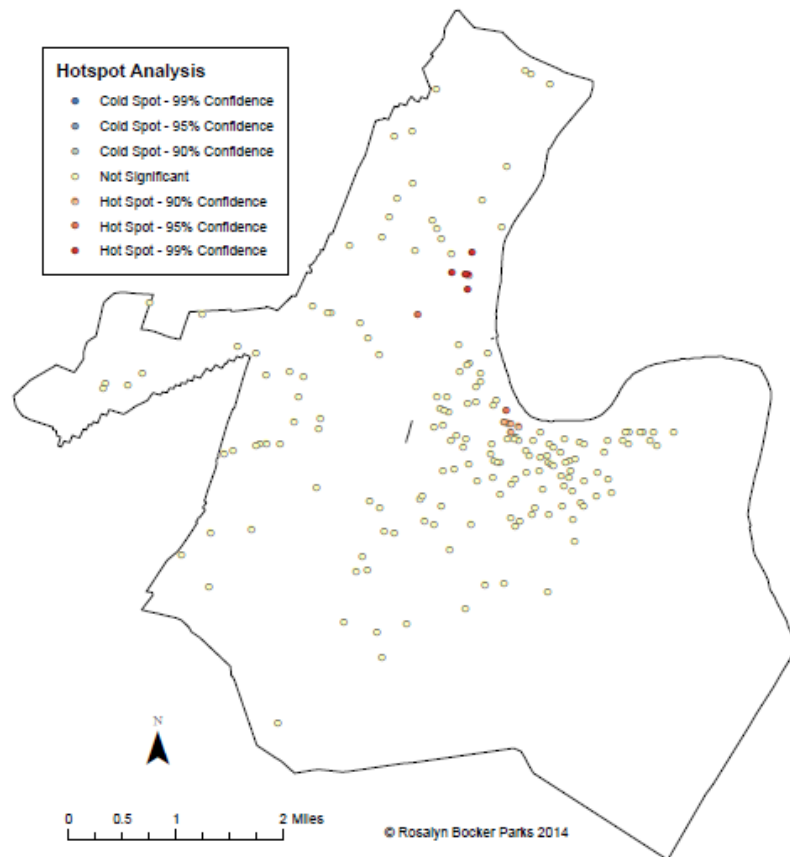
Newark, NJ Bar Disorder 2011



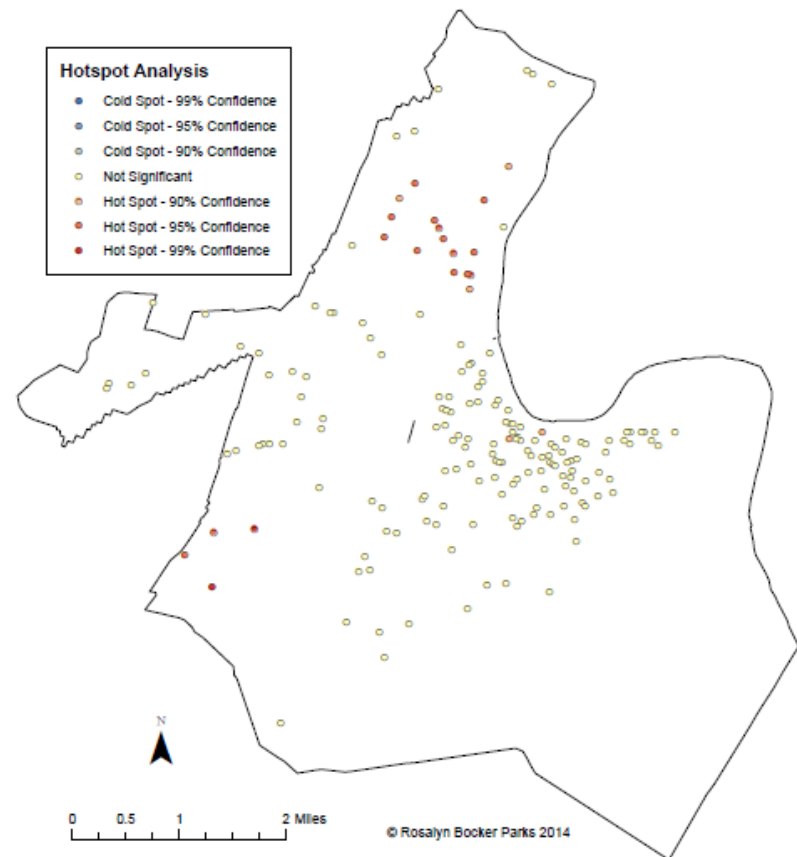
Newark, NJ Bar Disorder 2010-2011



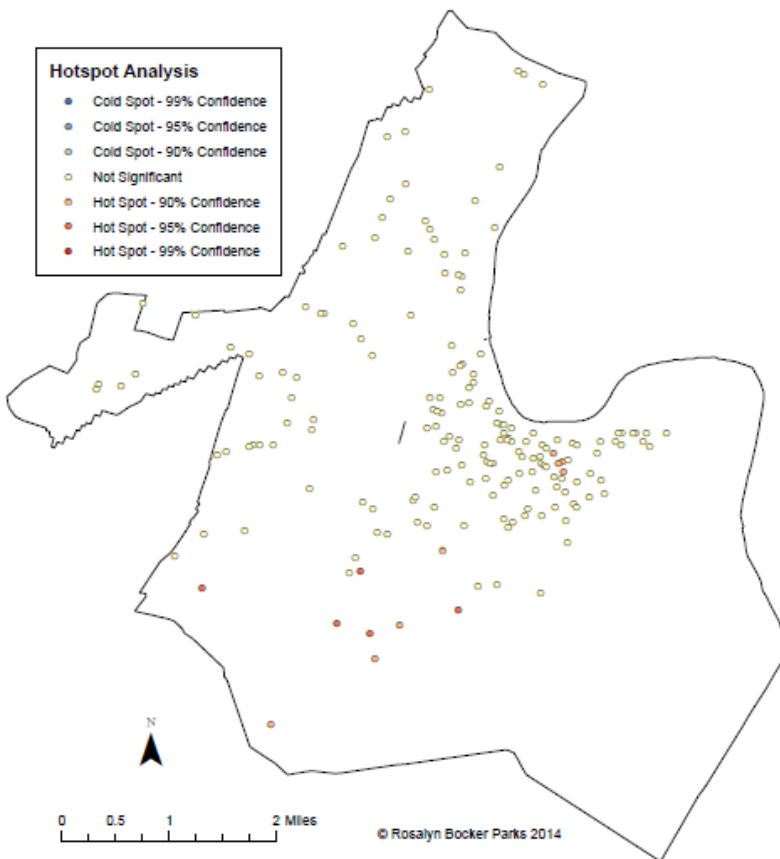
Newark, NJ Bar Disorder 8 am- 2 pm 2010



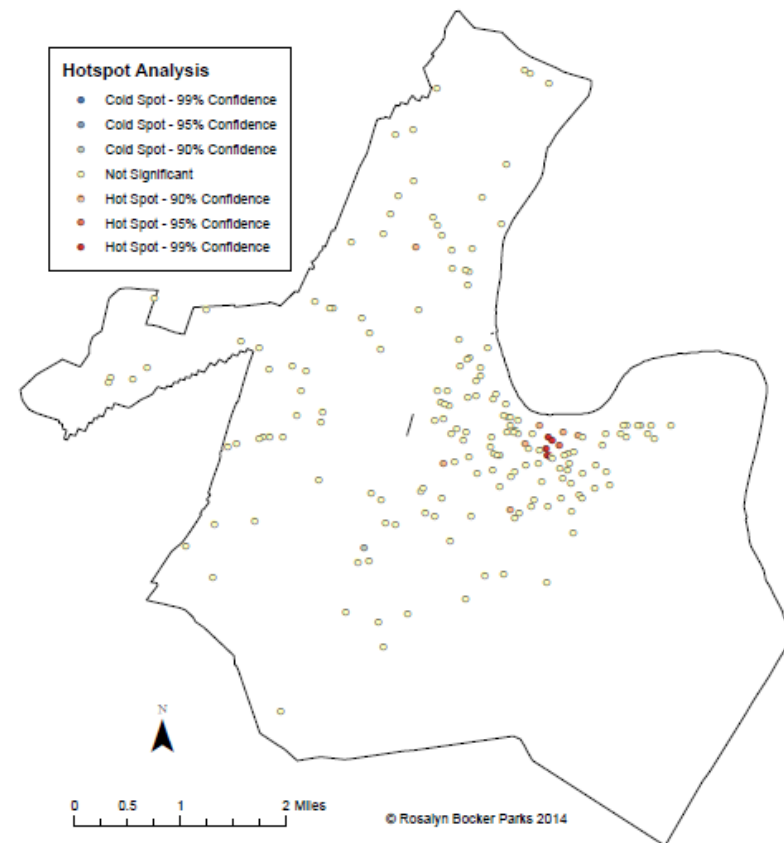
Newark, NJ Bar Disorder 2pm-6pm 2010



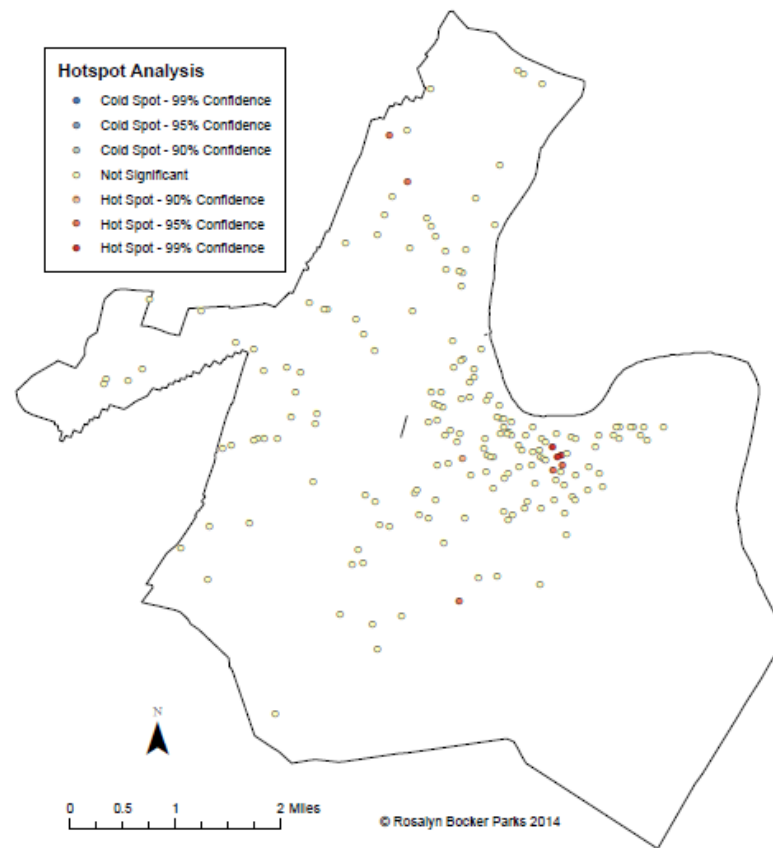
Newark, NJ Bar Disorder 6pm-9pm 2010



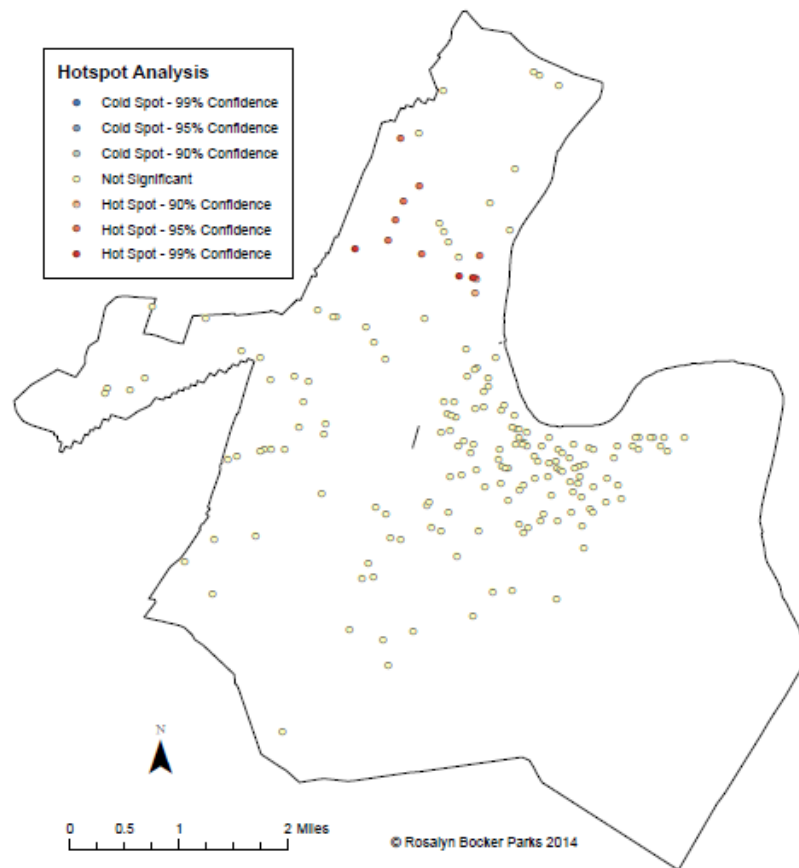
Newark, NJ Bar Disorder 9pm-3am 2010



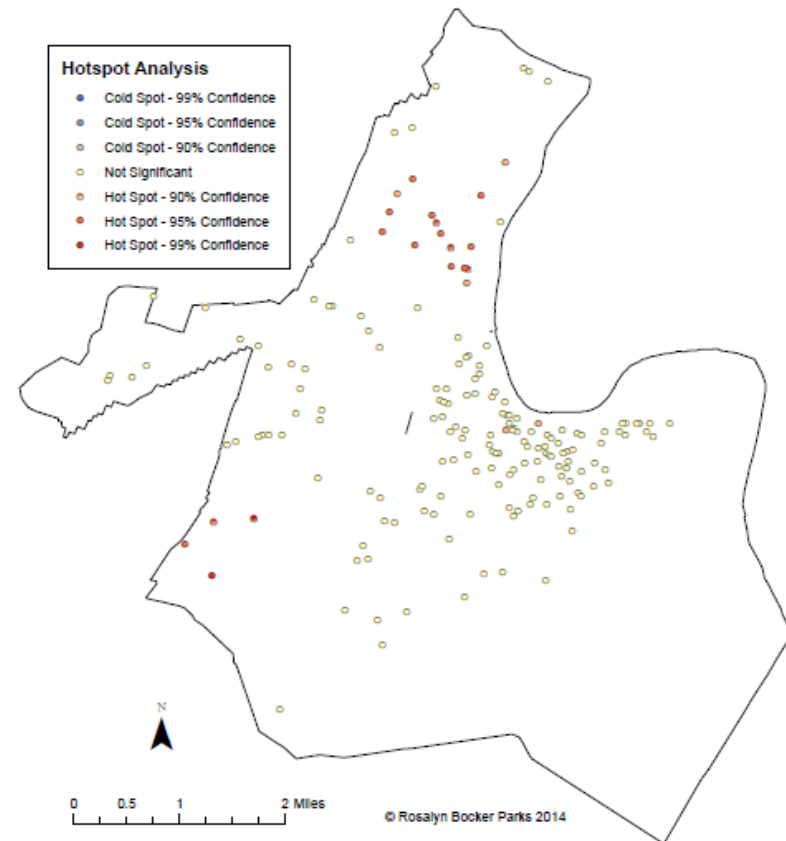
Newark, NJ Bar Disorder 3am-8am 2010



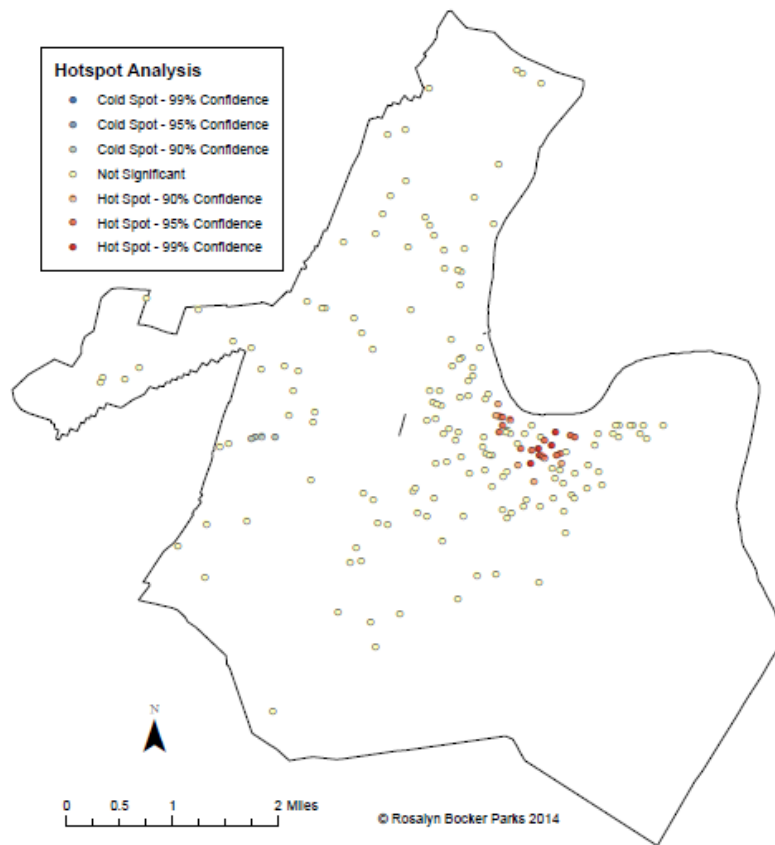
Newark, NJ Bar Disorder 8 am- 2 pm 2011



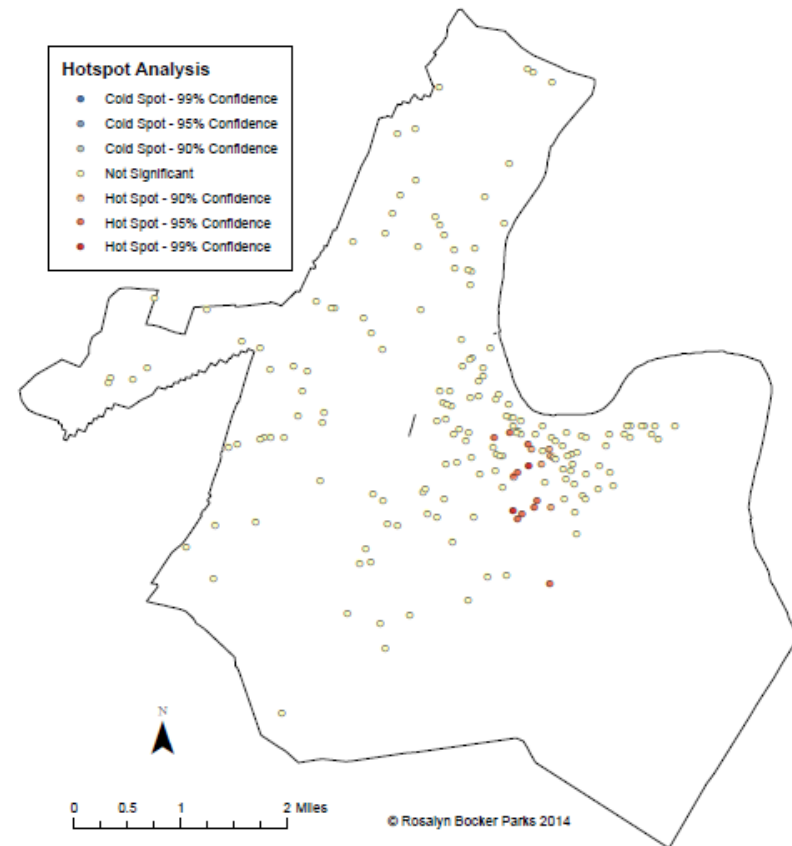
Newark, NJ Bar Disorder 2pm-6pm 2011



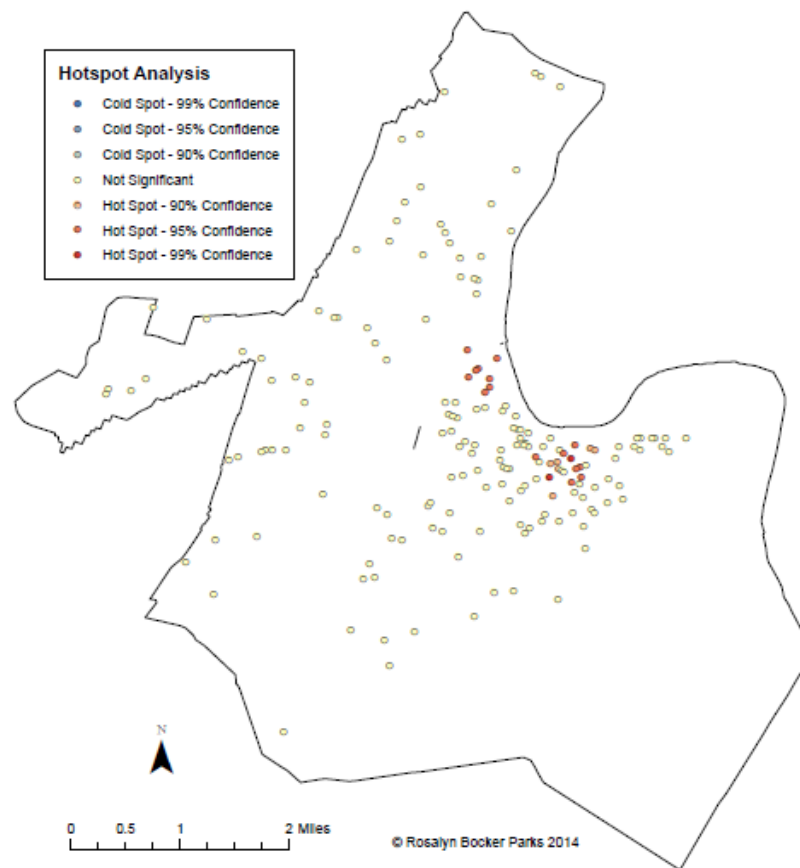
Newark, NJ Bar Disorder 6pm-9pm 2011



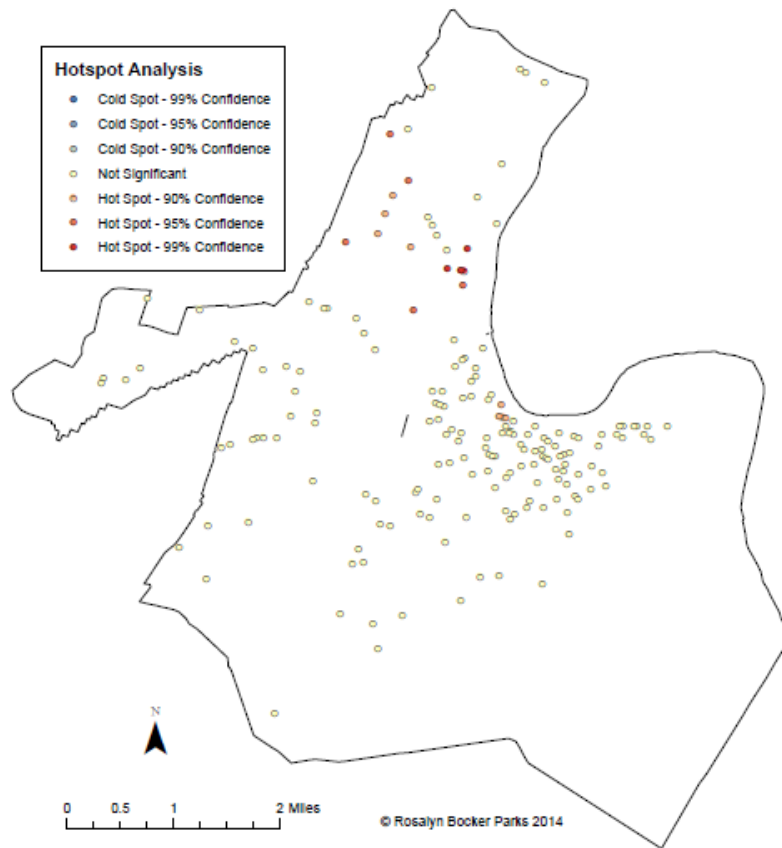
Newark, NJ Bar Disorder 9pm-3am 2011



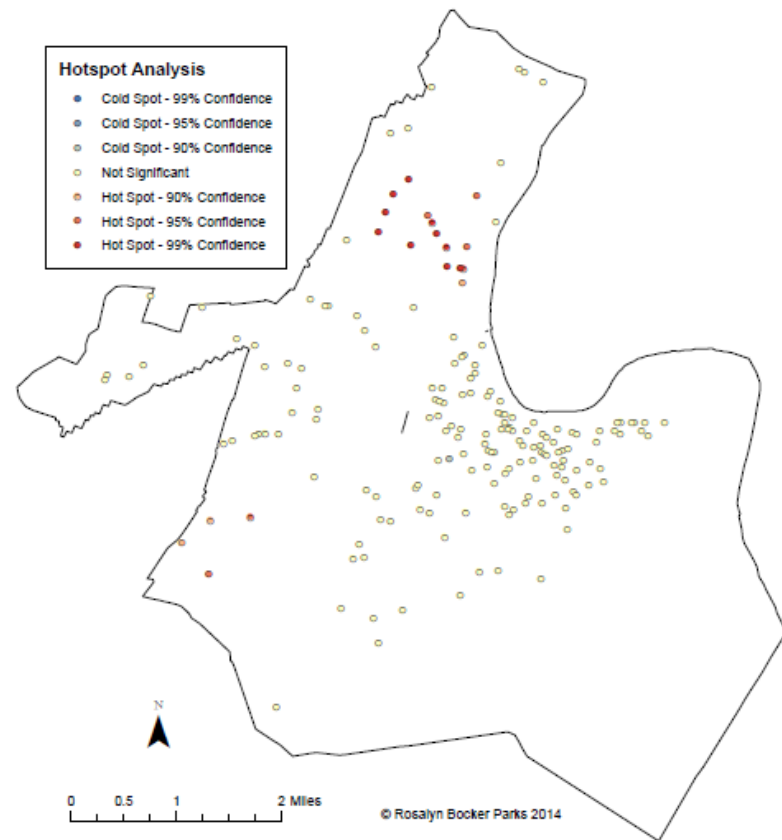
Newark, NJ Bar Disorder 3am-8am 2011



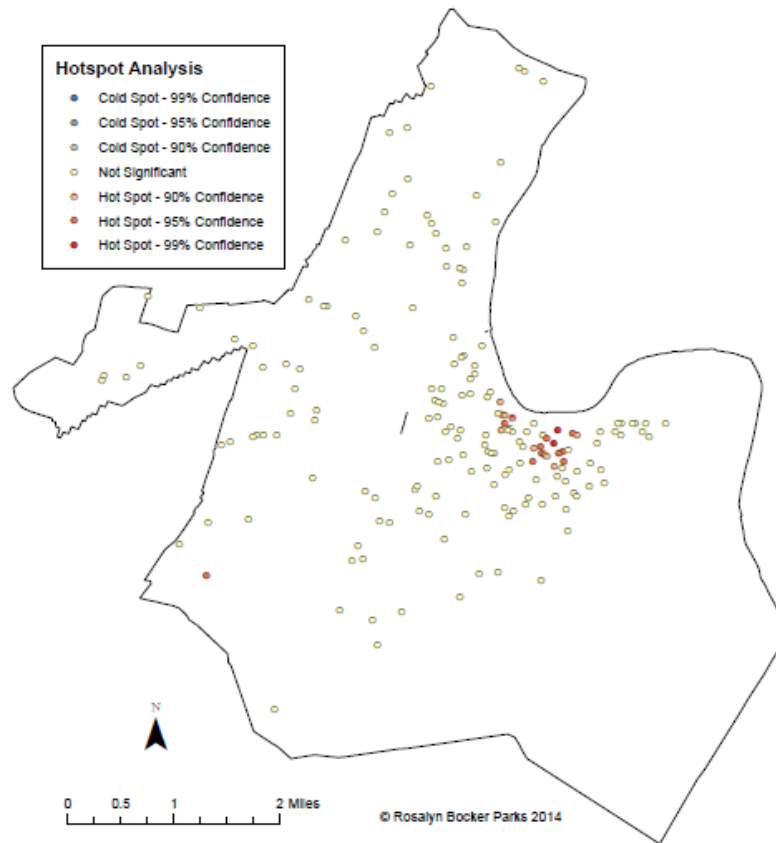
Newark, NJ Bar Disorder 8am- 2pm 2010 and 2011



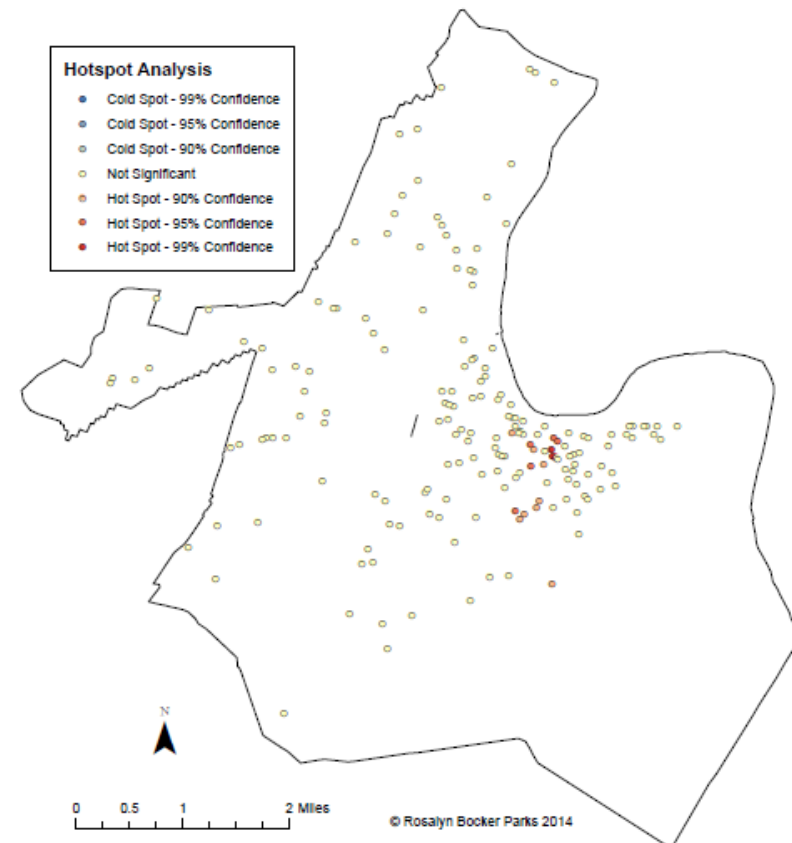
Newark, NJ Bar Disorder 2pm-6pm 2010 and 2011



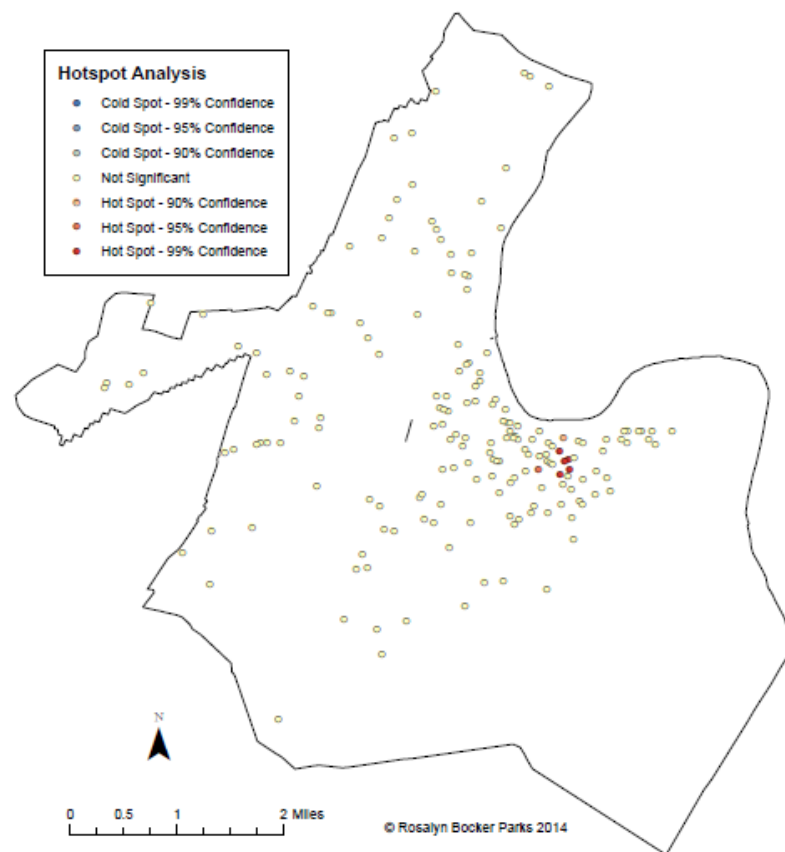
Newark, NJ Bar Disorder 6pm-9pm 2010 and 2011



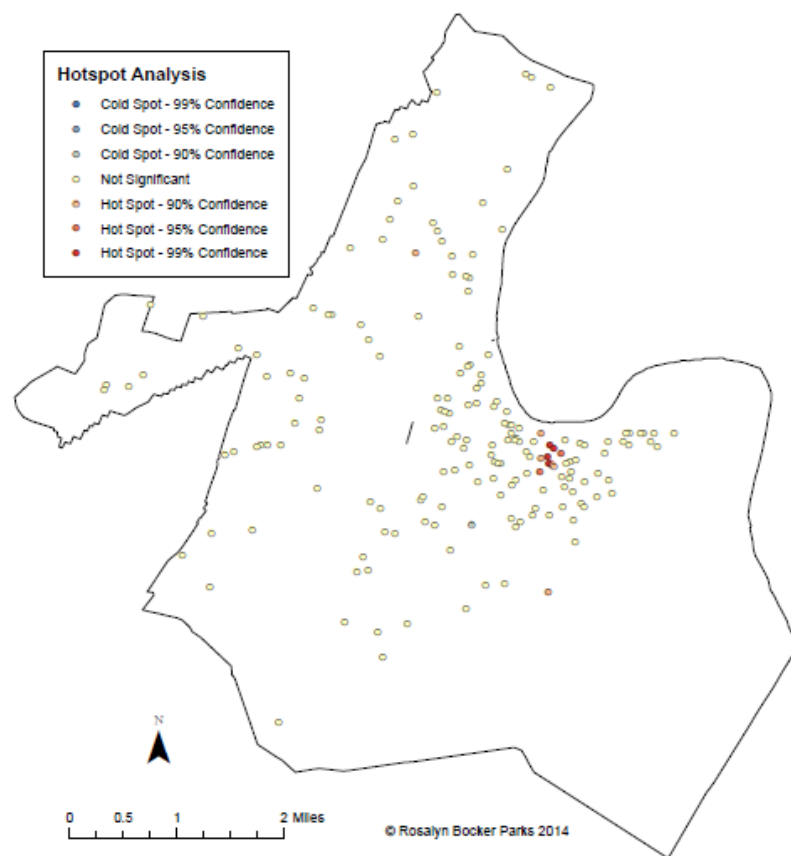
Newark, NJ Bar Disorder 9pm-3am 2010 and 2011



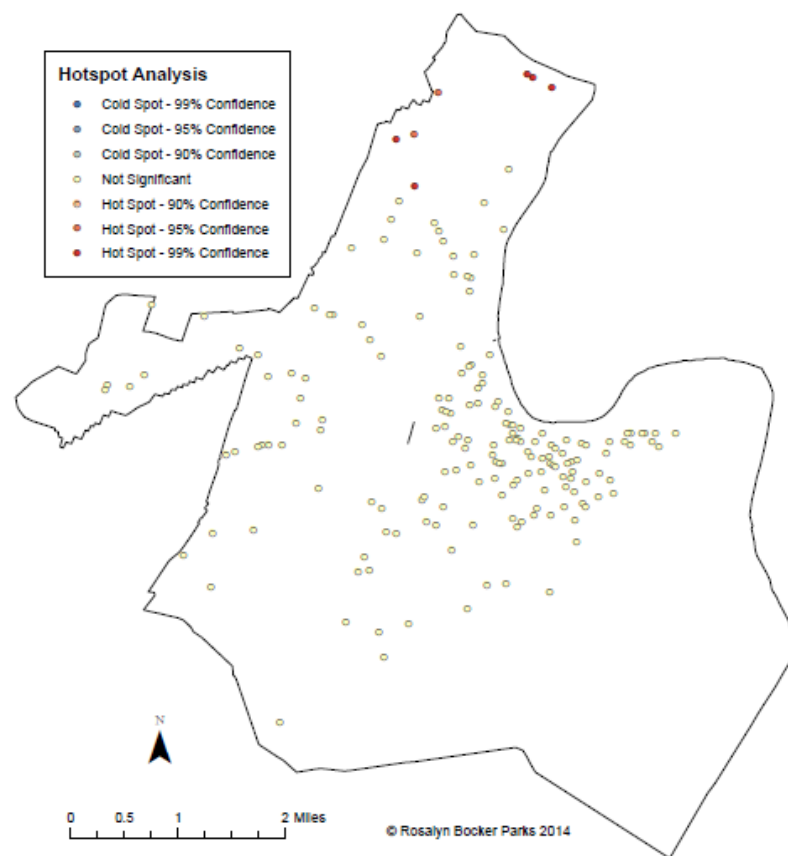
Newark, NJ Bar Disorder 3am-8am 2010 and 2011



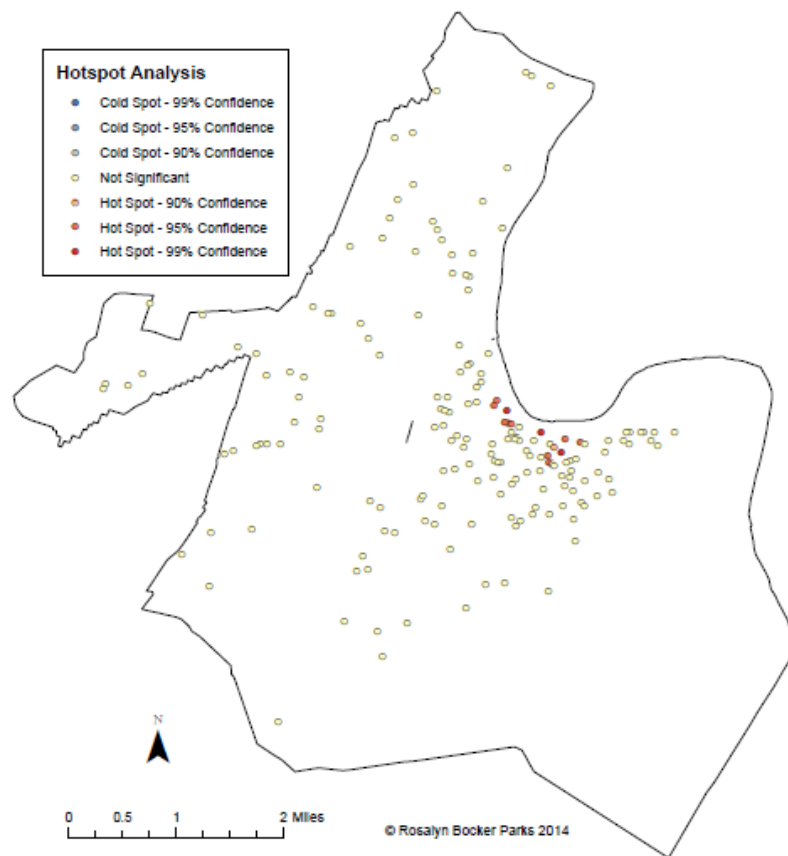
Newark, NJ Bar Disorder Sundays 2010



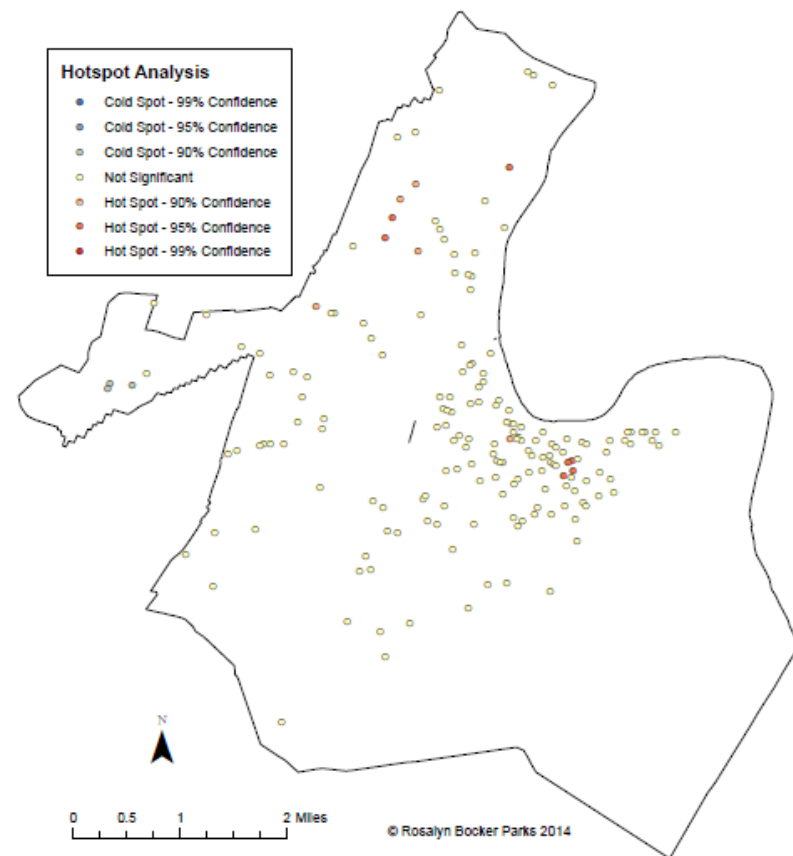
Newark, NJ Bar Disorder Mondays 2010



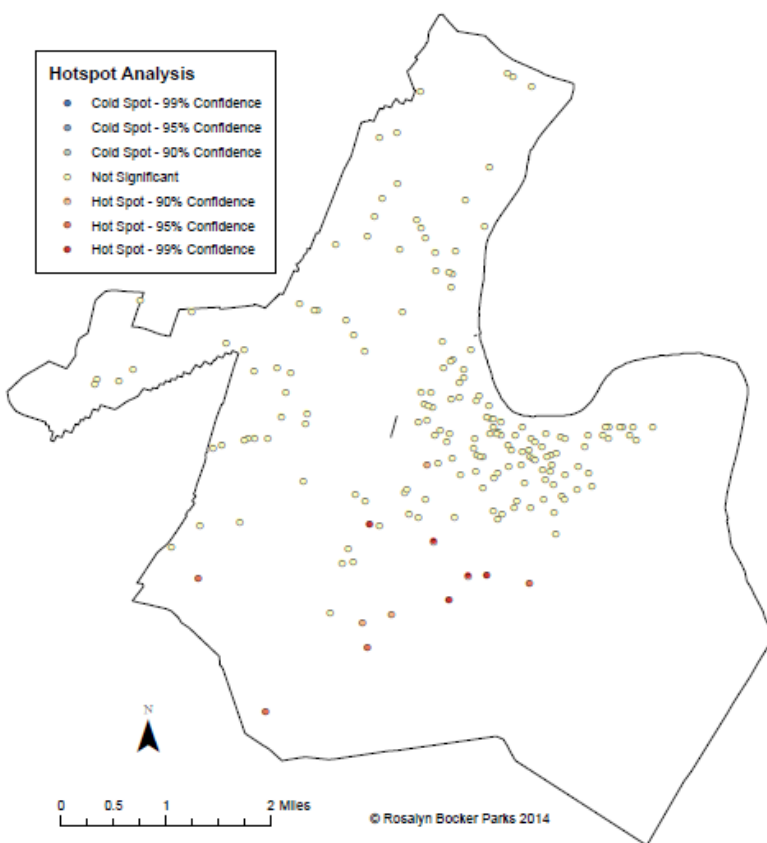
Newark, NJ Bar Disorder Tuesdays 2010



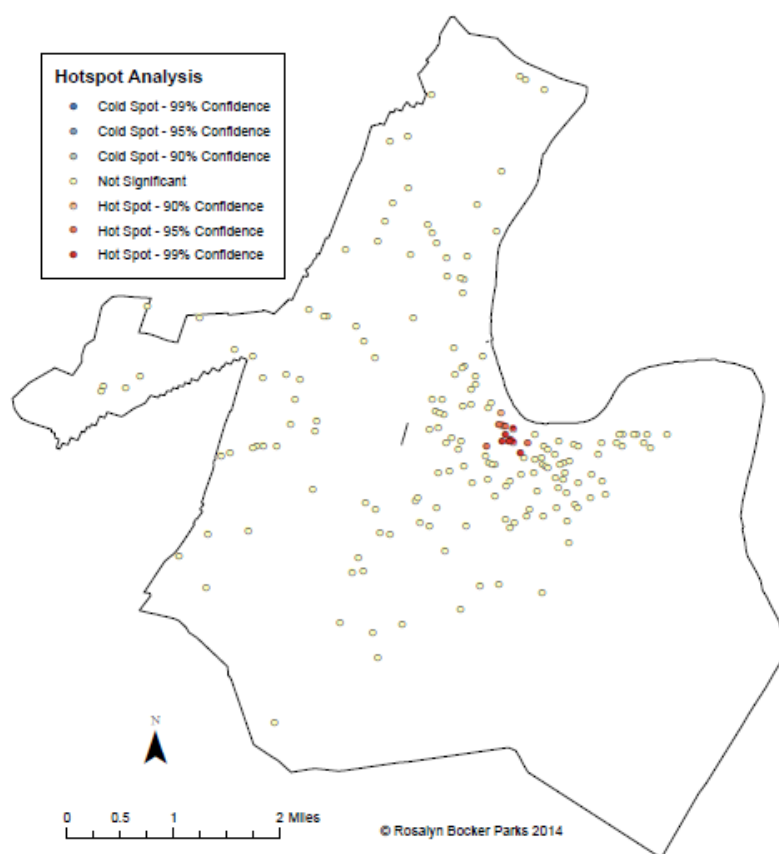
Newark, NJ Bar Disorder Wednesdays 2010



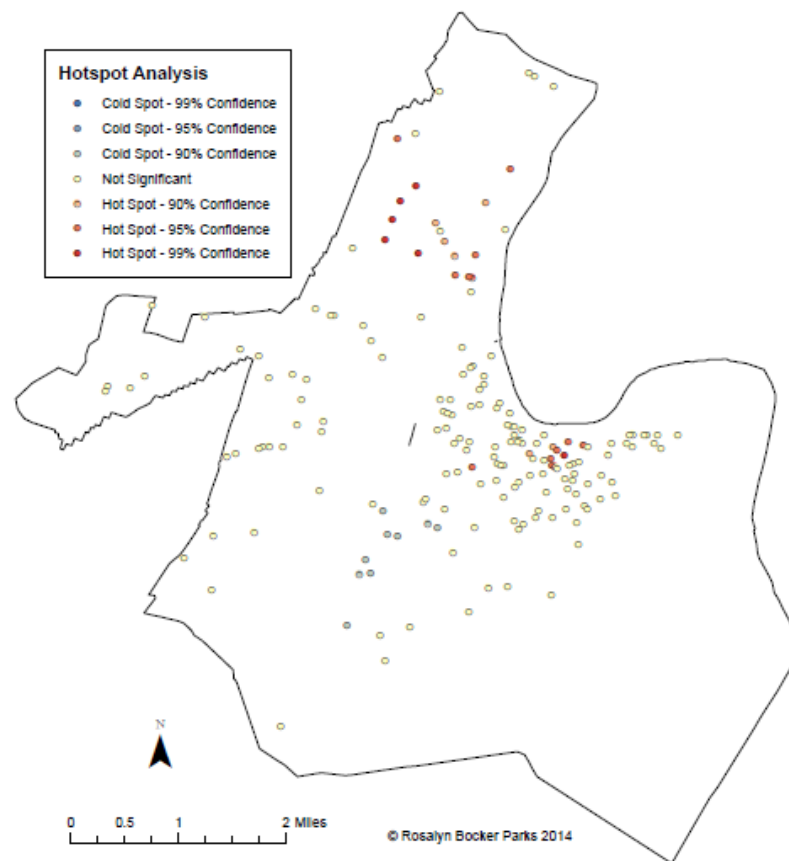
Newark, NJ Bar Disorder Thursdays 2010



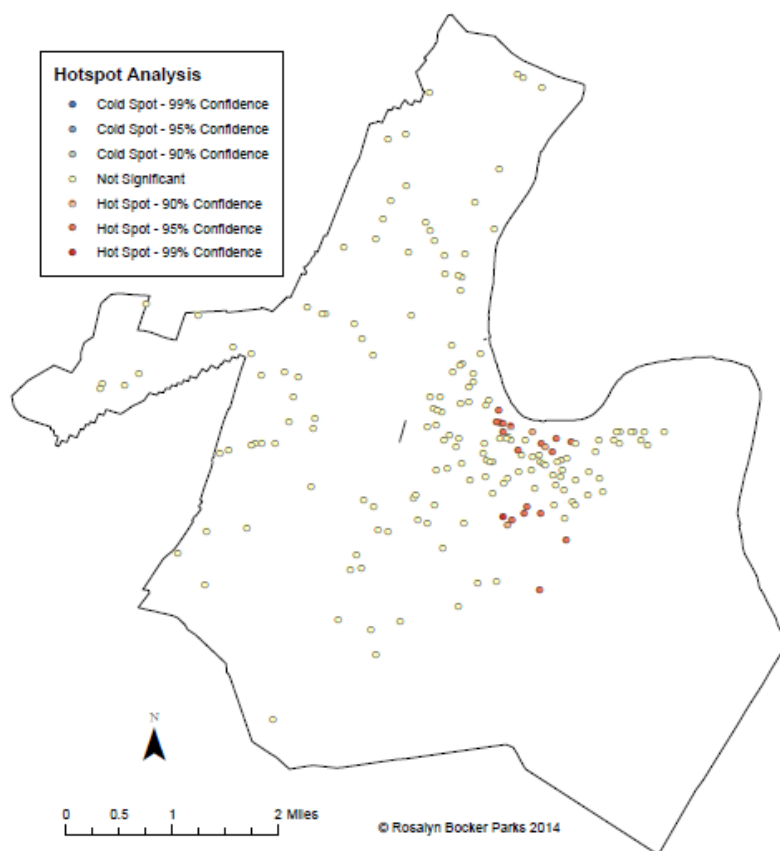
Newark, NJ Bar Disorder Fridays 2010



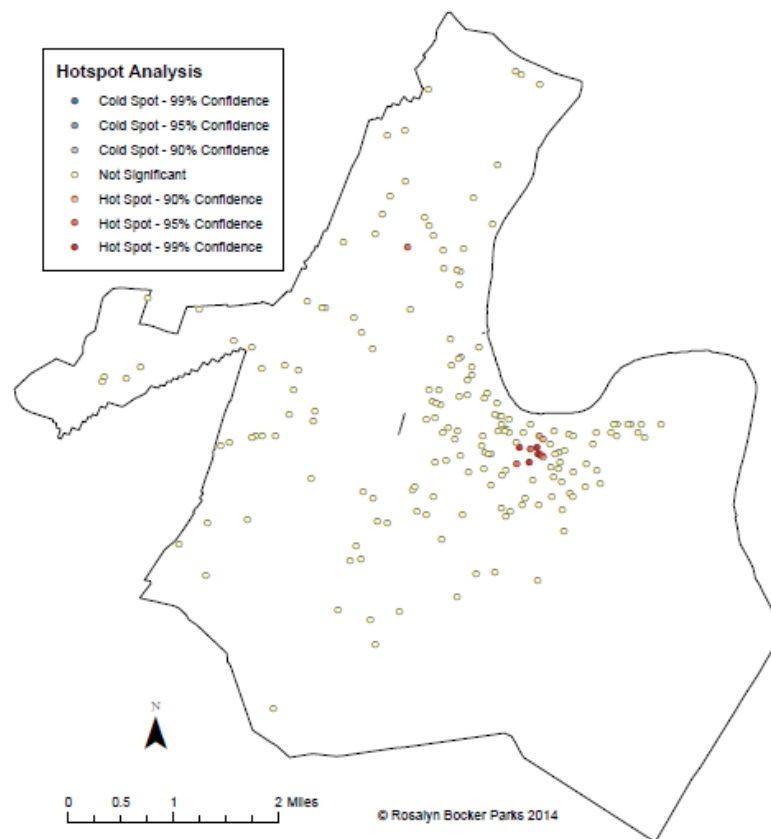
Newark, NJ Bar Disorder Saturdays 2010



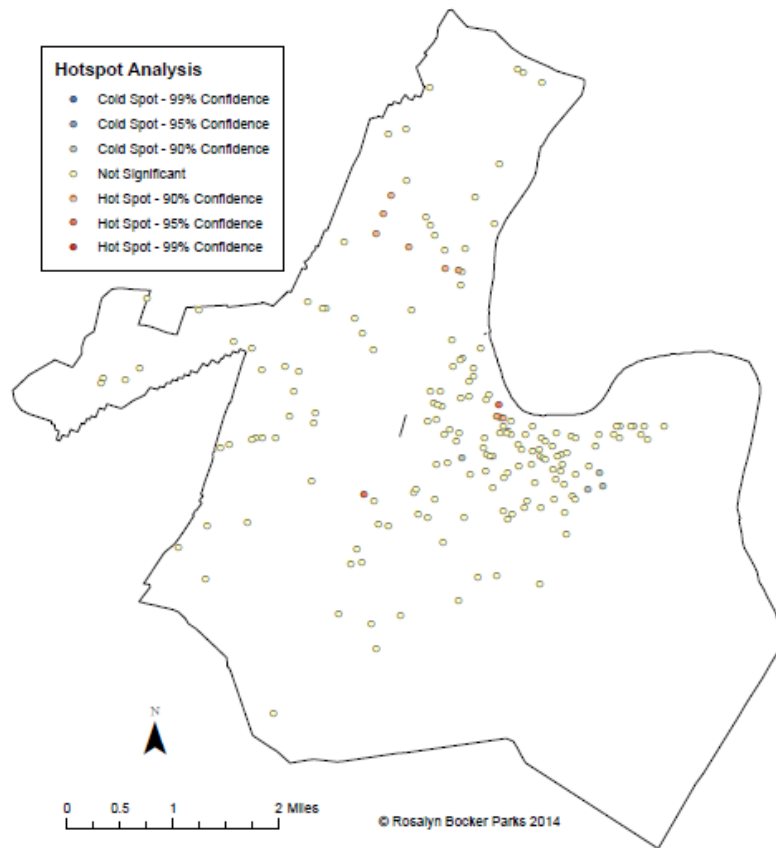
Newark, NJ Bar Disorder Sundays 2011



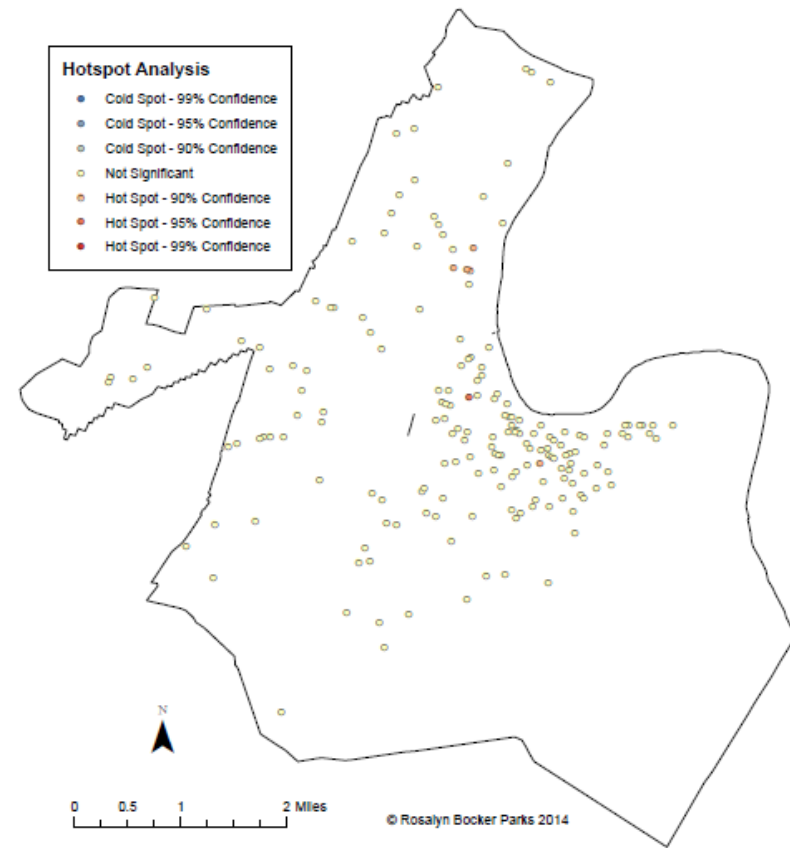
Newark, NJ Bar Disorder Mondays 2011



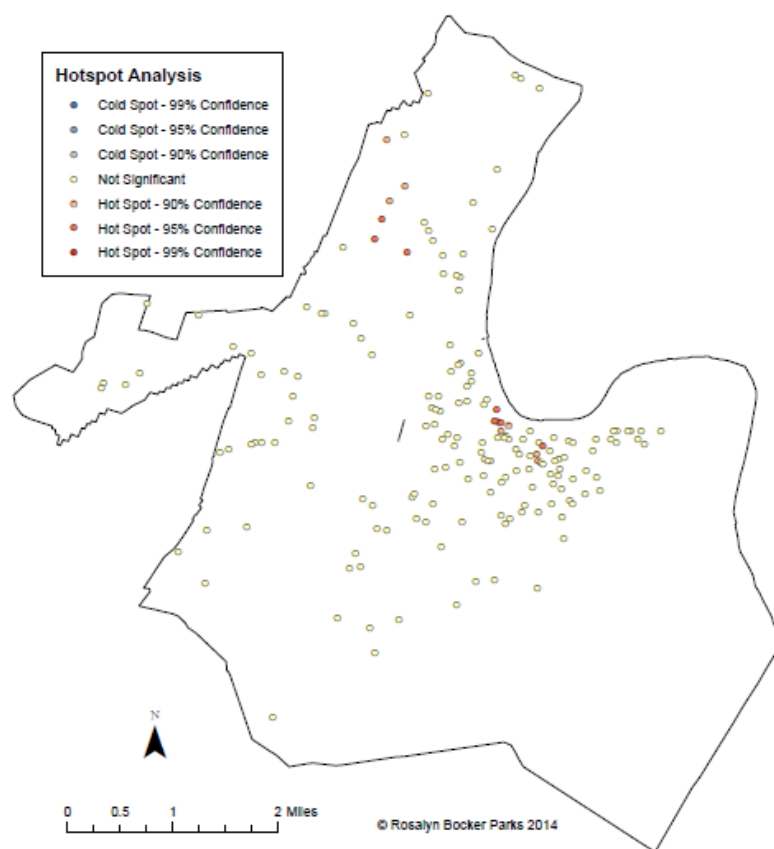
Newark, NJ Bar Disorder Tuesdays 2011



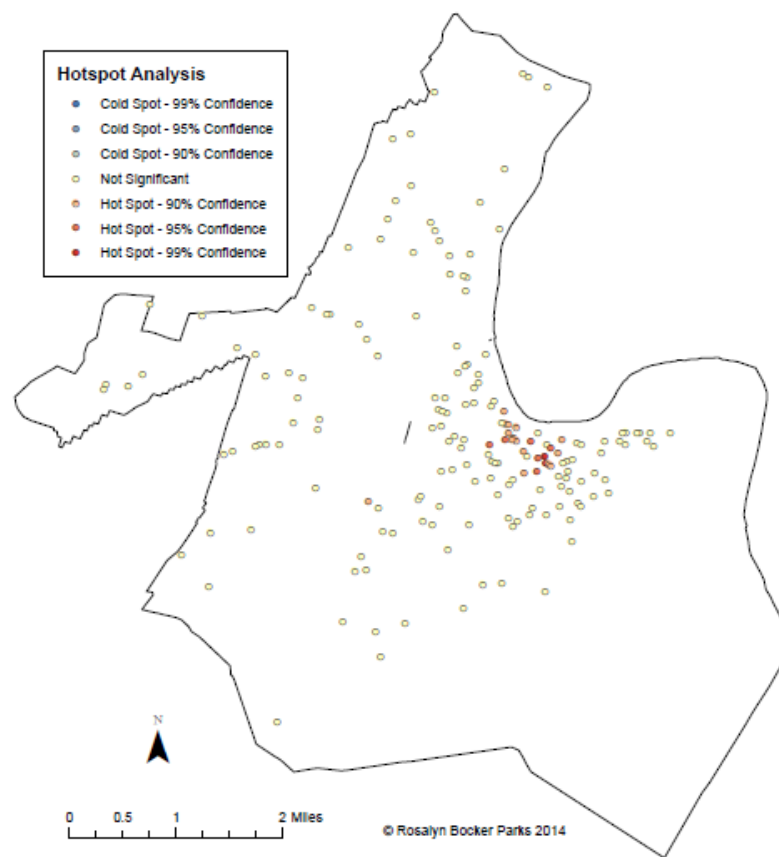
Newark, NJ Bar Disorder Wednesdays 2011



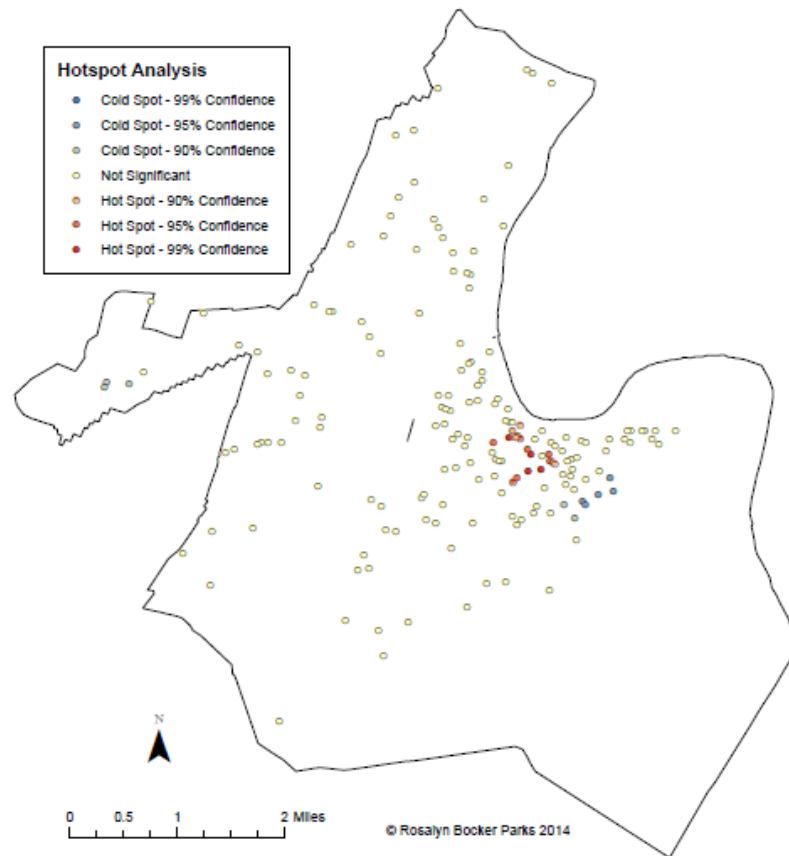
Newark, NJ Bar Disorder Thursdays 2011



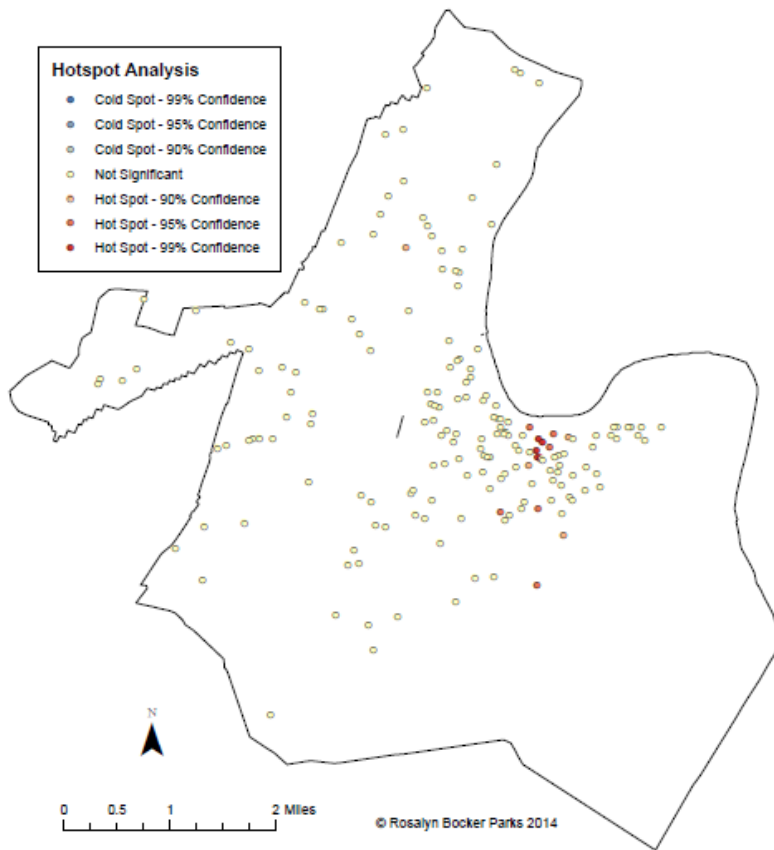
Newark, NJ Bar Disorder Fridays 2011



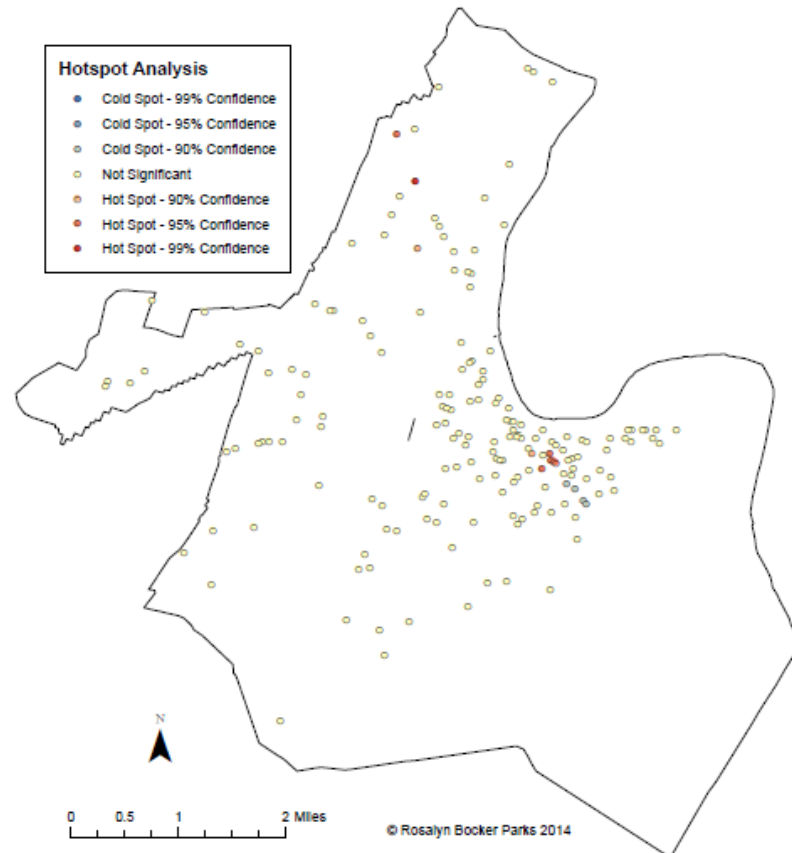
Newark, NJ Bar Disorder Saturdays 2011



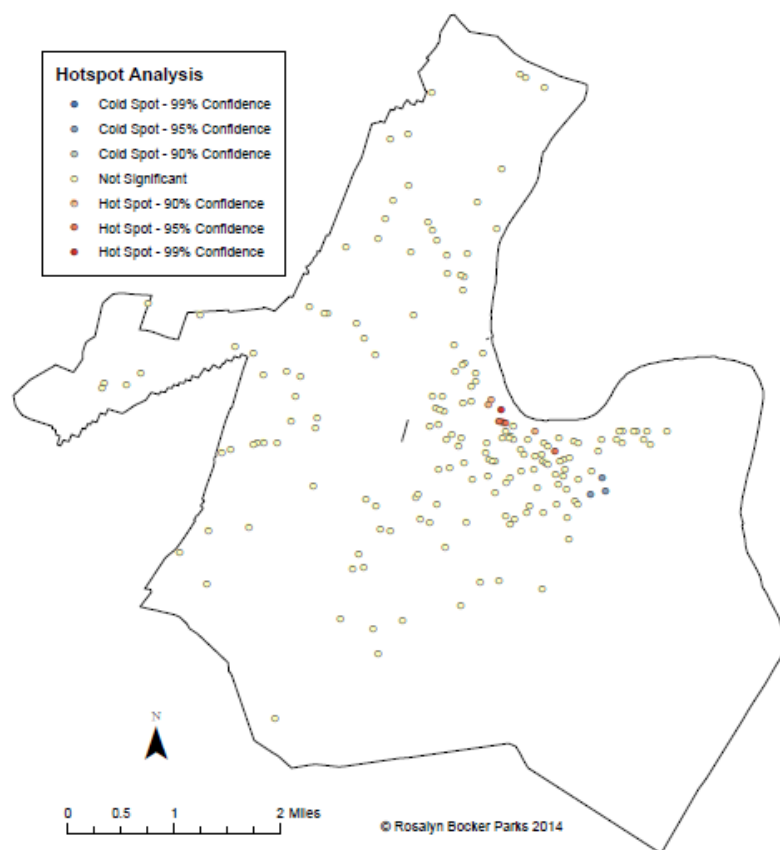
Newark, NJ Bar Disorder Sundays 2010 and 2011



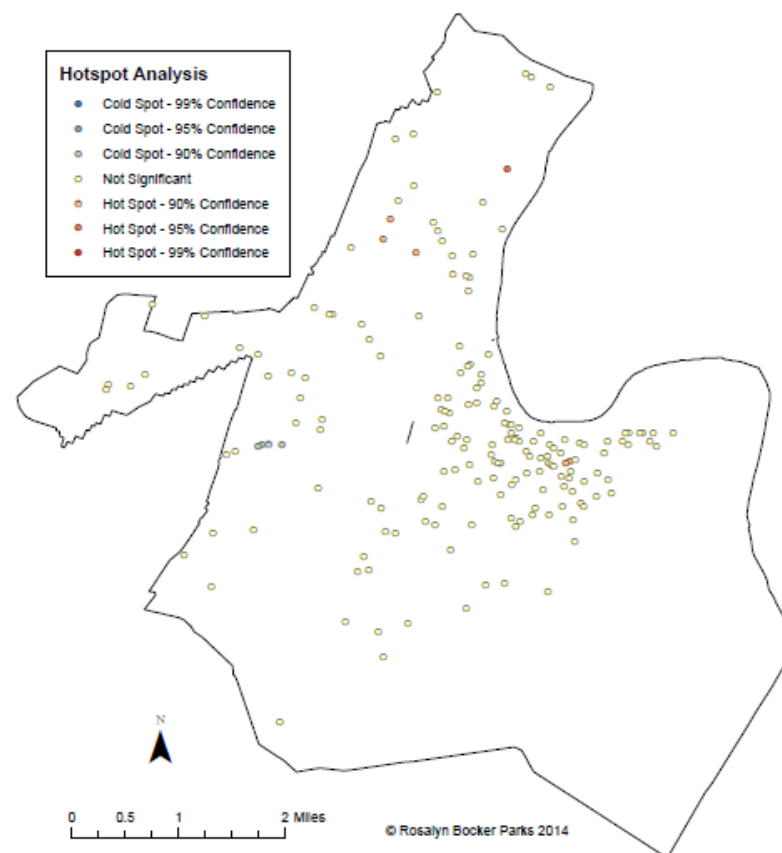
Newark, NJ Bar Disorder Mondays 2010 and 2011



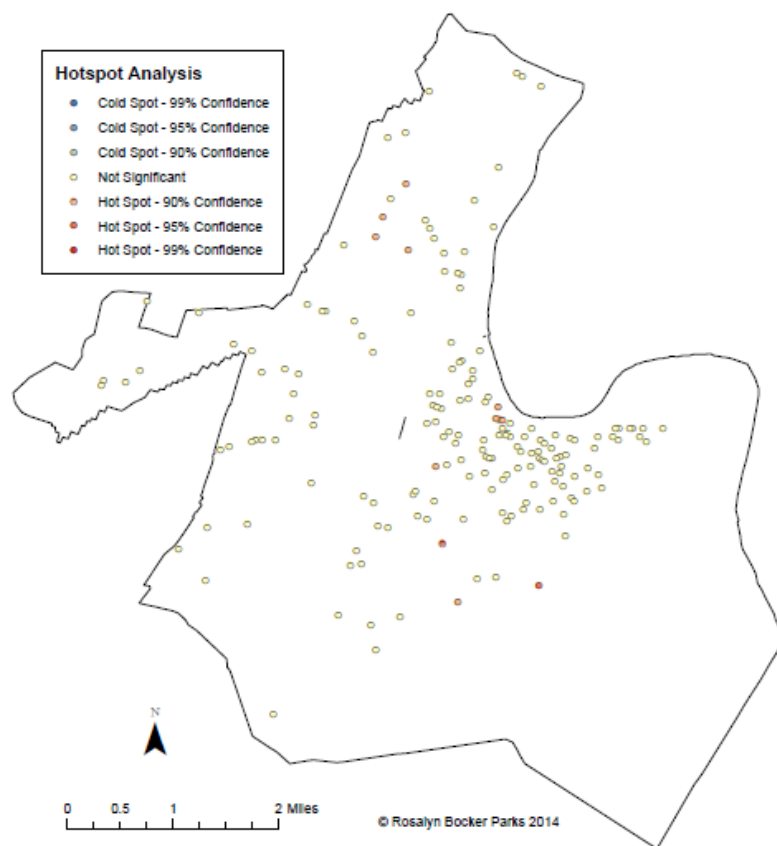
Newark, NJ Bar Disorder Tuesdays 2010 and 2011



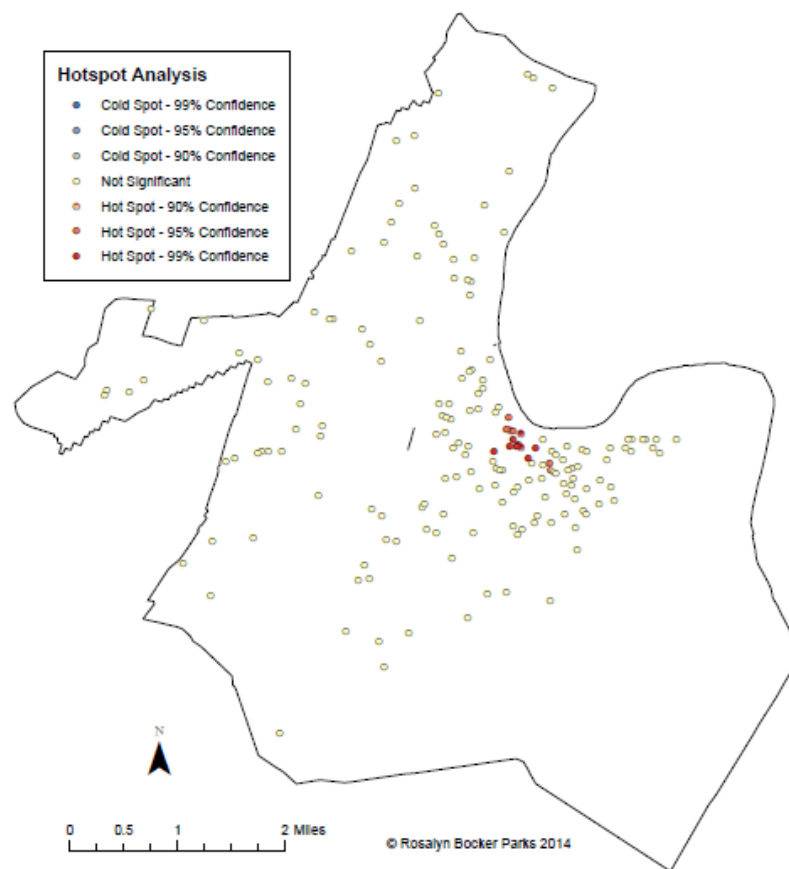
Newark, NJ Bar Disorder Wednesdays 2010 and 2011



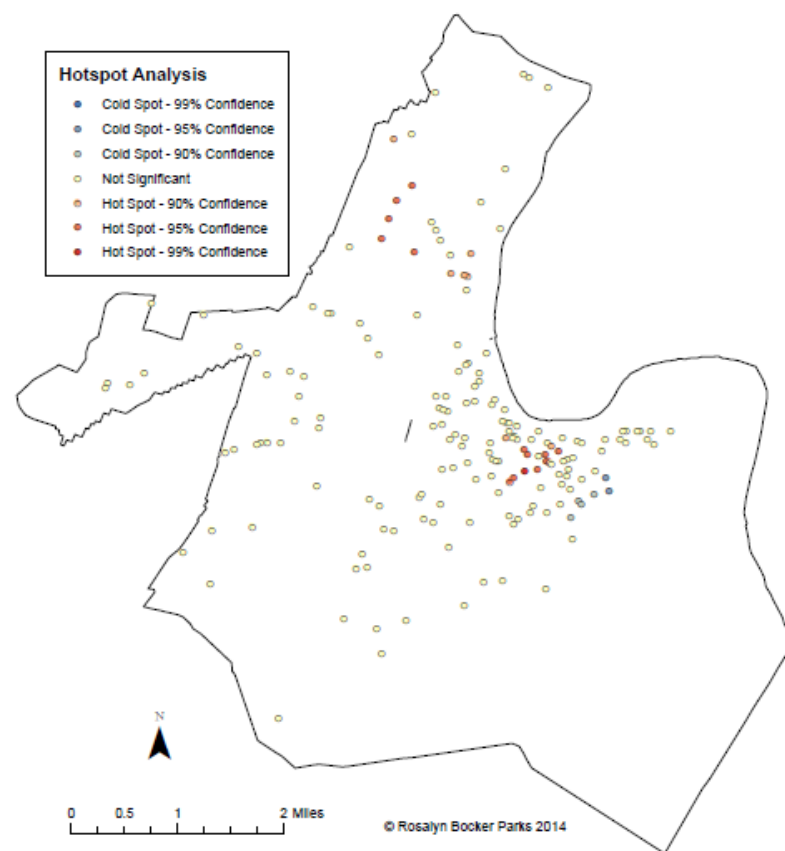
Newark, NJ Bar Disorder Thursdays 2010 and 2011



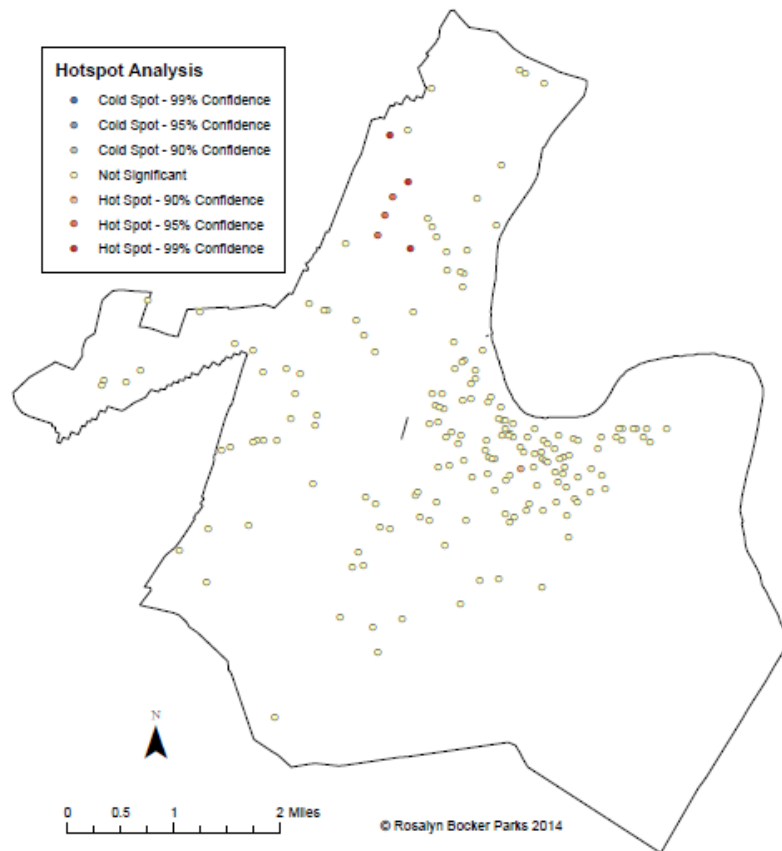
Newark, NJ Bar Disorder Fridays 2010 and 2011



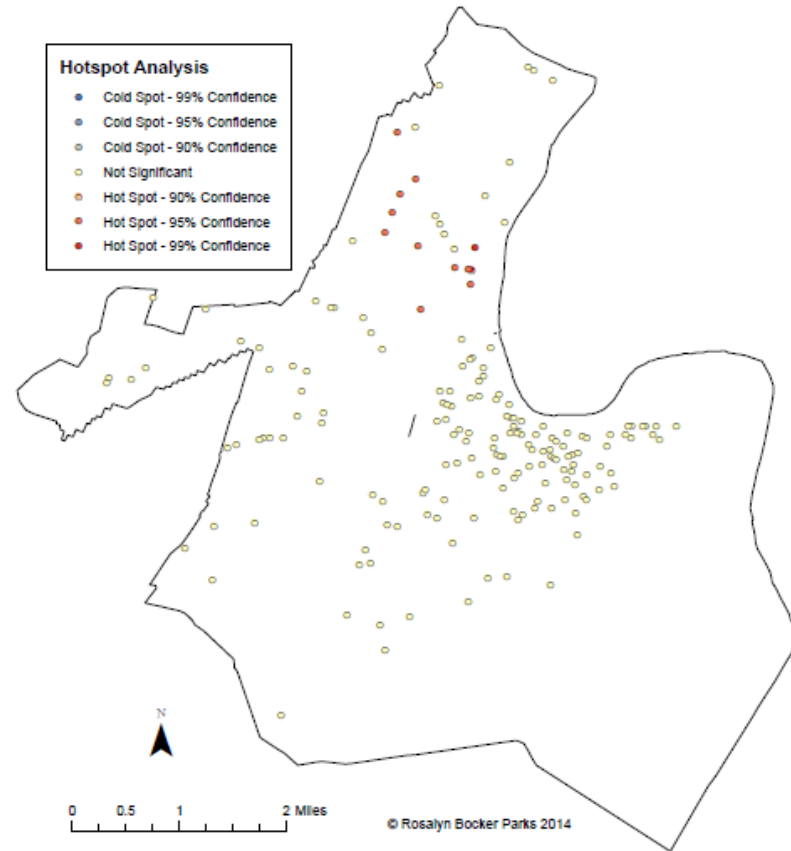
Newark, NJ Bar Disorder Saturdays 2010 and 2011



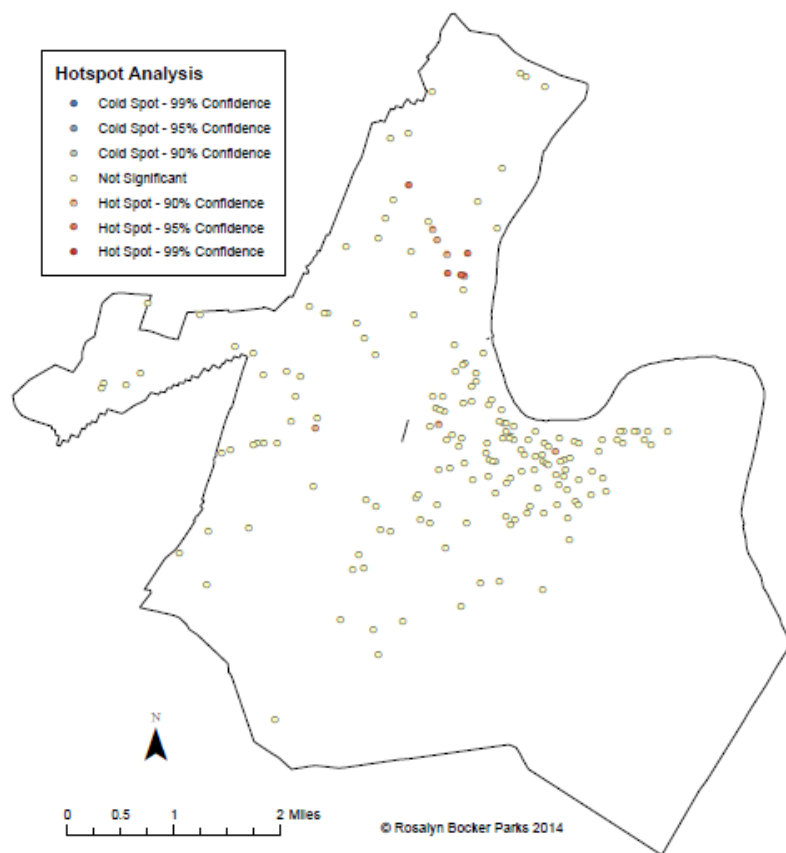
Newark, NJ Bar Disorder January 2010



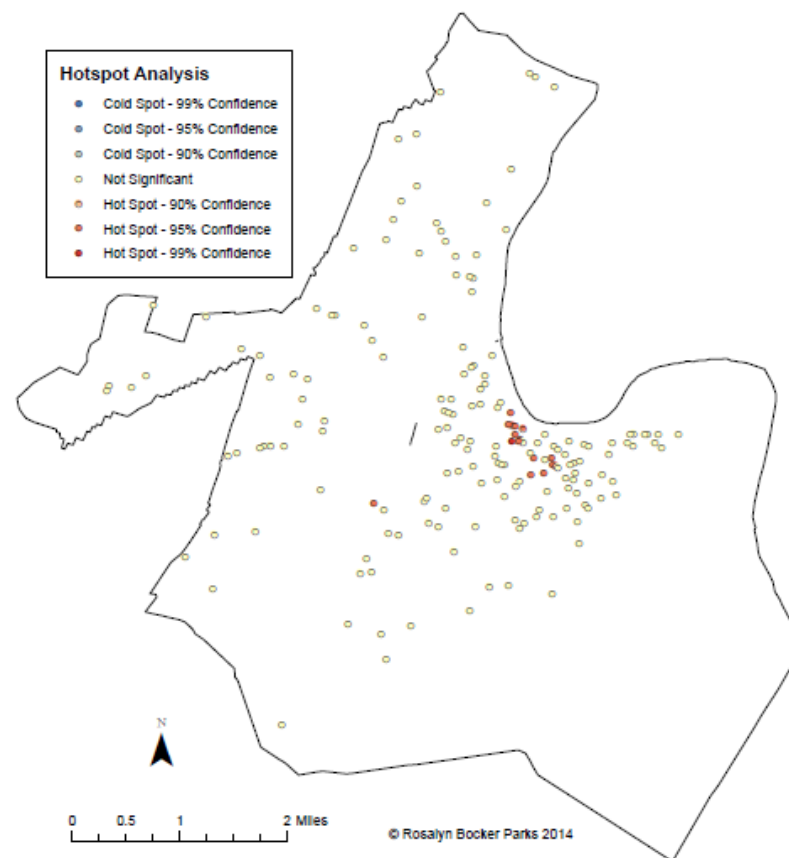
Newark, NJ Bar Disorder February 2010



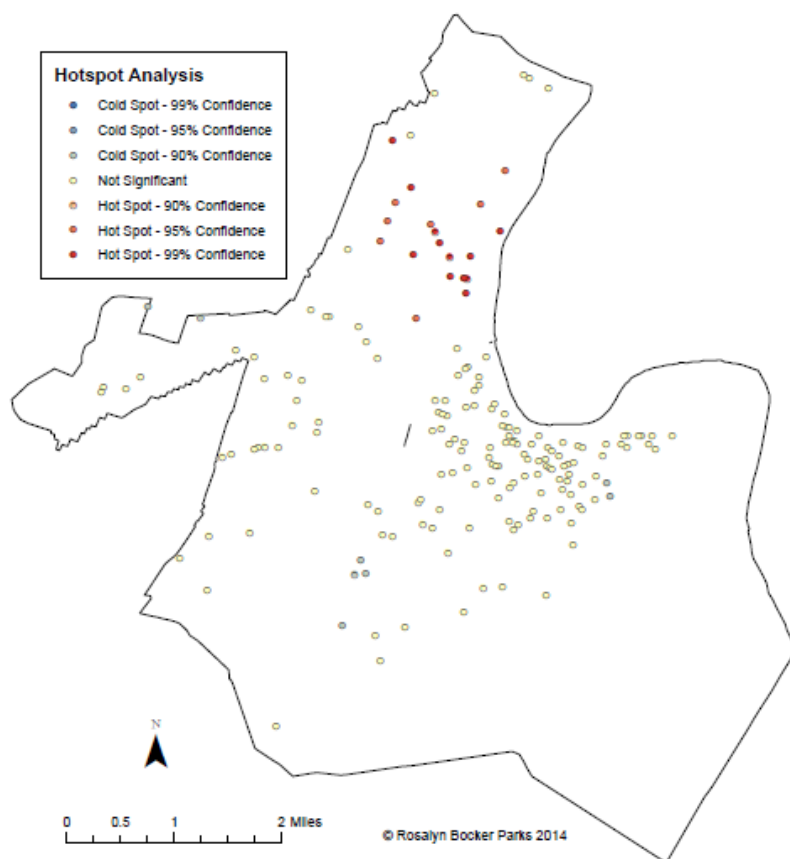
Newark, NJ Bar Disorder March 2010



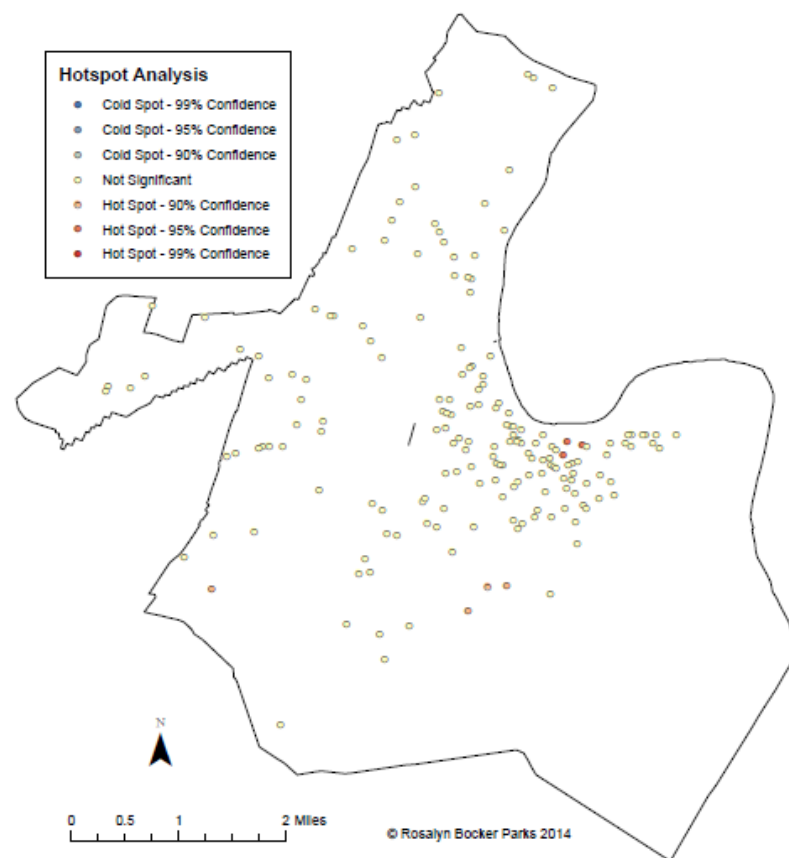
Newark, NJ Bar Disorder April 2010



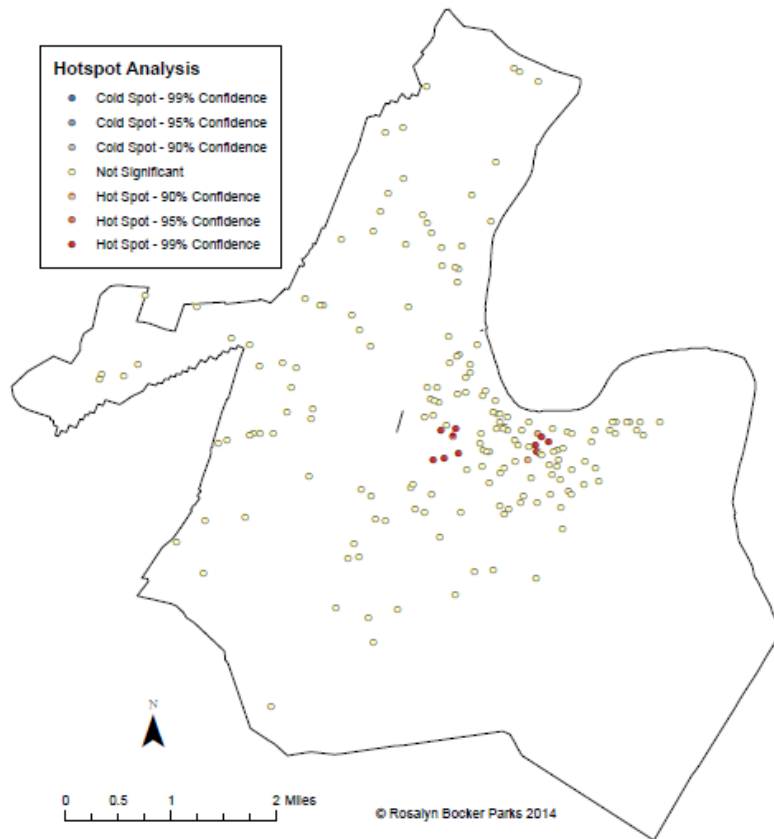
Newark, NJ Bar Disorder May 2010



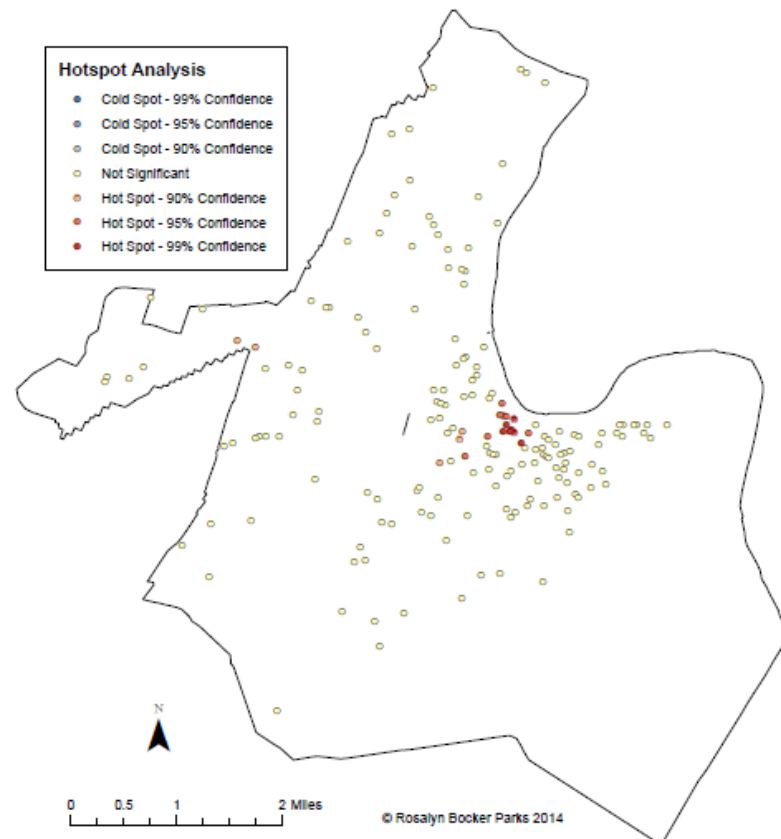
Newark, NJ Bar Disorder June 2010



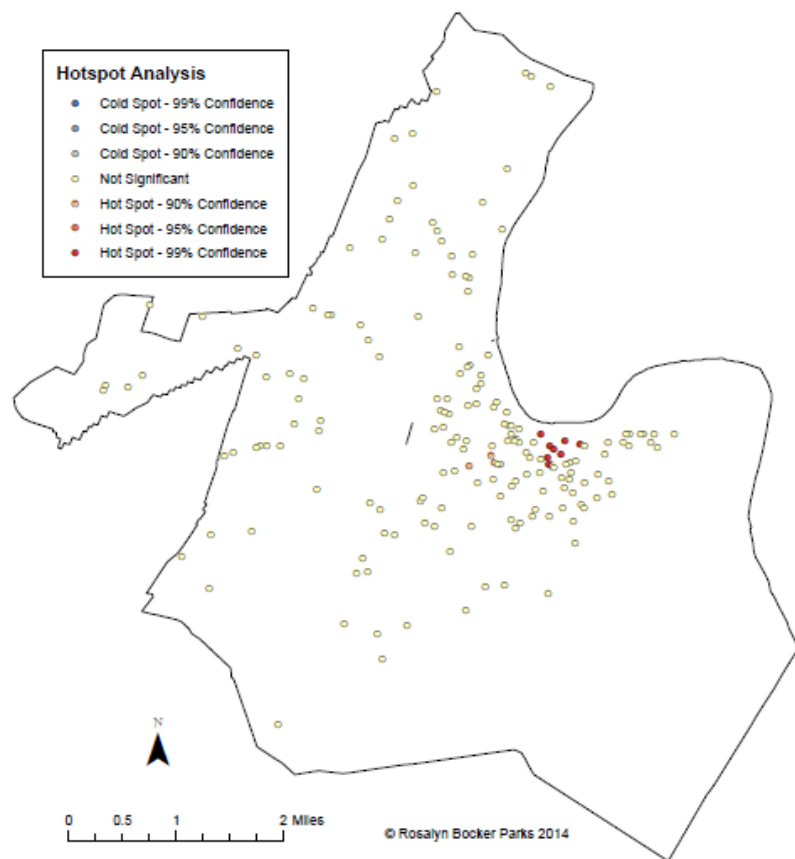
Newark, NJ Bar Disorder July 2010



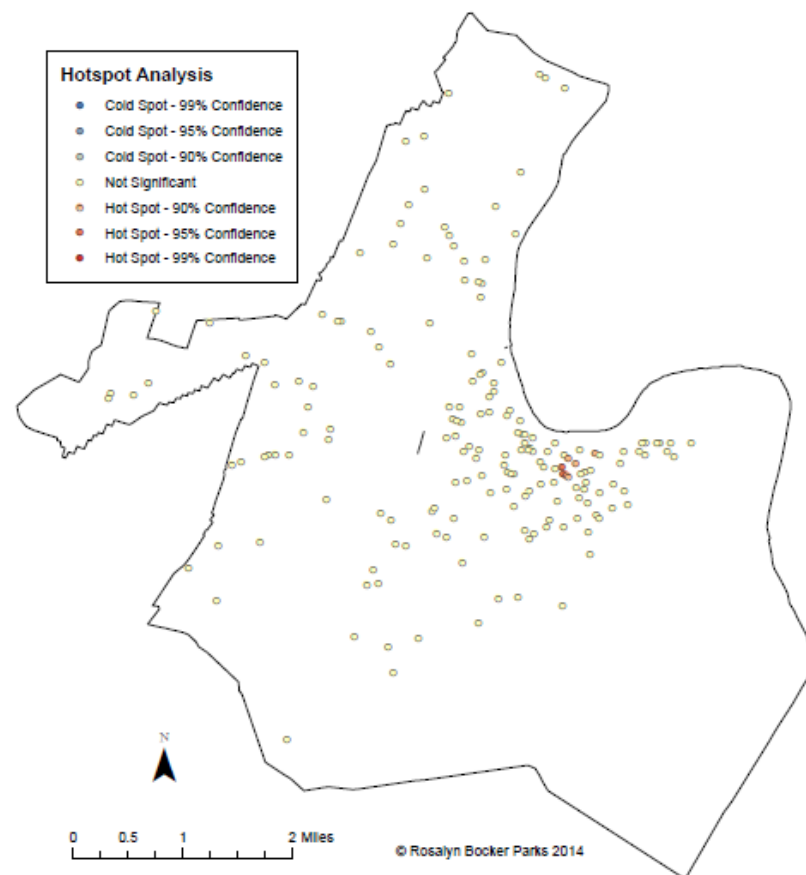
Newark, NJ Bar Disorder August 2010



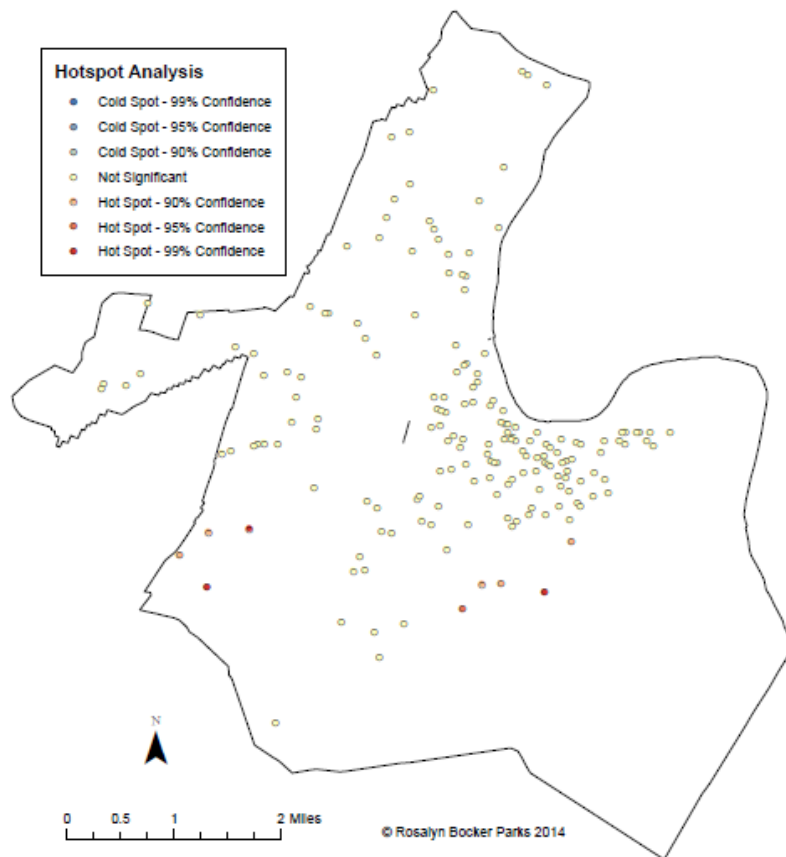
Newark, NJ Bar Disorder September 2010



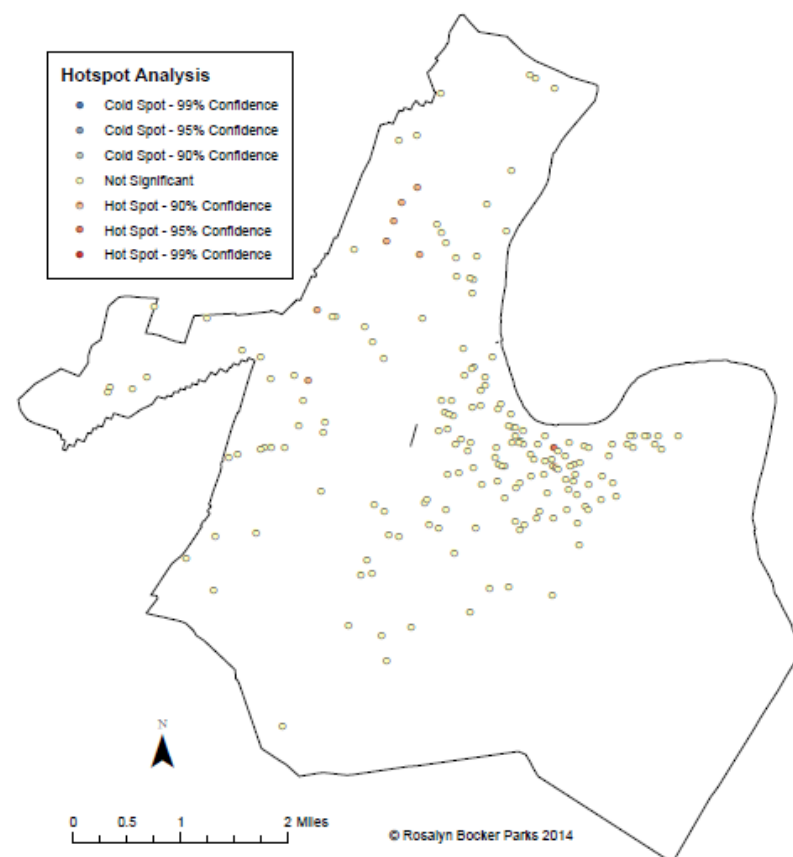
Newark, NJ Bar Disorder October 2010



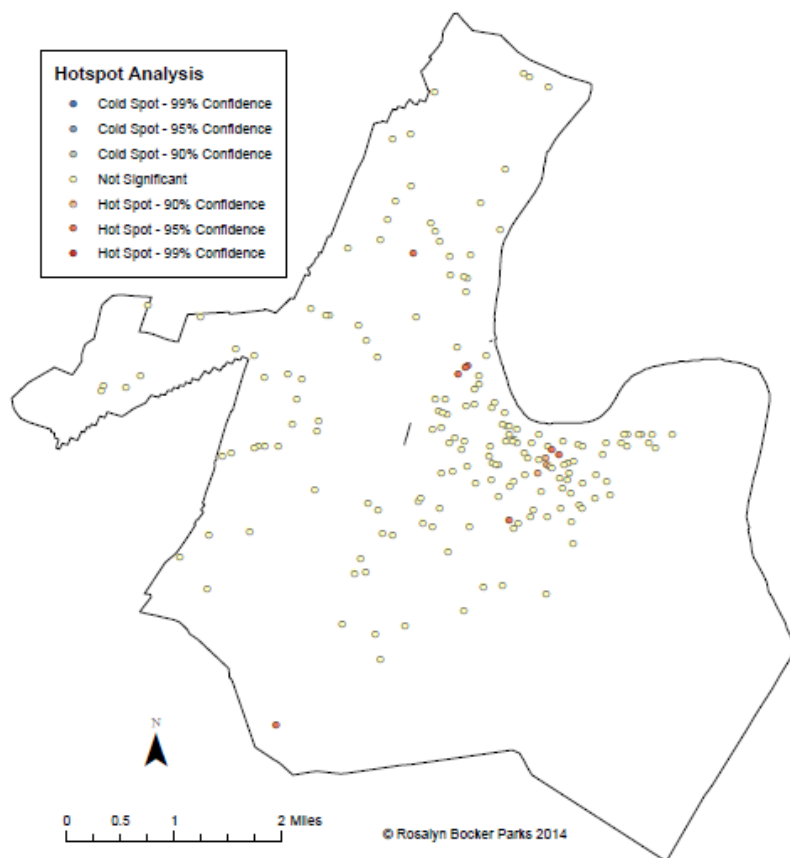
Newark, NJ Bar Disorder November 2010



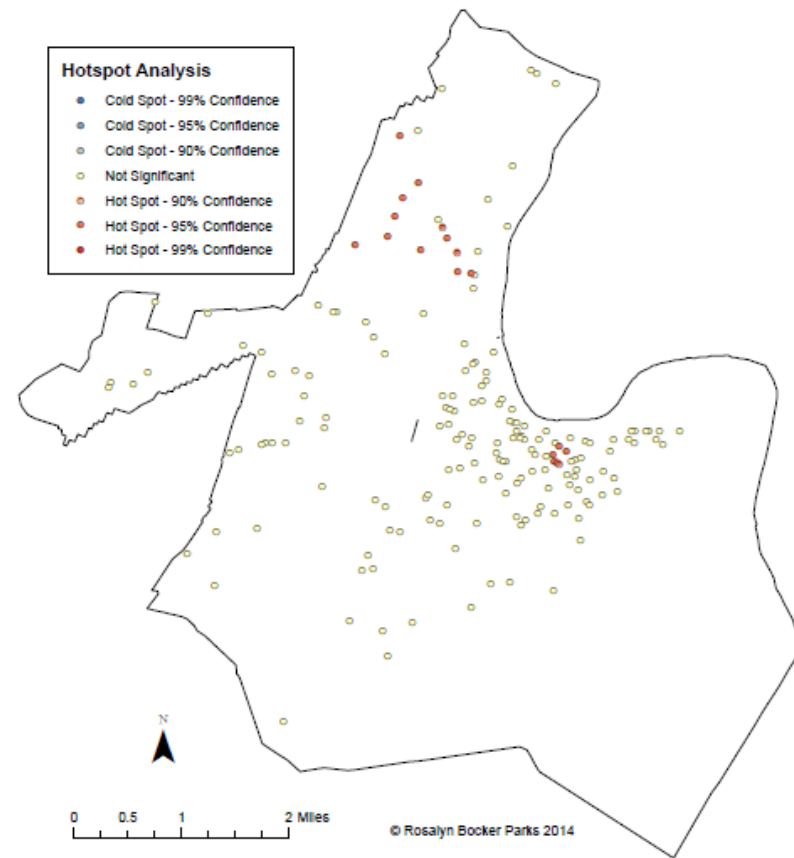
Newark, NJ Bar Disorder December 2010



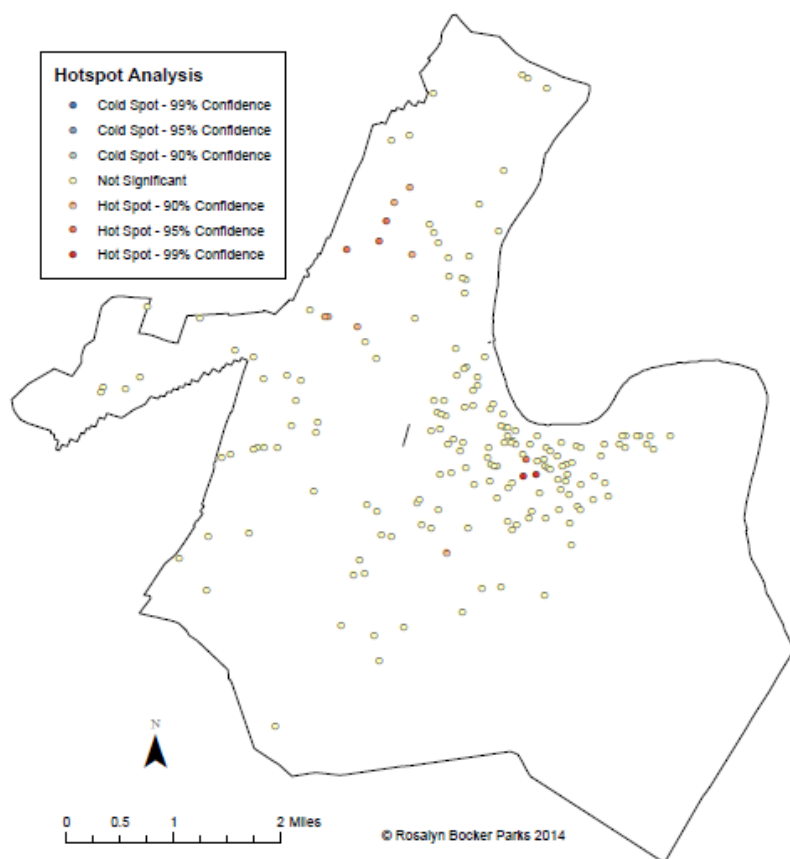
Newark, NJ Bar Disorder January 2011



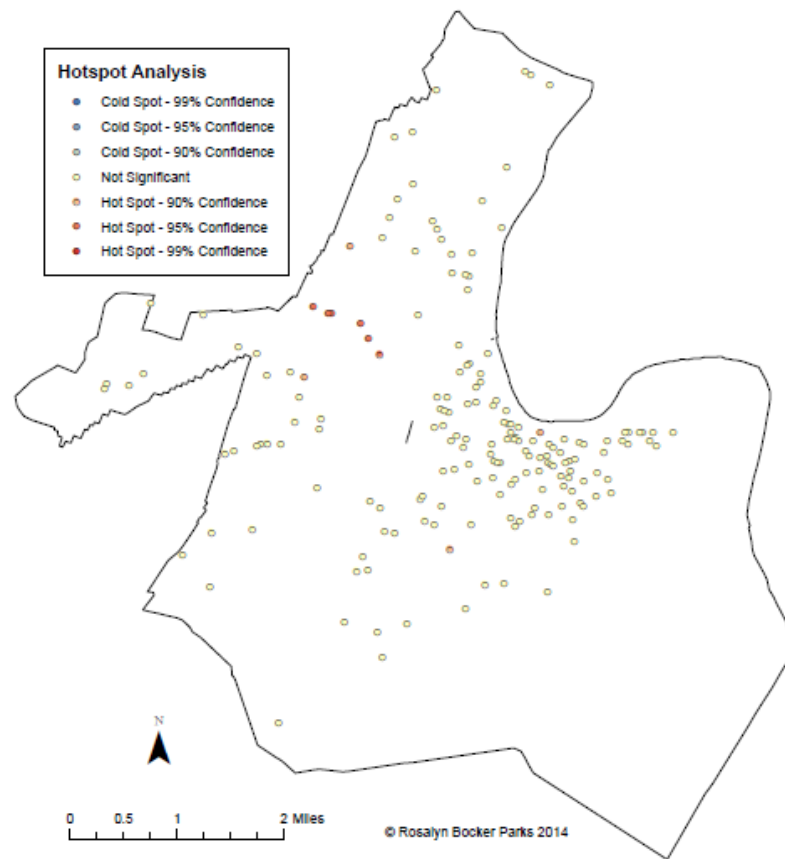
Newark, NJ Bar Disorder February 2011



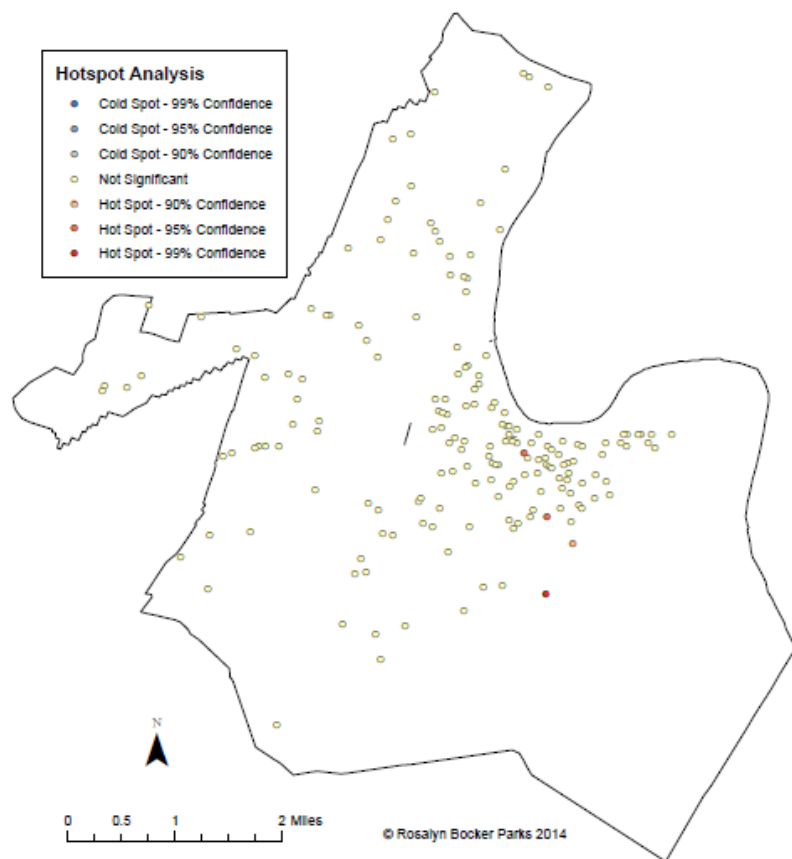
Newark, NJ Bar Disorder March 2011



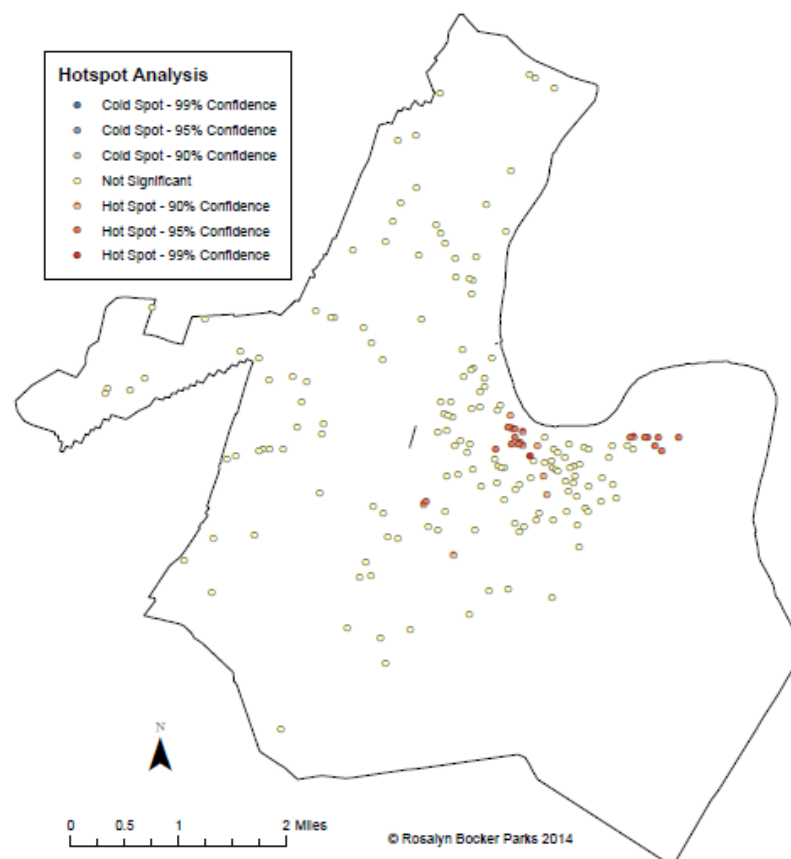
Newark, NJ Bar Disorder April 2011



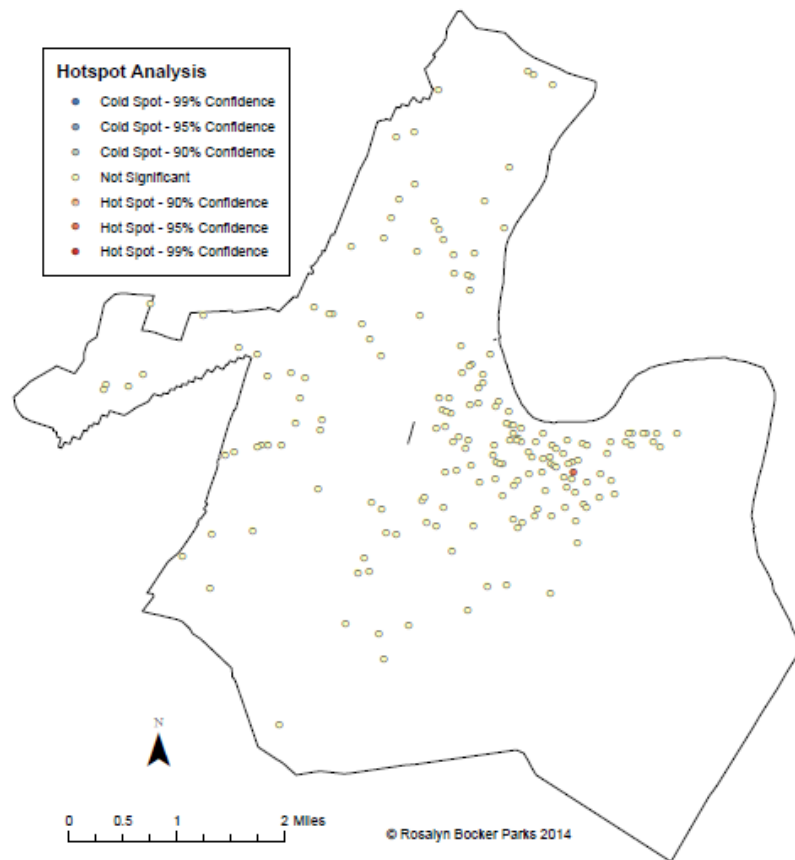
Newark, NJ Bar Disorder May 2011



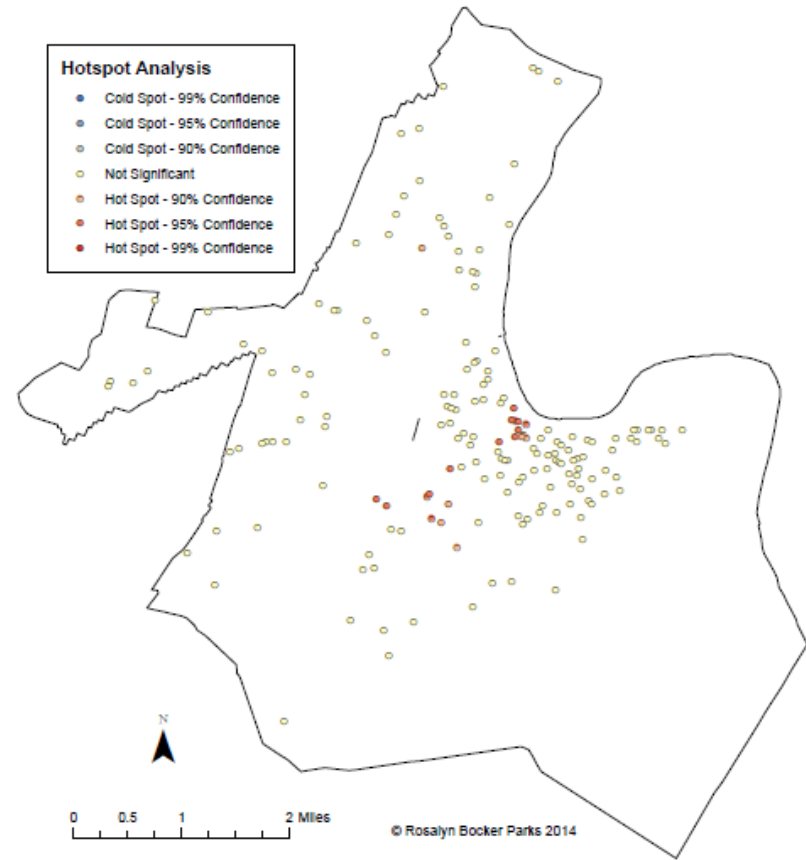
Newark, NJ Bar Disorder June 2011



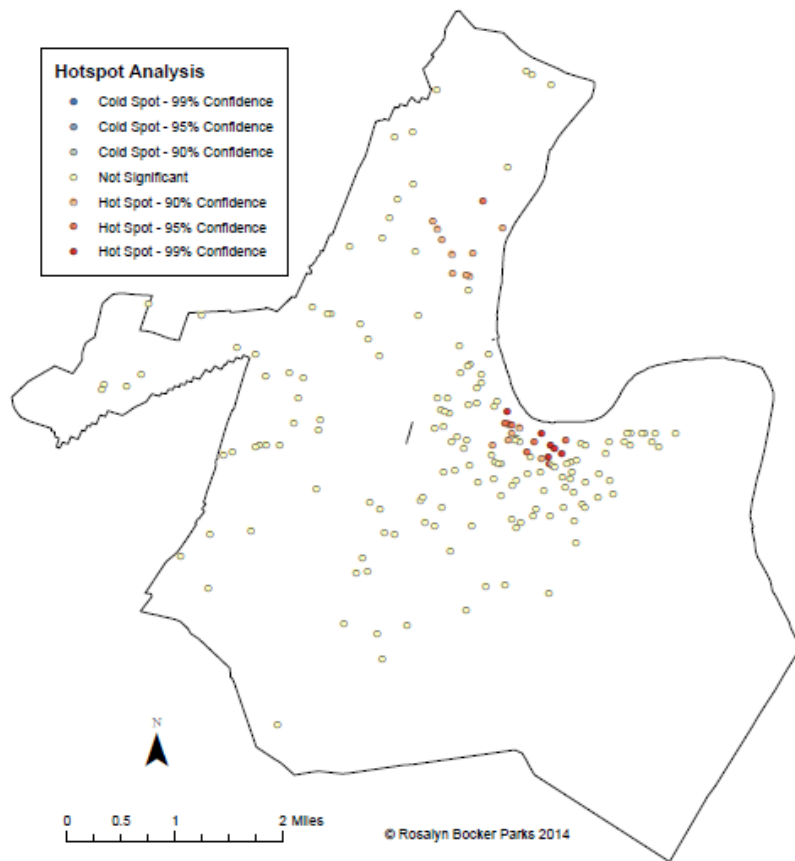
Newark, NJ Bar Disorder July 2011



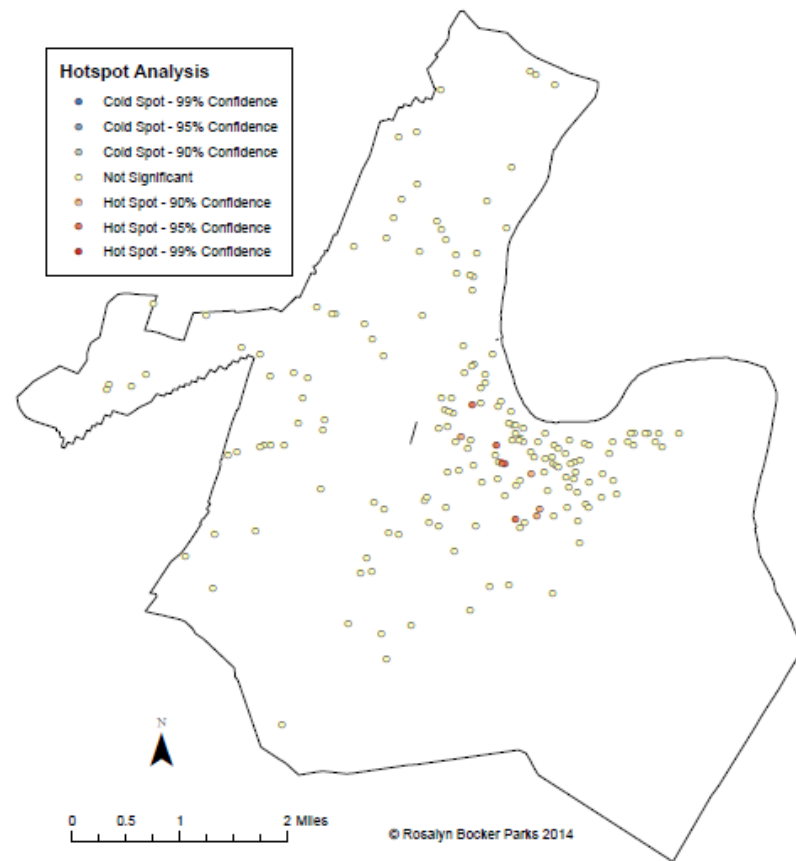
Newark, NJ Bar Disorder August 2011



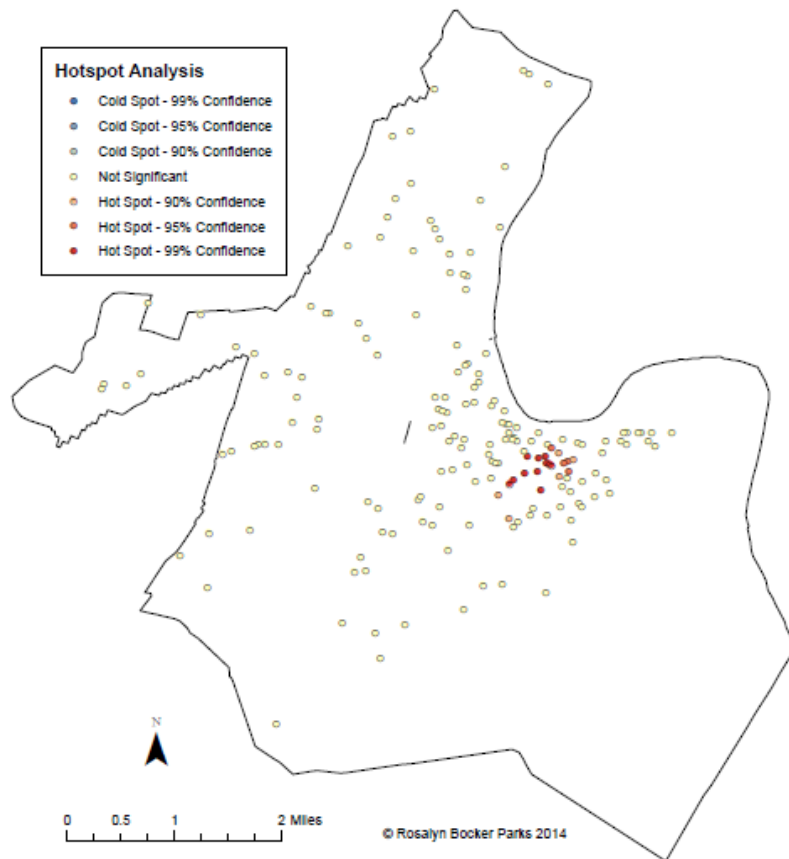
Newark, NJ Bar Disorder September 2011



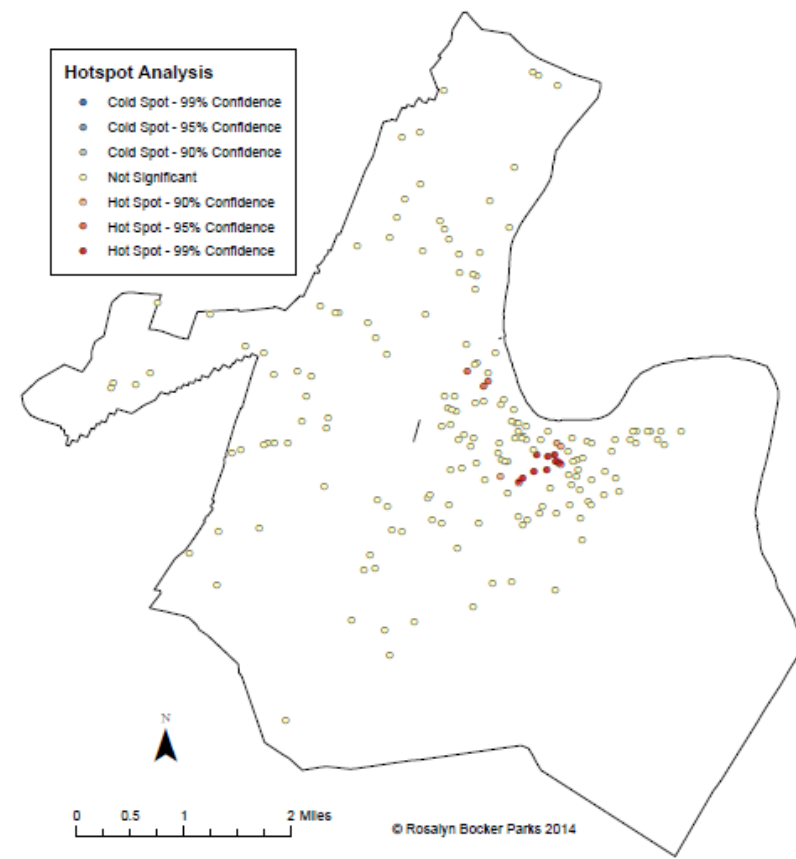
Newark, NJ Bar Disorder October 2011



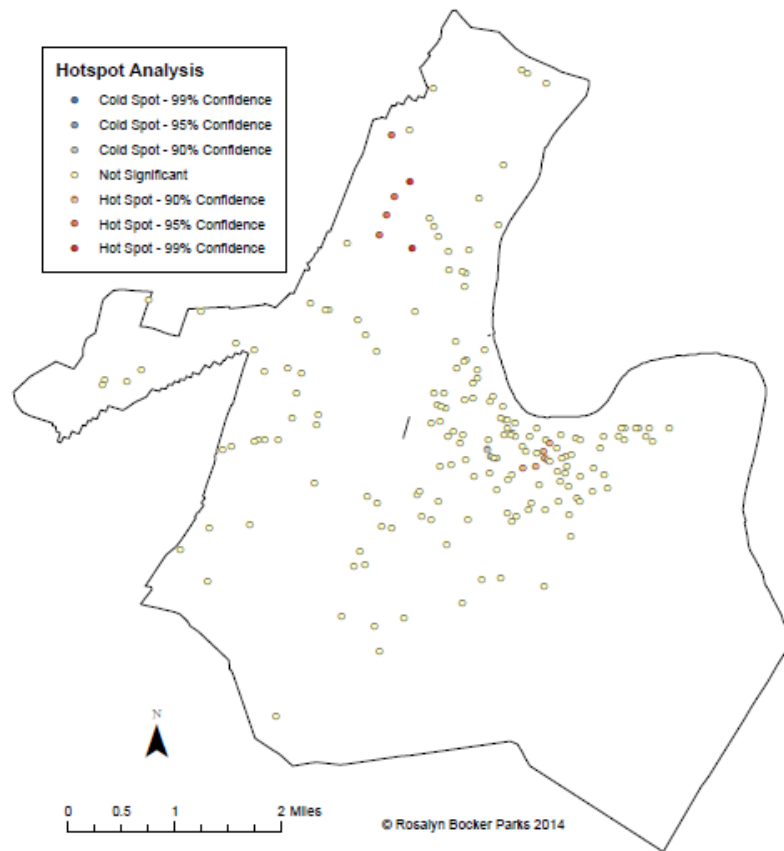
Newark, NJ Bar Disorder November 2011



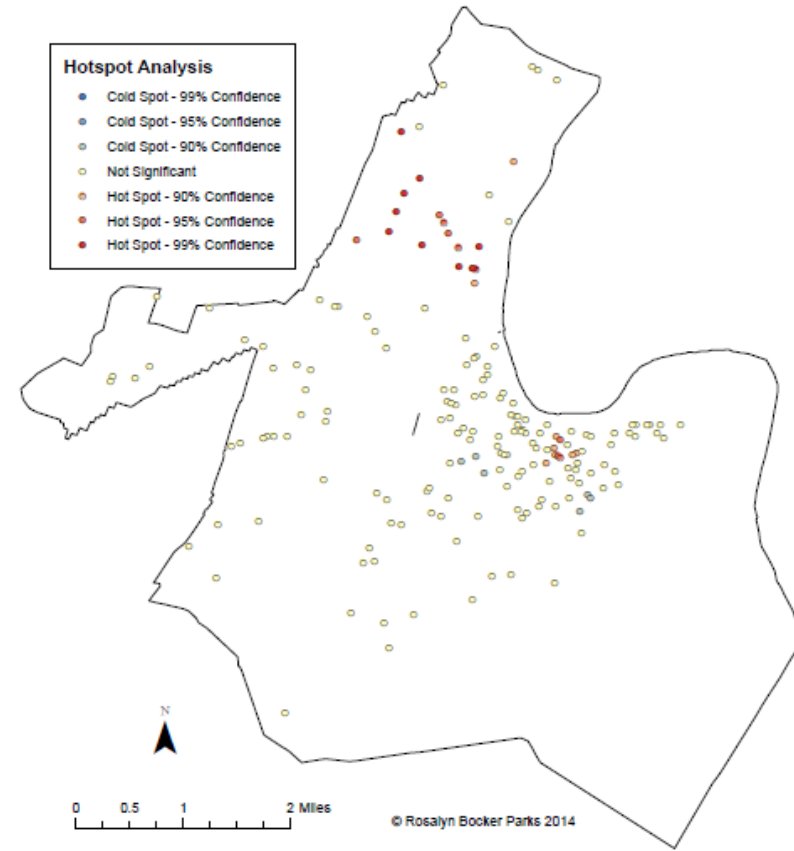
Newark, NJ Bar Disorder December 2011



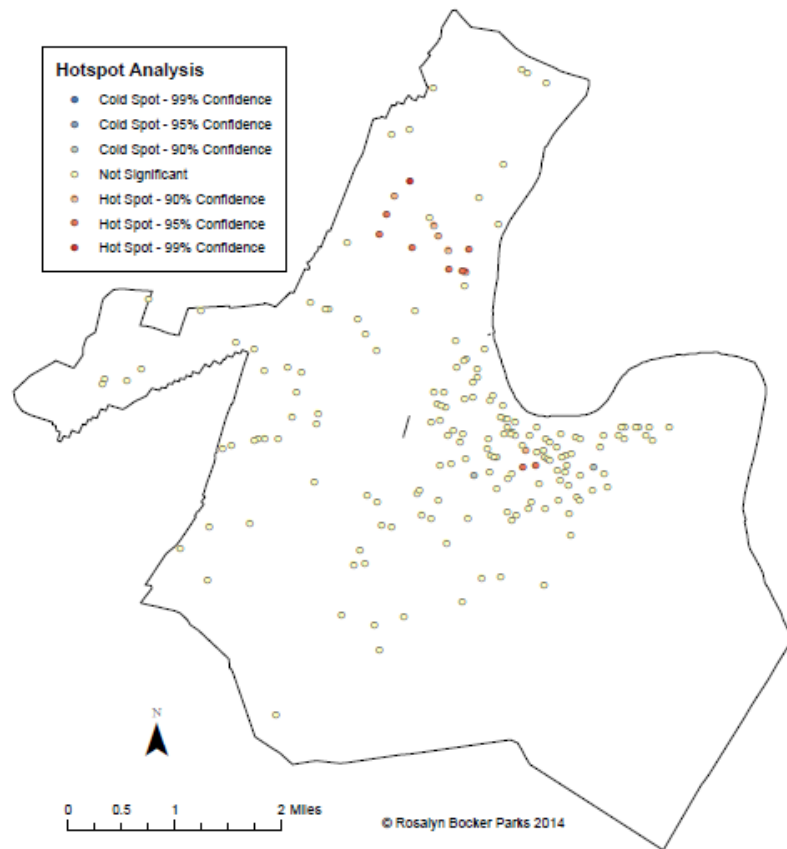
Newark, NJ Bar Disorder January 2010 and 2011



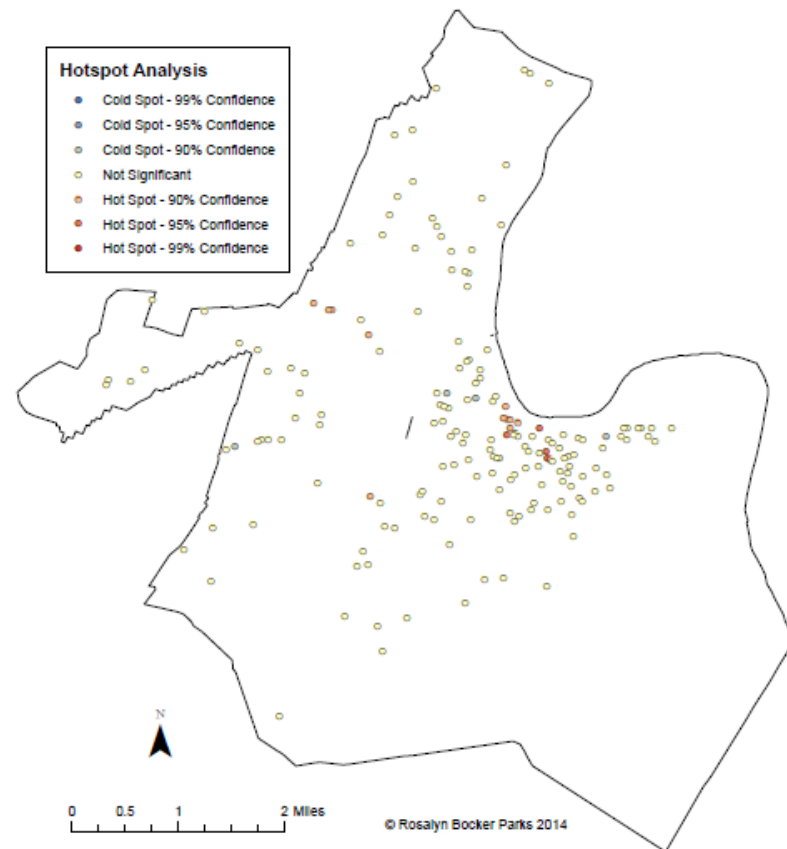
Newark, NJ Bar Disorder February 2010 and 2011



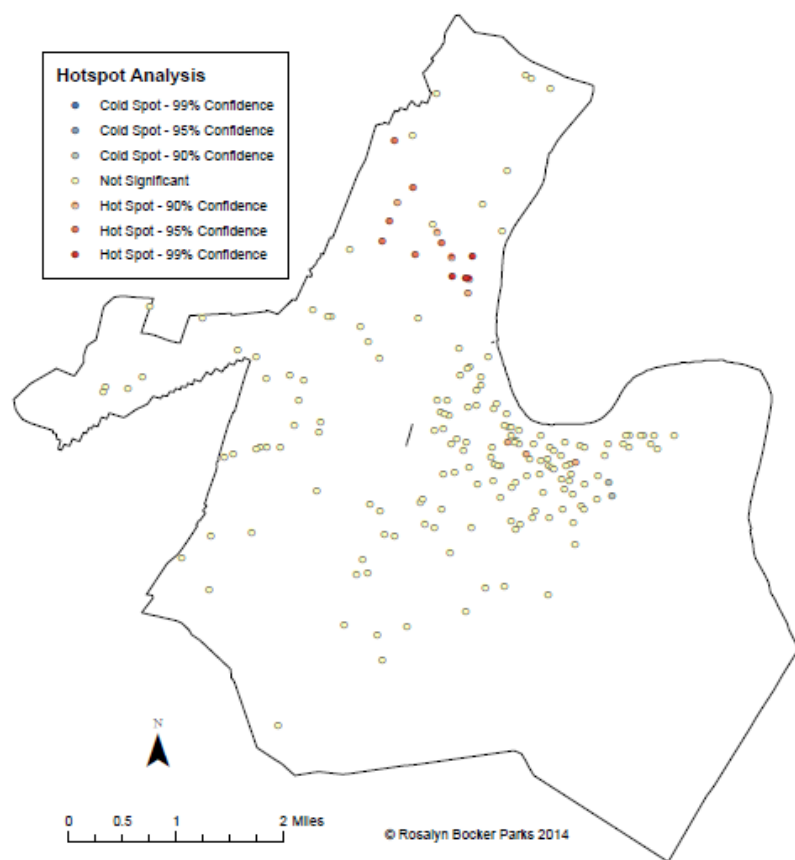
Newark, NJ Bar Disorder March 2010 and 2011



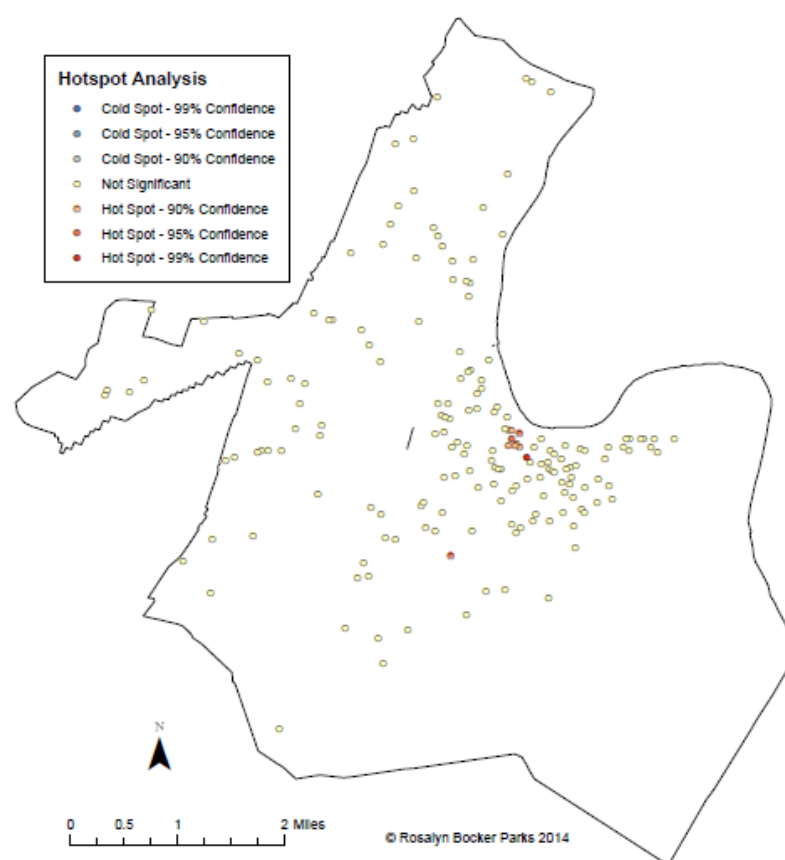
Newark, NJ Bar Disorder April 2010 and 2011



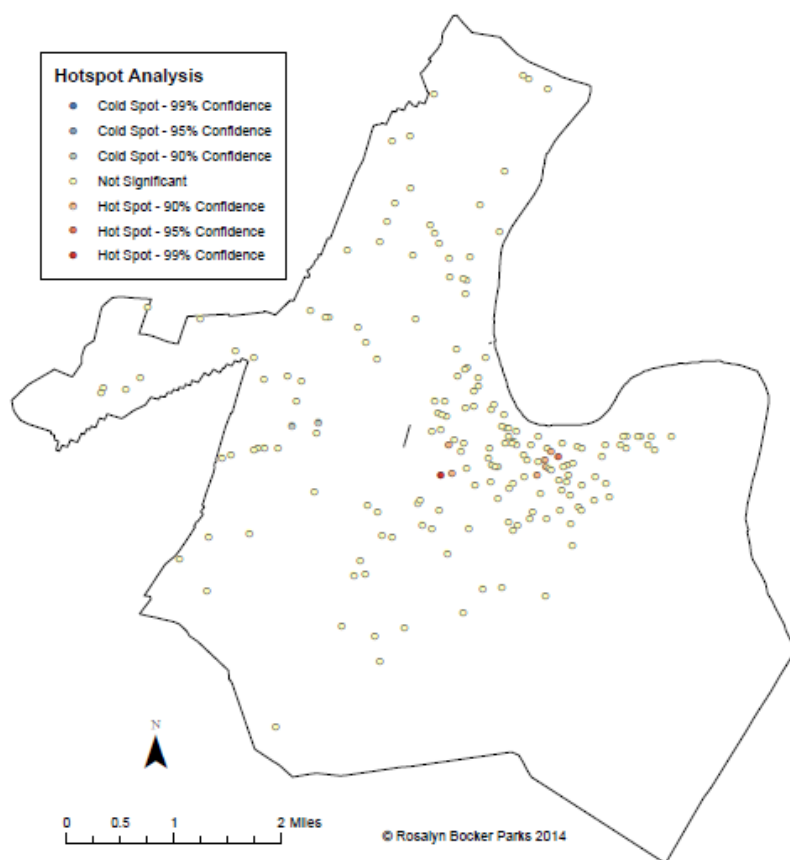
Newark, NJ Bar Disorder May 2010 and 2011



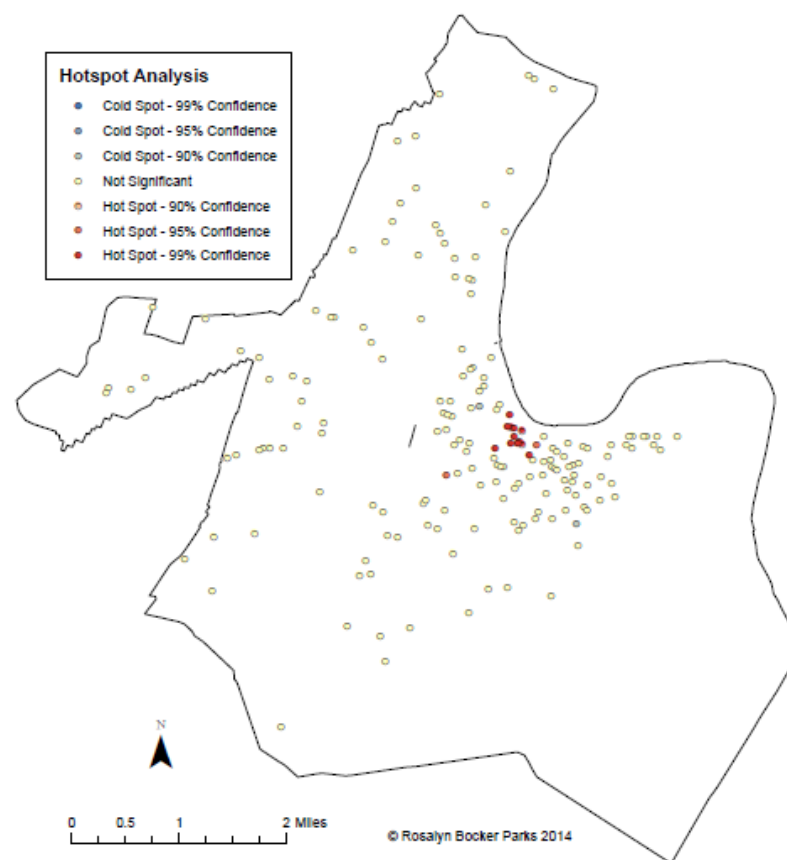
Newark, NJ Bar Disorder June 2010 and 2011



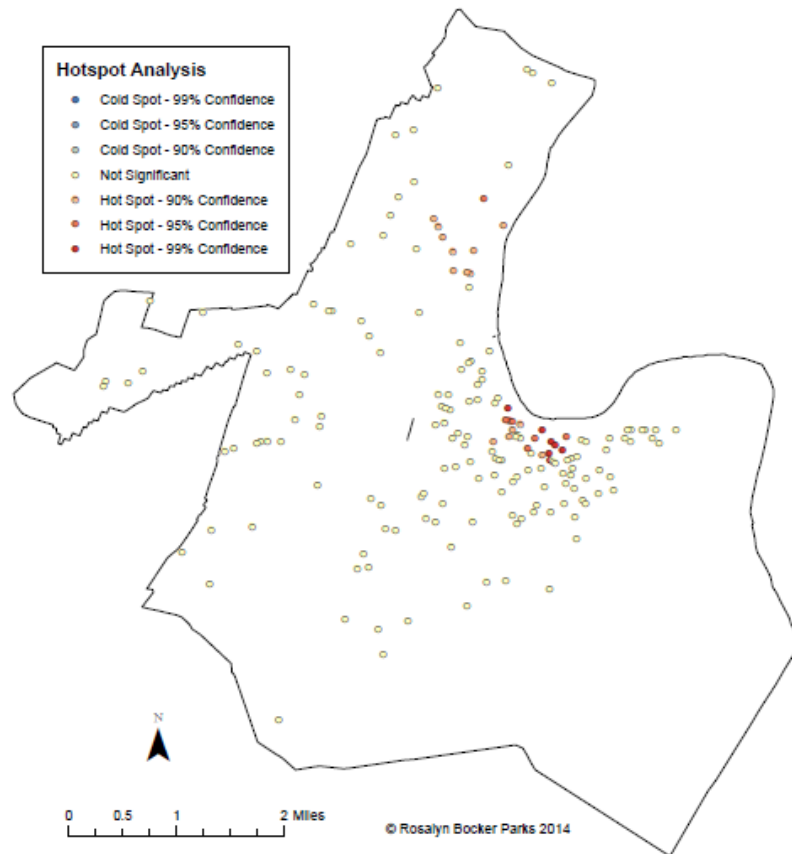
Newark, NJ Bar Disorder July 2010 and 2011



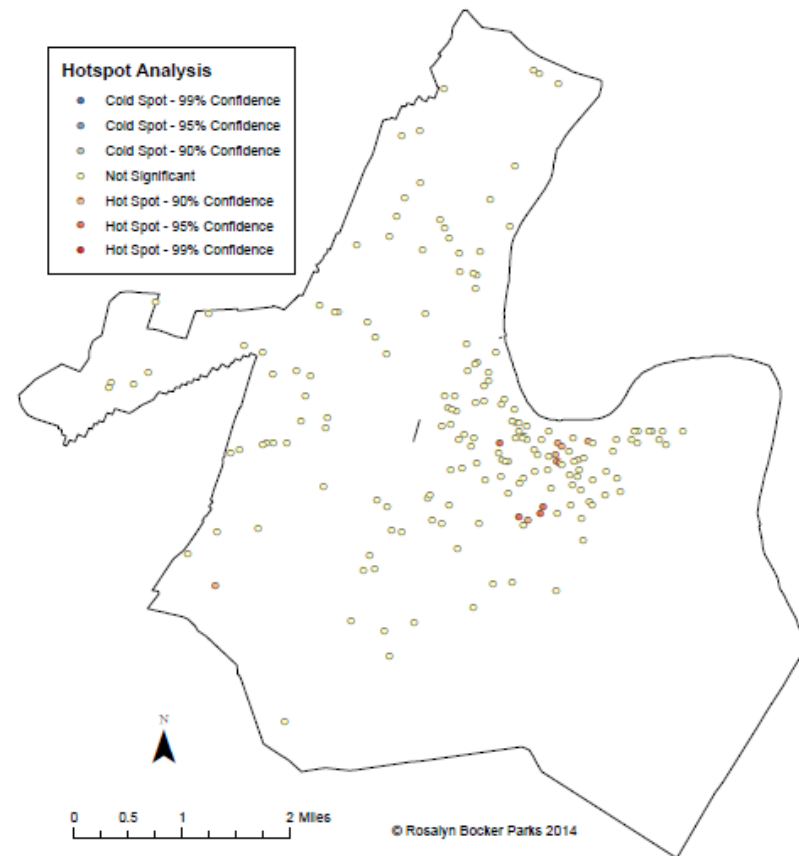
Newark, NJ Bar Disorder August 2010 and 2011



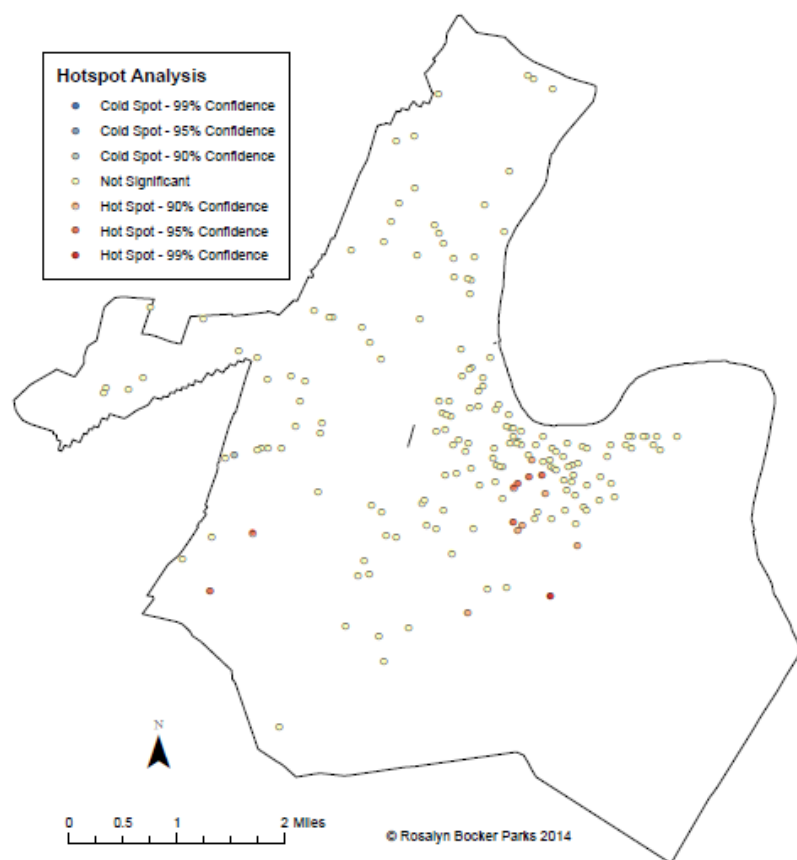
Newark, NJ Bar Disorder September 2010 and 2011



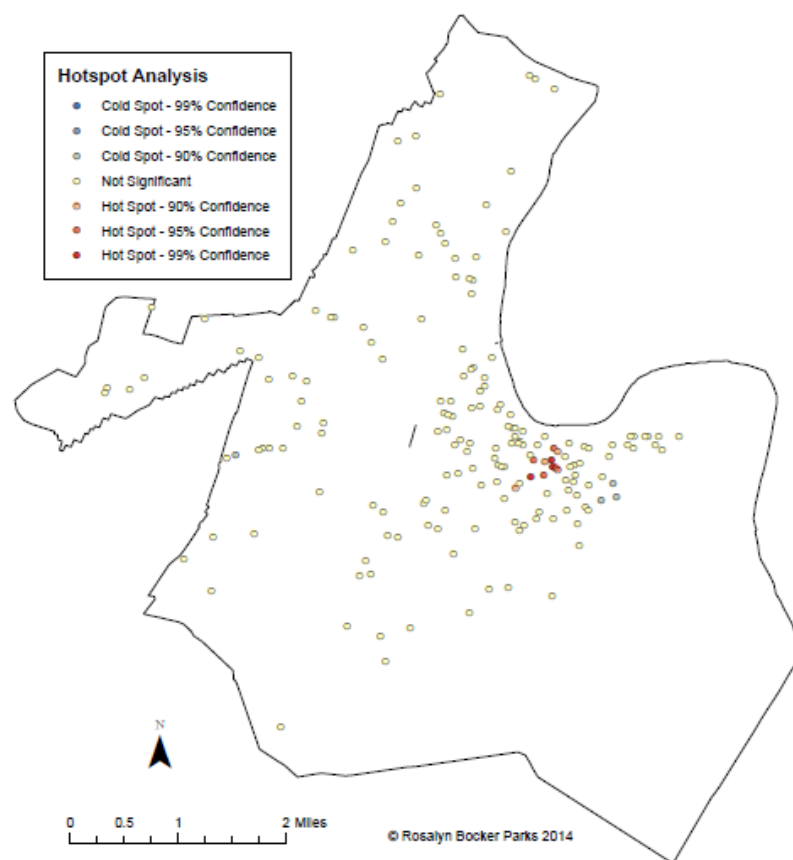
Newark, NJ Bar Disorder October 2010 and 2011



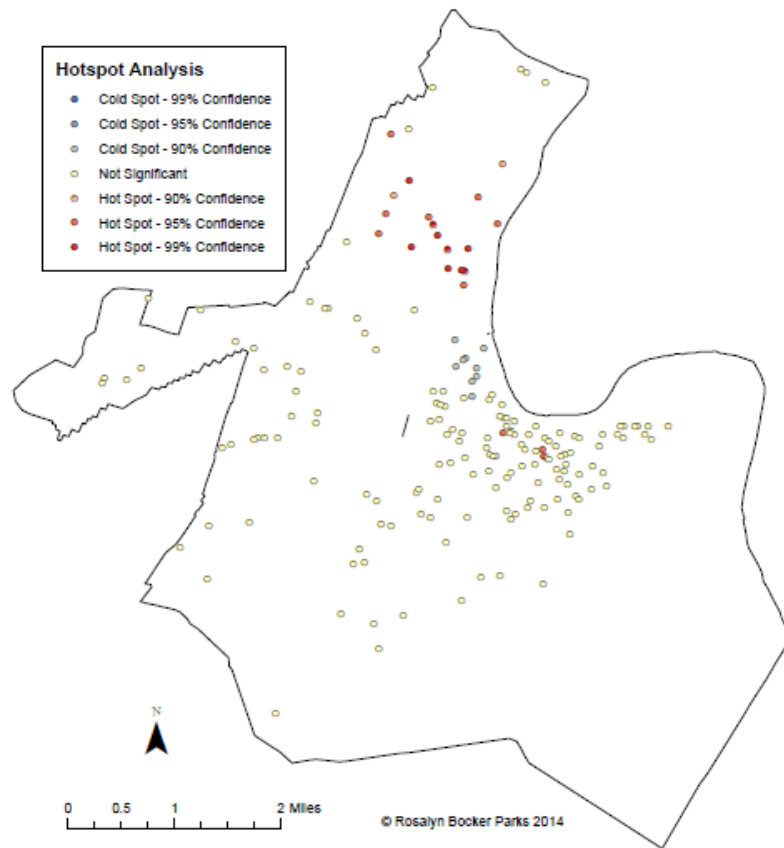
Newark, NJ Bar Disorder November 2010 and 2011



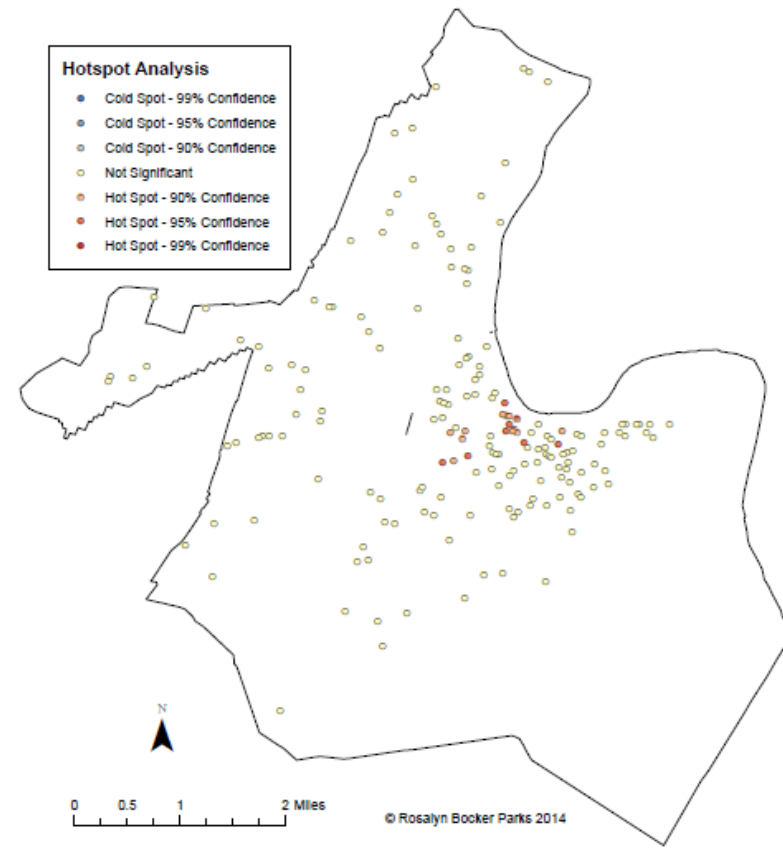
Newark, NJ Bar Disorder December 2010 and 2011



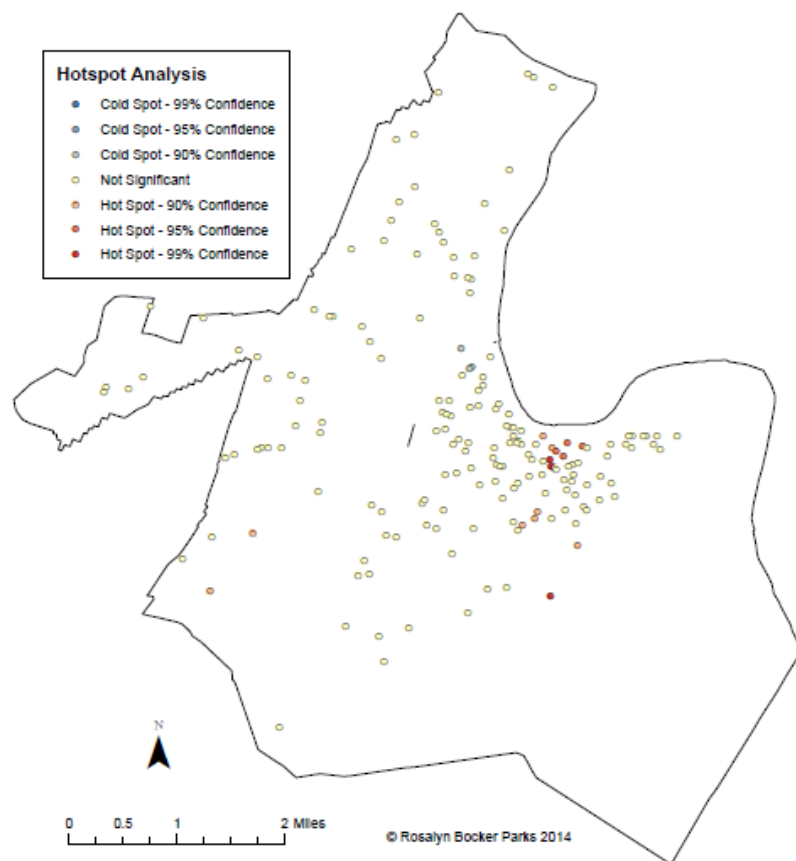
Newark, NJ Bar Disorder Spring 2010



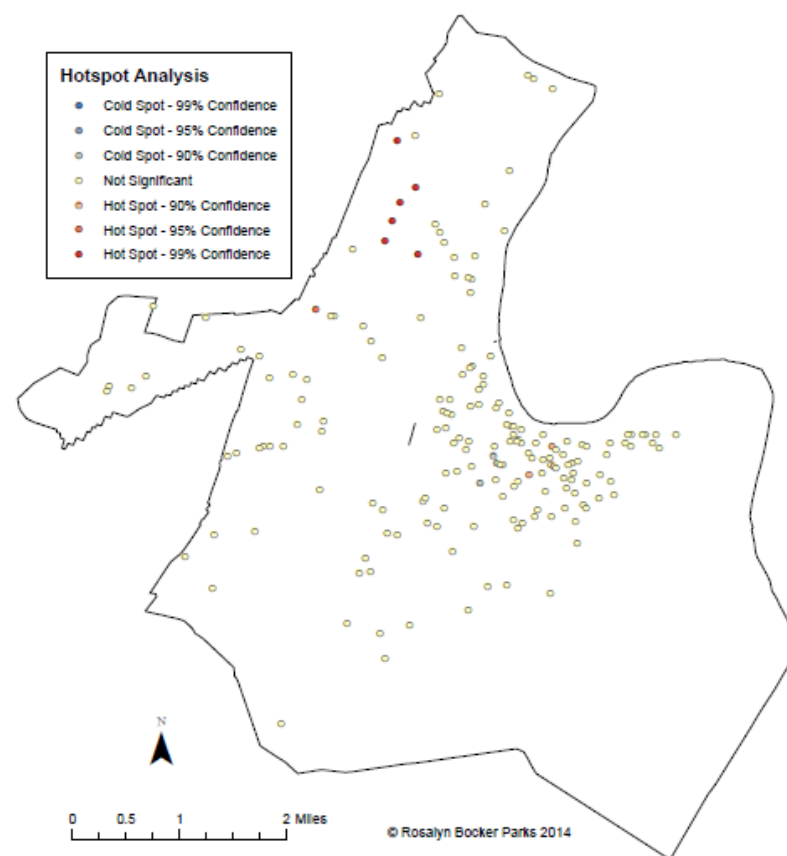
Newark, NJ Bar Disorder Summer 2010



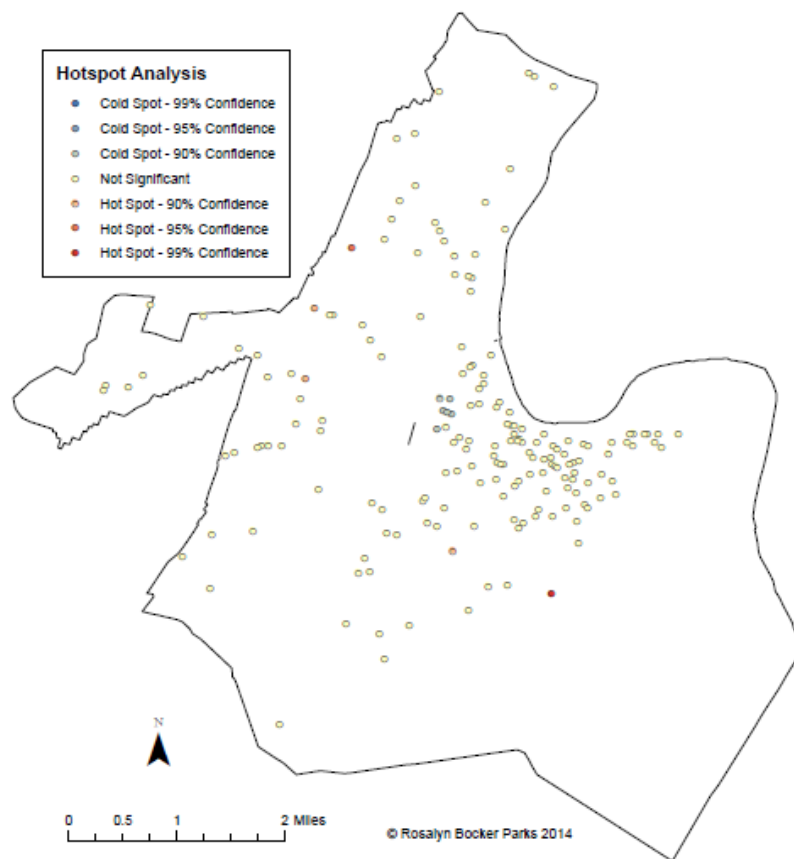
Newark, NJ Bar Disorder Fall 2010



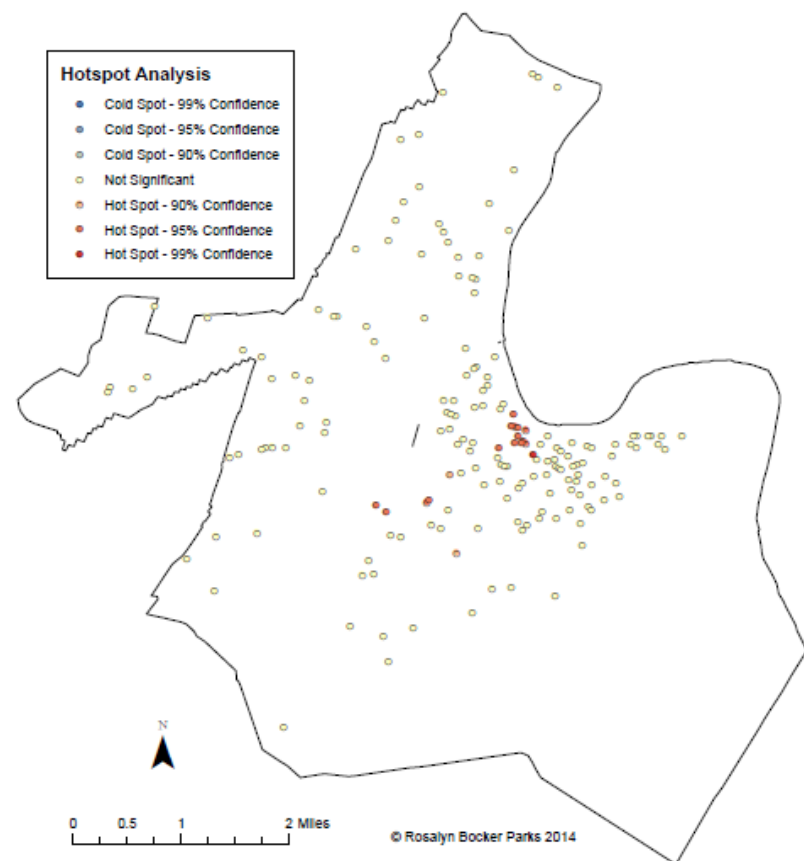
Newark, NJ Bar Disorder Winter 2010



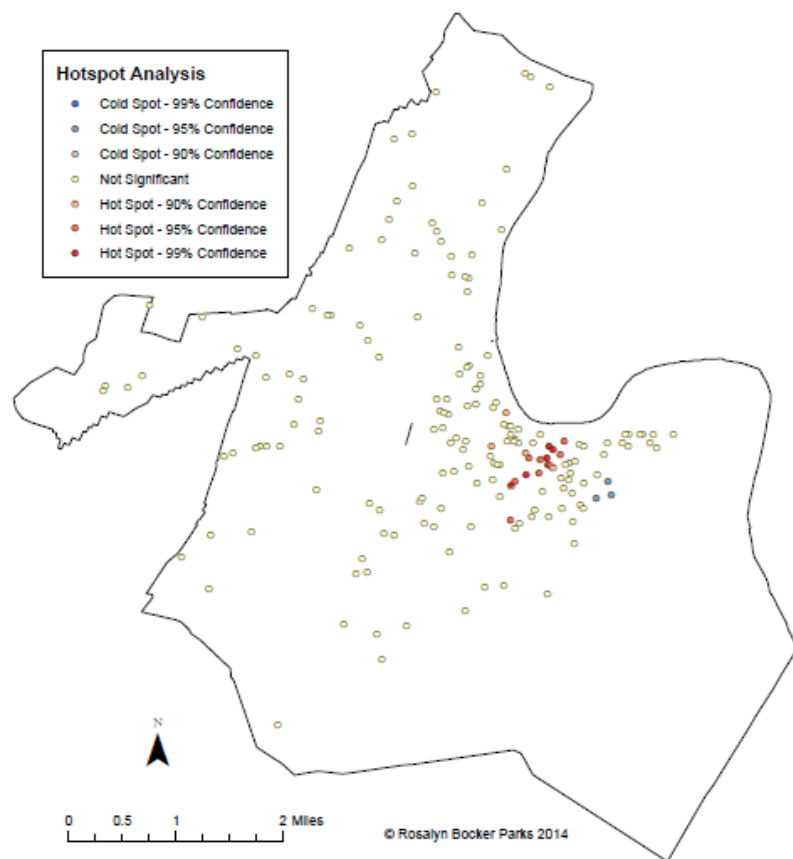
Newark, NJ Bar Disorder Spring 2011



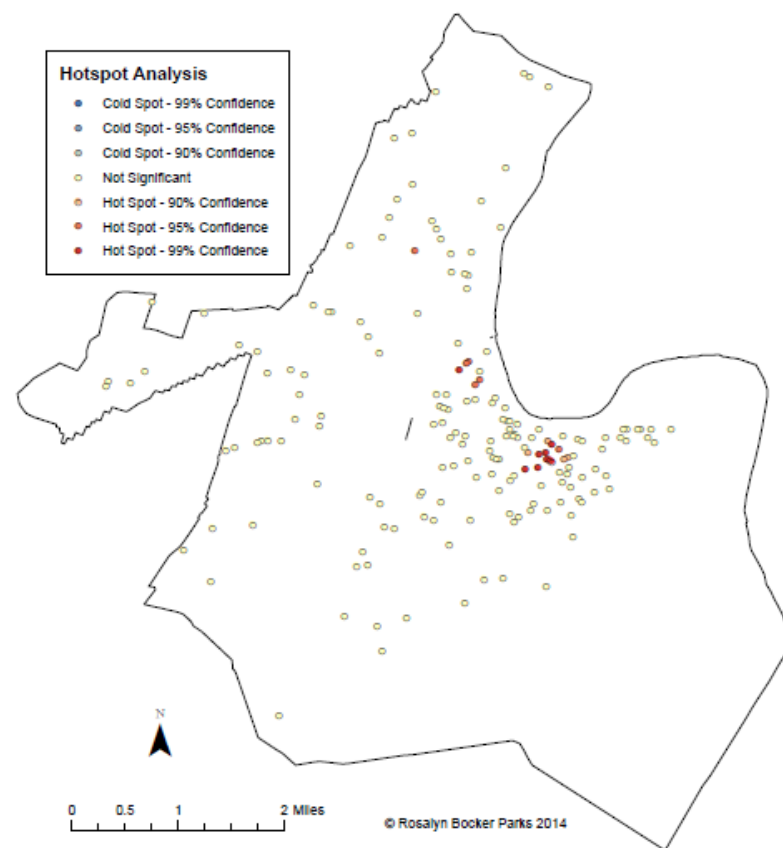
Newark, NJ Bar Disorder Summer 2011



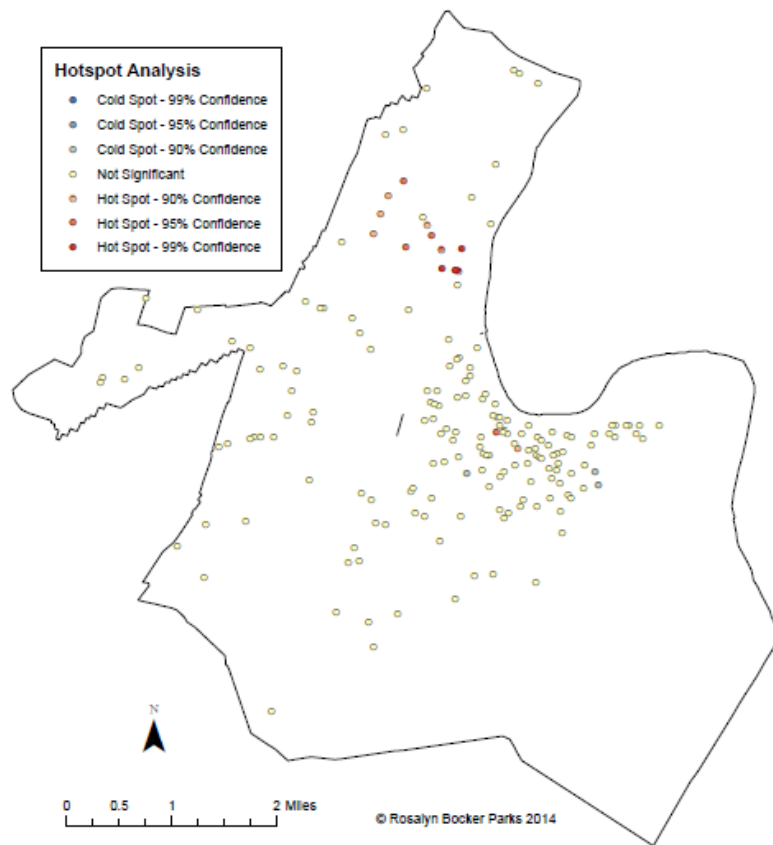
Newark, NJ Bar Disorder Fall 2011



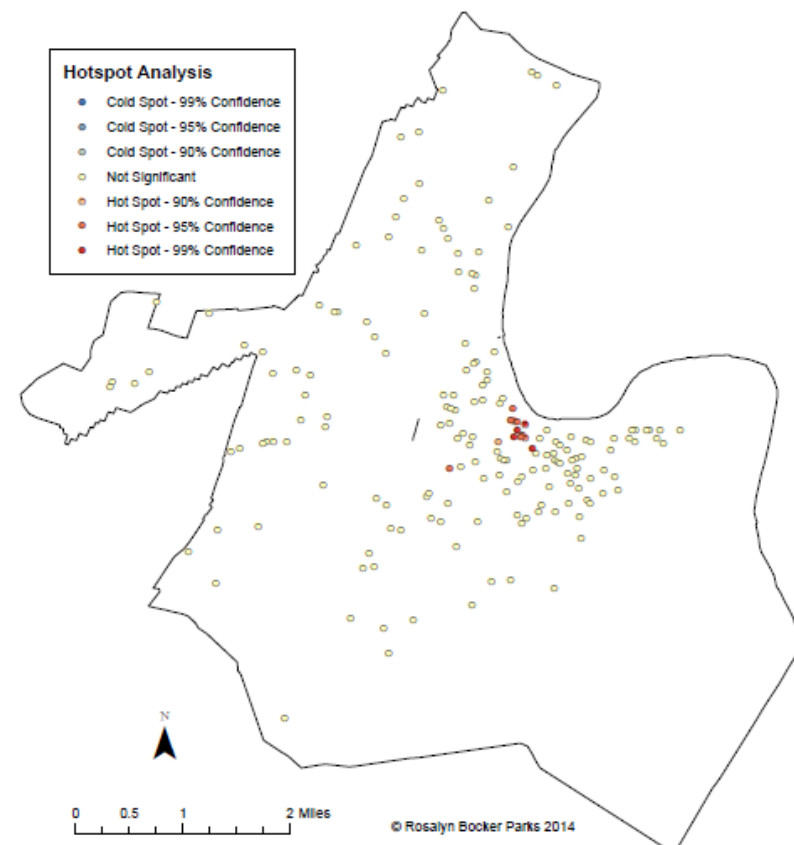
Newark, NJ Bar Disorder Winter 2011



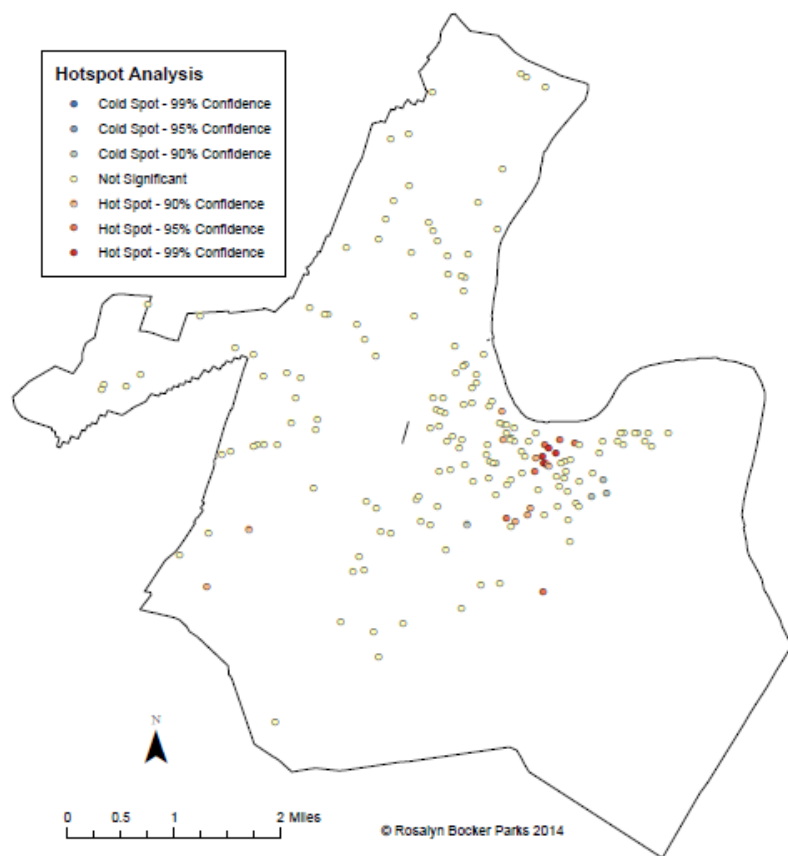
Newark, NJ Bar Disorder Spring 2010 and 2011



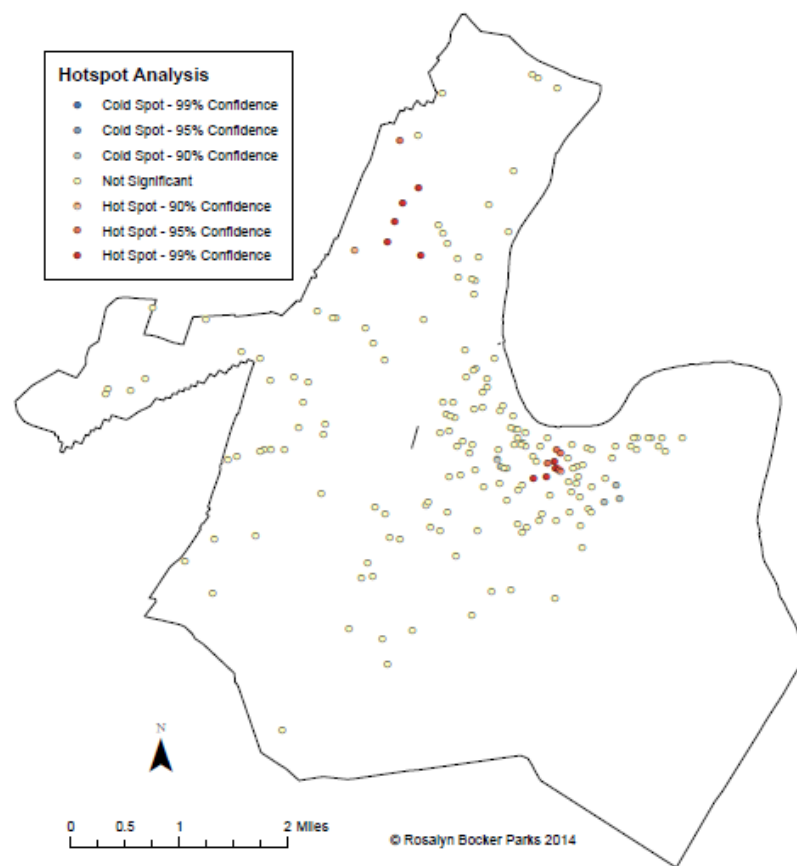
Newark, NJ Bar Disorder Summer 2010 and 2011



Newark, NJ Bar Disorder Fall 2010 and 2011



Newark, NJ Bar Disorder Winter 2010 and 2011



APPENDIX D:
ANALYSES OF DISORDER INCIDENTS

In 2010 there were a total of 1006 unique bar disorder incidents reported to the police. There were 114 cases of multiple bar disorder incidents being made for an individual bar disorder incident. These bar disorder incidents resulted in an average of two calls made to the police.

In 2011 there was a total of 873 unique bar disorder incidents reported to the police. There were 70 cases of multiple bar disorder incidents being made to the police in response to an individual bar disorder incident. On average, these bar disorder incidents resulted in an average of two calls being made.

There were a total of 1879 individual disorder incidents reported to the Newark Police Department during the study period between January 1st 2010 and December 31st 2011.

Results of the J-Curve Analysis for Disorder Incidents at Bars

A list of all bar locations in Newark, NJ was compiled using Newark Police Department data. A count of all disorder incidents at and within a 50 foot radius of these bar locations was completed and these bar facilities were ranked from those with the most disorder incidents to those with the fewest. A bar chart of the frequency of disorder incidents at bars was drawn, beginning with the bar location with the highest frequency of disorder incidents and decreasing in order to those with few or none. In 2010, 153 bars and bar pairs experienced at least one disorder incident while 26 drinking establishments experienced none.

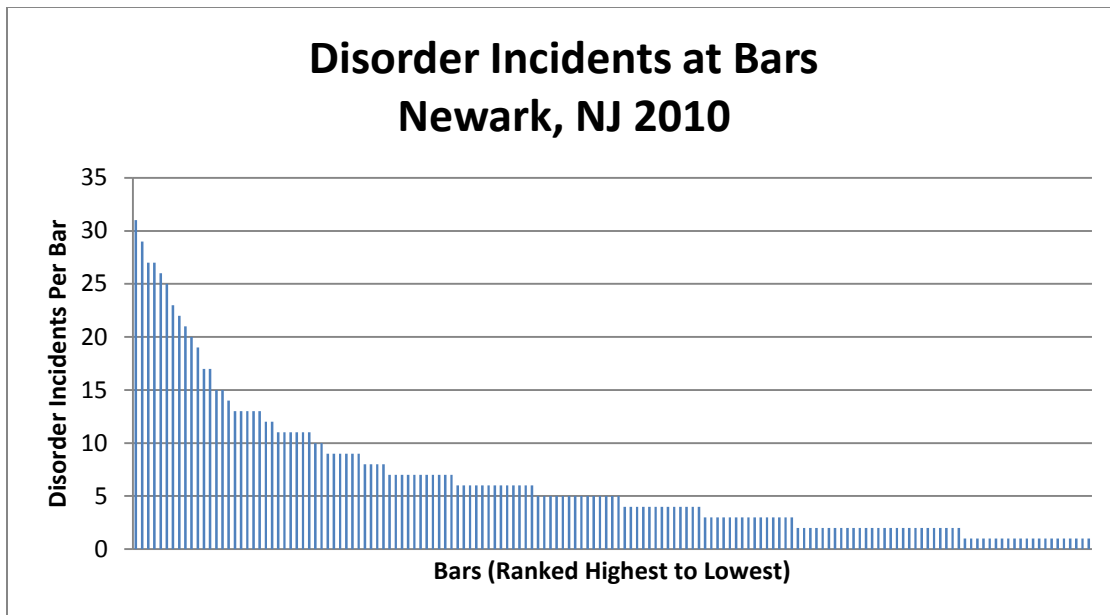


Figure 36: Disorder Incidents at Bars Newark, NJ 2010

As was expected, Figure 36 demonstrates that a few facilities at the left end of this distribution had many disorder incidents, but as one moves to the right there was a steep drop-off in disorder incidents that flattens out at a very few or no crimes for the majority of the facilities. The resulting graph resembles a reclining “J” described in academic literature (Eck, Clarke, & Guerette, 2007).

This process was completed for 2011 disorder incident data. In 2011, 145 bars and bar pairs experienced at least one disorder incident while 34 drinking establishments experienced none. As seen in Figure 37 a similar distribution few facilities was observed, where a few facilities at the left end of this distribution had many disorder incidents but the majority of facilities had few or none.

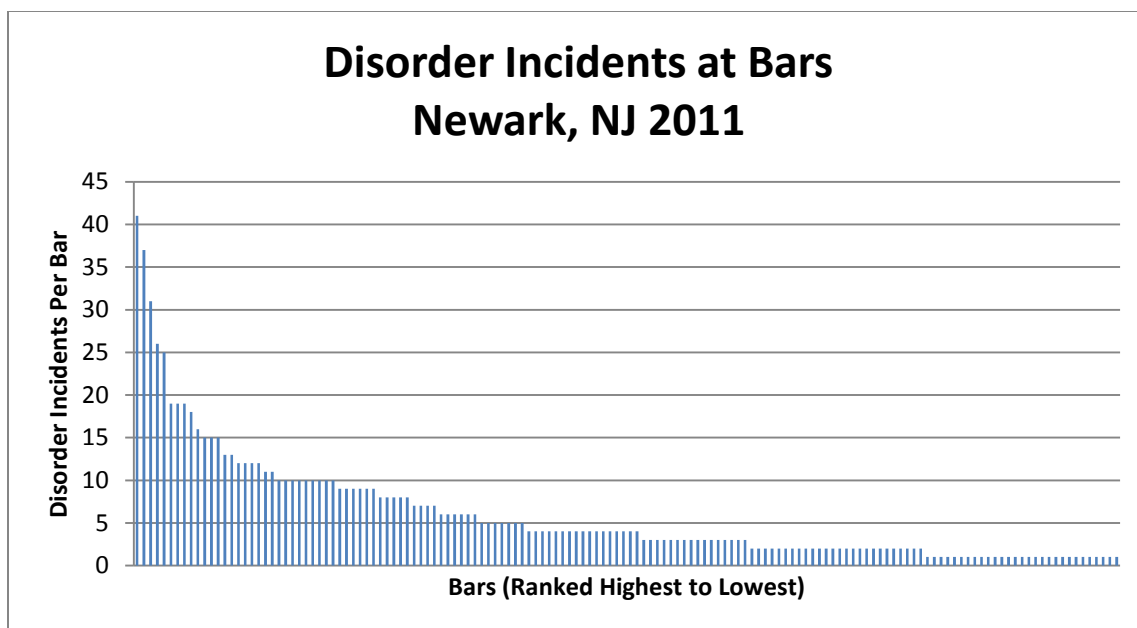


Figure 37: Disorder Incidents at Bars in Newark, NJ 2011

For each year a percentage of disorder incidents at each bar location were calculated to determine their contribution to total bar disorder. The proportion of the facilities individual bars represent was also calculated and cumulated. These cumulative percentages of bar locations were compared to the cumulative percentage of events to identify the riskiest facilities. The rankings and cumulative percentages of incidents and bars for all Newark drinking establishments for both 2010 and 2011 can be found in Appendix E and Appendix D.

| Rank | 2010 | Cumulative % Bar Disorder | 2011 | Cumulative % Bar Disorder |
|------|-----------------------------|---------------------------|---|---------------------------|
| 1 | Misavi Restaurant & Lounge | 3.08% | Sagres Bar and Rest | 4.70% |
| 2 | La Roca Night Club | 5.96% | Brisas Del Mar Rest. | 8.94% |
| 3 | Price's Lounge | 8.65% | La Roca Night Club | 12.50% |
| 4 | Brisas Del Mar Rest. | 11.33% | Nuestra Casa Restaurante | 15.48% |
| 5 | The Atmosphere Bar & Lounge | 13.92% | April's Lounge/Fleming Ave Bar & Barbeque | 18.35% |
| 6 | NJ Tu Casa Rest. | 16.40% | Price's Lounge | 20.53% |
| 7 | Sagres Bar and Rest | 18.69% | Zepe's Cafe And Bar | 22.71% |
| 8 | Nuestra Casa Restaurante | 20.87% | Keen's Corner | 24.89% |
| 9 | El Consorcio Tavern | 22.96% | Casa Nova Grill/Sol-Mar Bar and Rest | 26.95% |
| 10 | Guitar Bar | 24.95% | El Consorcio Tavern | 28.78% |

Table 144: Top Ten Most Disorderly Bars in Newark, NJ in 2010 and 2011

In 2010 and 2011, the ten bars with the highest numbers of disorder incidents were responsible of 25 percent and 29 percent of total bar disorder respectively. As seen in Table 14, five of the identified most disorderly bars remained in the top ten from 2010 to 2011. The top ten disorderly bars account for 5.5 percent of all drinking establishments in Newark. These highlighted bars account for 50 percent of the top ten most disorderly bars in Newark, NJ over the two year study period.

Results of the Temporal Analysis of Disorder Incidents at Bars

Descriptive statistics were compiled on the frequency of bar disorder incidents during daytime, afternoon, evening, late night, and early morning hours. The hours of the day were examined divided into the following 5 categories: 1) 8 a.m. to 2 p.m.; 2) 2 p.m. to 6 p.m.; 3) 6 p.m. to 9 p.m.; 4) 9 p.m. to 3 a.m.; and 5) 3 a.m. to 8 a.m.

In 2010, the time of day with the most disorder incidents was the 9pm-3am hourly block with 486 disorder incidents, or 48.3 percent of all disorder incidents of that year. The 2pm-6pm hourly block was the next most populous with 139 disorder incidents

accounting for 13.8 percent of bar disorder. The 8am-2pm and 6pm-9pm hourly blocks contributed 13.3 percent (134 disorder incidents) and 13.2 percent (135 disorder incidents) respectively. The hourly block with the least disorder incidents was 3 am-8am with only 114 disorder incidents (11.3 percent).

| Disorder Incidents 2010 by Hourly Block | | |
|--|--------------|------------|
| Rank | Hourly Block | Percentage |
| 1 | 9pm-3am | 48.3% |
| 2 | 2pm-6pm | 13.8% |
| 3 | 8am-2pm | 13.3% |
| 4 | 6pm-9pm | 13.2% |
| 5 | 3am-8am | 11.3% |

Table 15: Disorder Incidents 210 by Hourly Block

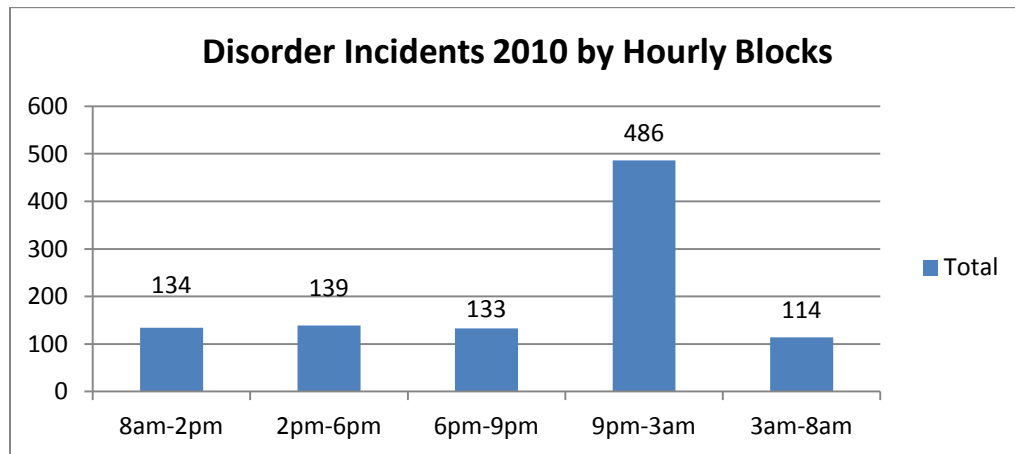


Figure 38: Disorder Incidents 2010 by Hourly Blocks

Descriptive statistics were also compiled for 2011 disorder incidents data. The most disorder incidents were observed during the 9pm-3am hourly block with 421 disorder incidents, or 48.3 percent of all disorder incidents of that year. The 2pm-6pm hourly block was the next most populous with 132 disorder incidents accounting for 15.1 percent of bar disorder. The 8am-2pm and 6pm-9pm hourly blocks contributed 14.8 percent (129 disorder incidents) and 14.1 percent (123 disorder incidents) respectively.

The hourly block with the least disorder incidents was 3 am-8am with only 67 disorder incidents (7.7 percent).

| Disorder Incidents 2011 by Hourly Block | | |
|--|--------------|------------|
| Rank | Hourly Block | Percentage |
| 1 | 9pm-3am | 48.3% |
| 2 | 2pm-6pm | 15.1% |
| 3 | 8am-2pm | 14.8% |
| 4 | 6pm-9pm | 14.1% |
| 5 | 3am-8am | 7.7% |

Table 16: Disorder Incidents 2011 by Hourly Block

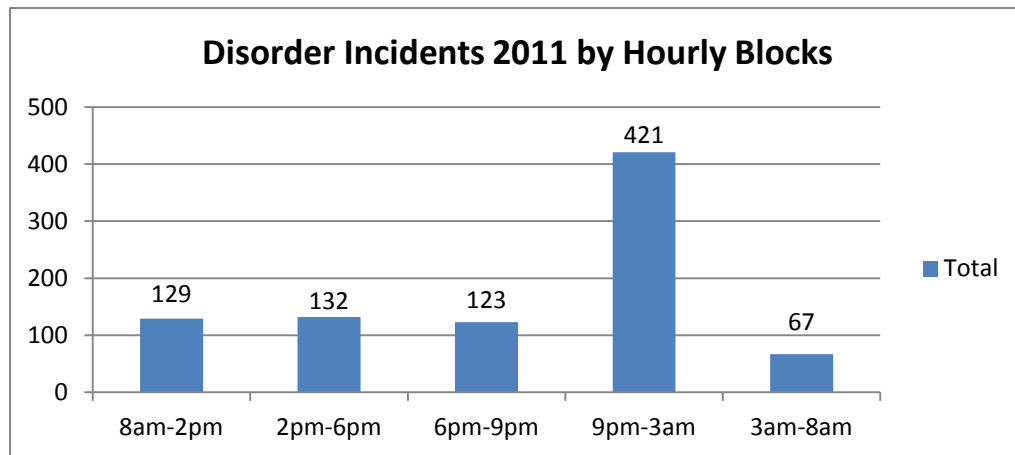


Figure 39: Disorder Incidents 2011 by Hourly Blocks

Combined data from 2010 and 2011 disorder incidents data indicate similar patterns. The most disorder incidents were observed during the 9pm-3am hourly block with 907 disorder incidents, or 48.3 percent of all disorder incidents of that year. The 2pm-6pm hourly block was the next most populous with 271 disorder incidents accounting for 14.4 percent of bar disorder. The 8am-2pm and 6pm-9pm hourly blocks contributed 14 percent (263 disorder incidents) and 13.6 percent (256 disorder incidents) respectively. The hourly block with the least disorder incidents was 3 am-8am with only 181 disorder incidents (9.6 percent).

| Disorder Incidents 2010-2011 by Hourly Block | | |
|---|--------------|------------|
| Rank | Hourly Block | Percentage |
| 1 | 9pm-3am | 48.3% |
| 2 | 2pm-6pm | 14.4% |
| 3 | 8am-2pm | 14.0% |
| 4 | 6pm-9pm | 13.6% |
| 5 | 3am-8am | 9.6% |

Table 17: Disorder Incidents 2010-2011 by Hourly Block

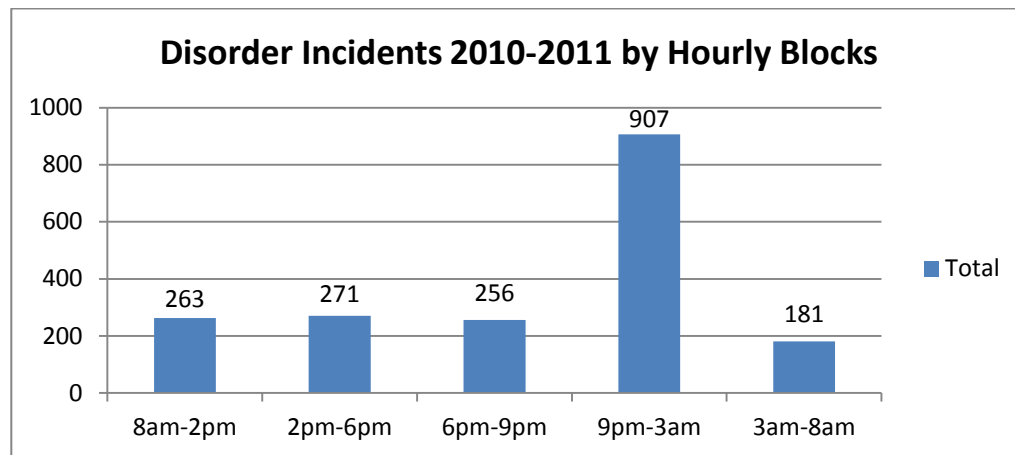


Figure 40: Disorder Incidents 2010-2011 by Hourly Block

Day of Week

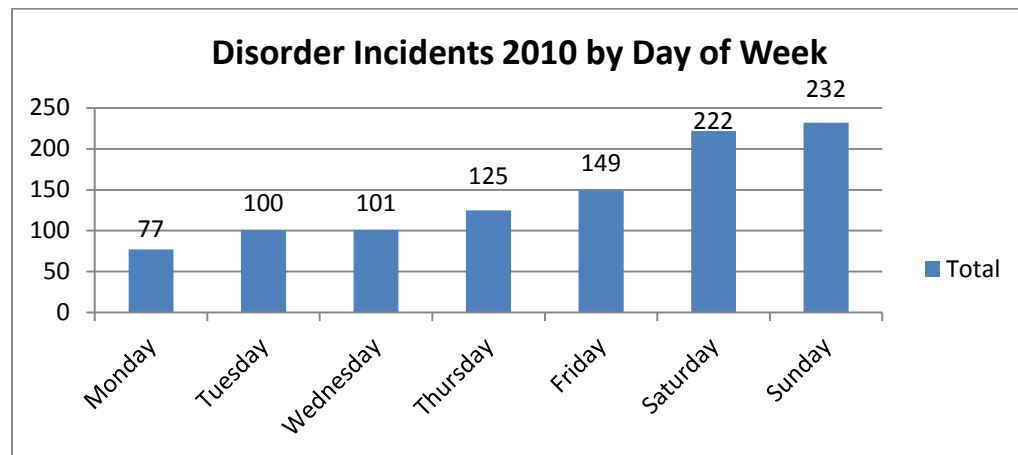
Descriptive statistics were compiled on what days of the week were most likely to have high numbers of bar disorder incidents. The week was divided into the seven days of the week. Each day was listed alongside their observed number of disorder incidents. Then, the percentage each day of the week contributed to the total number of disorder incidents was calculated. The days of the week were also ranked according to the number of disorder incidents, from highest to lowest.

In 2010, Sundays, Saturdays and Fridays experienced the most disorder incidents. Sundays accounted for 232 disorder incidents, Saturdays experienced 222 disorder incidents, and 149 disorder incidents occurred on Fridays. Combined, these three days are

responsible for approximately 60 percent of all disorder incidents. The day of the week with the fewest disorder incidents was Monday, with only 77 disorder incidents in 2010.

| Disorder Incidents 2010 by Day of Week | | |
|---|-------------|------------|
| Rank | Day of Week | Percentage |
| 1 | Sunday | 23.1% |
| 2 | Saturday | 22.1% |
| 3 | Friday | 14.8% |
| 4 | Thursday | 12.4% |
| 5 | Wednesday | 10.0% |
| 6 | Tuesday | 9.9% |
| 7 | Monday | 7.7% |

Table 18: Disorder Incidents 2010 by Day of Week



Caption 41: Disorder Incidents 2010 by Day of Week

In 2011, Sundays, Saturdays and Fridays experienced the most disorder incidents. Sundays accounted for 189 disorder incidents, Saturdays experienced 188 disorder incidents, and 127 disorder incidents occurred on Fridays. Combined, these three days are responsible for approximately 58 percent of all disorder incidents. The day of the week with the fewest disorder incidents was Wednesday, with only 80 disorder incidents in 2010.

| Disorder Incidents 2011 by Day of Week | | |
|---|----------------|------------|
| Rank | Day of Week | Percentage |
| 1 | Sunday | 21.7% |
| 2 | Saturday | 21.6% |
| 3 | Friday | 14.6% |
| 4 | Monday | 11.9% |
| 5 | Tuesday | 11.0% |
| 6 | Thursday | 10.1% |
| 7 | Wednesday | 9.2% |

Table 19: Disorder Incidents 2011 by Day of Week

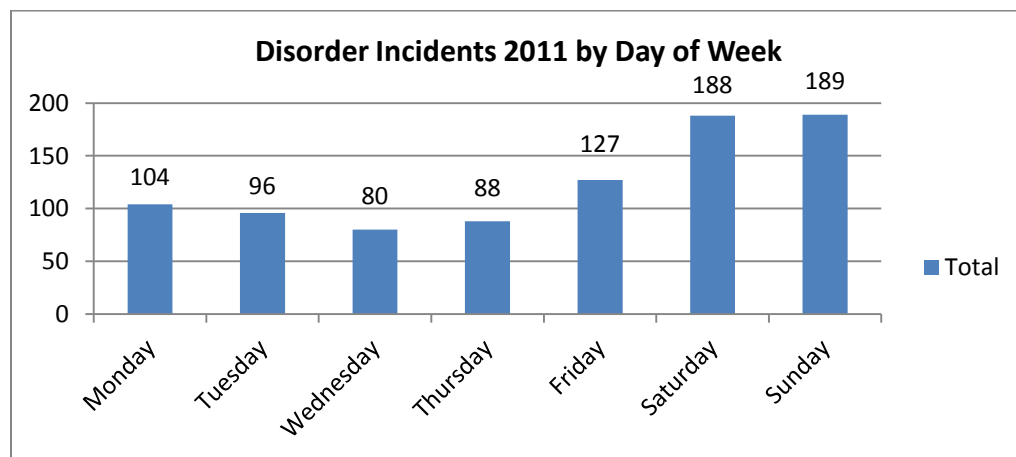


Figure 42: Disorder Incidents 2011 by Day of Week

The same pattern emerges when descriptive statistics were calculated for the combined of both 2010 and 2011. Sundays, Saturdays and Fridays experienced the most disorder incidents. Sundays accounted for 421 disorder incidents, Saturdays experienced 410 disorder incidents, and 276 disorder incidents occurred of Fridays. Combined, these three days are responsible for approximately 59 percent of all disorder incidents. The days of the week with the fewest disorder incidents were Mondays and Wednesdays, with only 181 disorder incidents each over the two years study period.

| Disorder Incidents 2010-2011 by Day of Week | | |
|--|-------------|------------|
| Rank | Day of Week | Percentage |
| 1 | Sunday | 22.4% |
| 2 | Saturday | 21.8% |
| 3 | Friday | 14.7% |
| 4 | Thursday | 11.3% |
| 5 | Tuesday | 10.4% |
| 6 | Monday | 9.6% |
| 6 | Wednesday | 9.6% |

Table 20: Disorder Incidents 2010-2011 by Day of Week

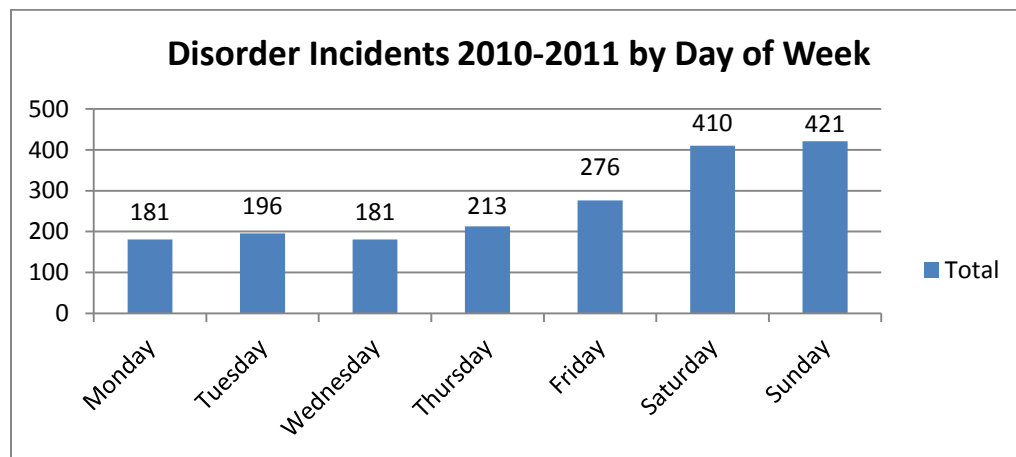


Figure 43: Disorder Incidents 2010-2011 by Day of Week

Month

Monthly descriptive statistics on bar disorder incidents were recorded. For each month a count of all disorder incidents in and around bars was tallied. Each month was alongside their observed number of disorder incidents. Then, the percentage each month contributed to the total number of disorder incidents was calculated. The months were ranked according to the number of disorder incidents, from highest to lowest.

In 2010, the month of August experienced 209 disorder incidents, 10.8 percent of all disorder incidents in 2010. August is closely followed by May with 100 incidents (9.9 percent of disorder incidents), and September and October with 93 incidents (9.2 percent

of disorder incidents) each. The month with the fewest disorder incidents was February, which accounted for 6.3 percent of all disorder incidents (63 disorder incidents). The months with the second fewest disorder incidents were March and December, with 69 incidents (6.9 percent of disorder incidents) each.

| Disorder Incidents 2010 by Month | | |
|-------------------------------------|-----------|------------|
| Rank | Month | Percentage |
| 1 | August | 10.8% |
| 2 | May | 9.9% |
| 3 | September | 9.2% |
| 3 | October | 9.2% |
| 5 | June | 8.6% |
| 6 | July | 8.5% |
| 7 | November | 8.1% |
| 8 | April | 7.9% |
| 9 | January | 7.7% |
| 10 | March | 6.9% |
| 10 | December | 6.9% |
| 12 | February | 6.3% |

Table 21: Disorder Incidents 2010 by Month

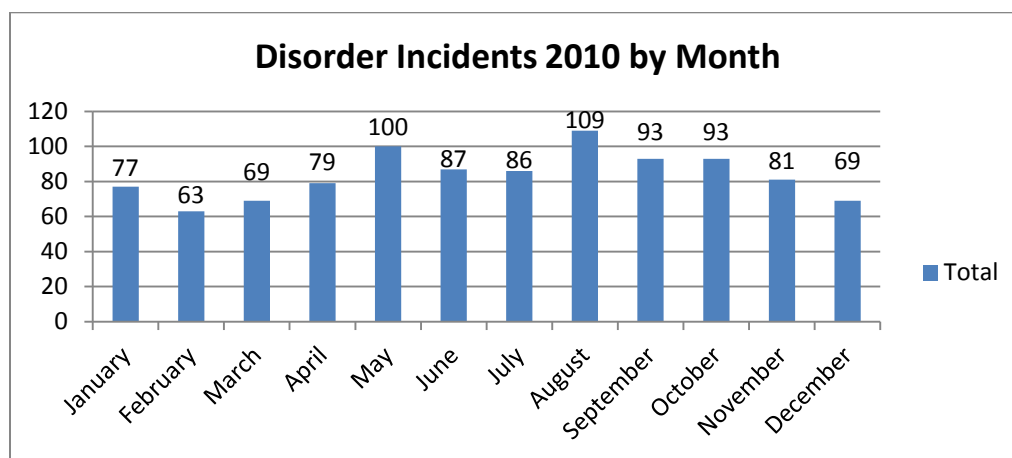


Figure 44: Disorder Incidents 2010 by Month

In 2011, July and September were the months with the highest number of disorder incidents with 96 incidents (11 percent of all disorder incidents) each. October was the

month with the next highest frequency of disorder incidents with 93 incidents (10.7 percent of all disorder incidents). The months with the fewest number of disorder incidents were March and December. These months each has 50 disorder incidents, 5.7 percent of all disorder incidents. The month with the second fewest disorder incidents was January, which contributed 6.2 percent (54 incidents) to total bar disorder incidents.

| Disorder Incidents 2011 by Month | | |
|-------------------------------------|-----------|------------|
| Rank | Month | Percentage |
| 1 | July | 11.0% |
| 1 | September | 11.0% |
| 3 | October | 10.7% |
| 4 | August | 9.9% |
| 5 | May | 9.1% |
| 6 | April | 8.1% |
| 7 | November | 7.9% |
| 8 | February | 7.3% |
| 8 | June | 7.3% |
| 10 | January | 6.2% |
| 11 | March | 5.7% |
| 11 | December | 5.7% |

Table 22: Disorder Incidents 2011 by Month

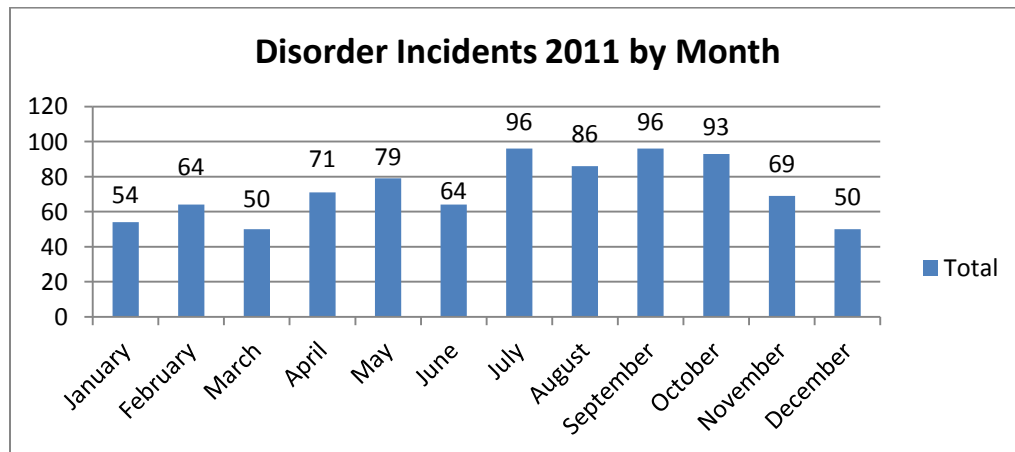


Figure 45: Disorder Incidents 2011 by Month

Descriptive statistics were also calculated for the combined data of both 2010 and 2011. The month with the most disorder incidents over the study period was August,

which had 195 disorder incidents, 10.4 percent of total bar disorder incidents. August was followed closely by the months of September (189 incidents, 10.1 percent bar incidents), October (186 incidents, 9.9 percent of bar incidents), July (182 incidents, 9.7 percent of bar incidents), and May (179 incidents, 9.5 percent of bar incidents). The months with the fewest number of disorder incidents were March and December with 119 incidents (6.3 percent of bars disorder incidents) each.

| Disorder Incidents 2010-2011 by Month | | |
|--|-----------|------------|
| Rank | Month | Percentage |
| 1 | August | 10.4% |
| 2 | September | 10.1% |
| 3 | October | 9.9% |
| 4 | July | 9.7% |
| 5 | May | 9.5% |
| 6 | June | 8.0% |
| 7 | April | 8.0% |
| 7 | November | 8.0% |
| 9 | January | 7.0% |
| 10 | February | 6.8% |
| 11 | March | 6.3% |
| 11 | December | 6.3% |

Table 23: Disorder Incidents 2010-2011 by Month

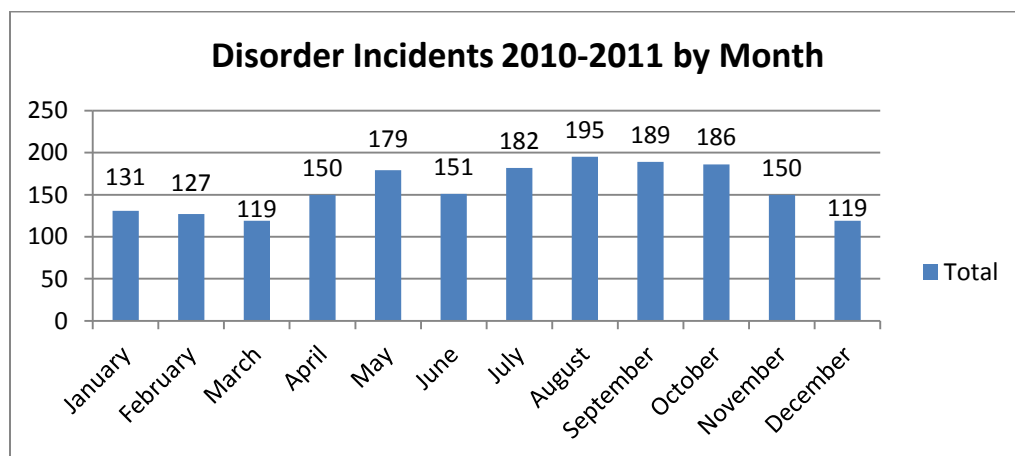


Figure 46: Disorder Incidents 2010-2011 by Month

Season

Seasonal data on disorder incidents was also recorded. Each year was divided into the meteorological seasons of the northern hemisphere. The four meteorological seasons were categorized as follows: 1) spring, from March 1st through May 31st; 2) summer, from June 1st through August 31st; 3) autumn, from September 1st through November 30th; and 4) winter, from December 1st through February 28th.

An analysis of 2010 seasonal data indicated that summer had the most disorder incidents and accounted for 28 percent (282 disorder incidents) of all bar disorder. Autumn followed closely behind with 26.5 percent of bar disorder (267 disorder incidents). Spring and winter has fewer disorder incidents, with 248 (24.7 percent) and 209 (20.8 percent) disorder incidents respectively.

| Disorder Incidents 2010 by Season | | |
|--------------------------------------|--------|------------|
| Rank | Season | Percentage |
| 1 | Summer | 28.0% |
| 2 | Autumn | 26.5% |
| 3 | Spring | 24.7% |
| 4 | Winter | 20.8% |

Table 24: Disorder Incidents 2010 by Season

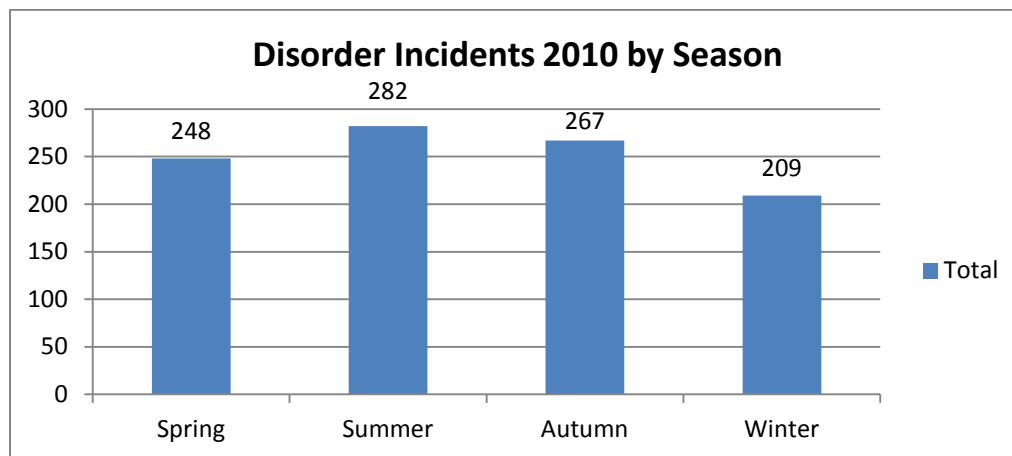


Figure 47: Disorder Incidents 2010 by Season

In 2011, autumn had the most disorder incidents and accounted for 29.6 percent (258 disorder incidents) of all bar disorder. Summer followed with 28.2 percent of bar disorder (246 disorder incidents). Spring and winter has fewer disorder incidents, with 200 (22.9 percent) and 168 (19.3 percent) disorder incidents respectively.

| Disorder Incidents 2011 by Season | | |
|--------------------------------------|--------|------------|
| Rank | Season | Percentage |
| 1 | Autumn | 29.6% |
| 2 | Summer | 28.2% |
| 3 | Spring | 22.9% |
| 4 | Winter | 19.3% |

Table 25: Disorder Incidents 2011 by Season

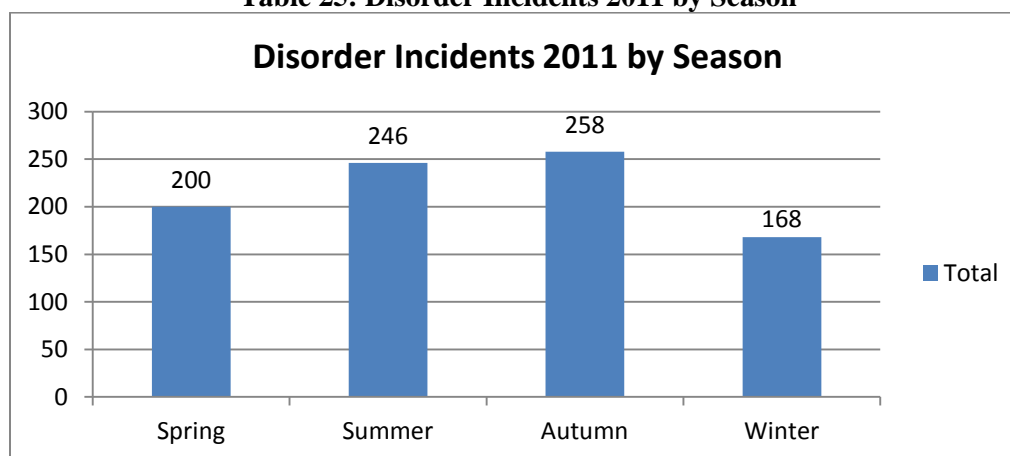


Figure 48: Disorder Incidents 2011 by Season

Combined data from 2010 and 2011 disorder incidents data indicate similar patterns. Summer again had the most disorder incidents and accounted for 28.1 percent (528 disorder incidents) of all bar disorder. Autumn followed very closely behind with 28 percent of bar disorder (525 disorder incidents). Spring and winter has fewer disorder incidents, with 448 (23.9 percent) and 377 (20.1 percent) disorder incidents respectively.

| Disorder Incidents 2010-2011 by Season | | |
|---|--------|------------|
| Rank | Season | Percentage |
| 1 | Summer | 28.1% |
| 2 | Autumn | 28.0% |
| 3 | Spring | 23.9% |
| 4 | Winter | 20.1% |

Table 26: Disorder Incidents 2010-2011 by Season

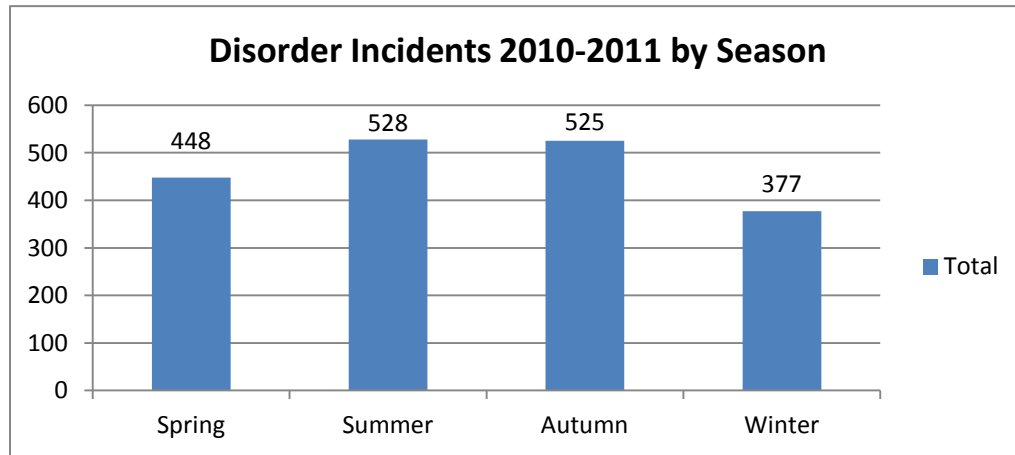


Figure 49: Disorder Incidents 2010-2011 by Season

APPENDIX E:
DISORDER INCIDENTS CUMULATIVE J-CURVE TABLE FOR 2010

| Rank | Bars | Calls for Service | % Bar Disorder | Cumulative % Bar Disorder | Cumulative % Bars |
|------|---|-------------------|----------------|---------------------------|-------------------|
| 1 | Misavi Restaurant & Lounge | 31 | 3.08% | 3.08% | 0.56% |
| 2 | La Roca Night Club | 29 | 2.88% | 5.96% | 1.11% |
| 3 | Price's Lounge | 27 | 2.68% | 8.65% | 1.67% |
| 3 | Brisas Del Mar Rest. | 27 | 2.68% | 11.33% | 2.22% |
| 5 | The Atmosphere Bar & Lounge | 26 | 2.58% | 13.92% | 2.78% |
| 6 | NJ Tu Casa Rest. | 25 | 2.49% | 16.40% | 3.33% |
| 7 | Sagres Bar and Rest | 23 | 2.29% | 18.69% | 3.89% |
| 8 | Nuestra Casa Restaurante | 22 | 2.19% | 20.87% | 4.44% |
| 9 | El Consorcio Tavern | 21 | 2.09% | 22.96% | 5.00% |
| 10 | Guitar Bar | 20 | 1.99% | 24.95% | 5.56% |
| 11 | Spain Restaurant Inc | 19 | 1.89% | 26.84% | 6.11% |
| 12 | Ecuadominican Sports Bar | 17 | 1.69% | 28.53% | 6.67% |
| 12 | (Holiday Inn) Teddy's | 17 | 1.69% | 30.22% | 7.22% |
| 14 | April's Lounge/Fleming Ave Bar & Barbeque | 15 | 1.49% | 31.71% | 7.78% |
| 14 | Miller's Caf  | 15 | 1.49% | 33.20% | 8.33% |
| 16 | Esther's Place | 14 | 1.39% | 34.59% | 8.89% |
| 17 | Hell's Kitchen Lounge | 13 | 1.29% | 35.88% | 9.44% |
| 17 | Oasis 93 | 13 | 1.29% | 37.18% | 10.00% |
| 17 | Boardwalk Saloon | 13 | 1.29% | 38.47% | 10.56% |
| 17 | Keen's Corner | 13 | 1.29% | 39.76% | 11.11% |
| 17 | Courtyard by Marriott | 13 | 1.29% | 41.05% | 11.67% |
| 22 | El Morro Bar | 12 | 1.19% | 42.25% | 12.22% |
| 22 | Tony's Marisqueira | 12 | 1.19% | 43.44% | 12.78% |
| 24 | Ms. Theresa's | 11 | 1.09% | 44.53% | 13.33% |
| 24 | Sol-Mar Bar and Rest | 11 | 1.09% | 45.63% | 13.89% |

| | | | | | |
|----|--|----|-------|--------|--------|
| 24 | Cervejaria Vianense | 11 | 1.09% | 46.72% | 14.44% |
| 24 | Boi Na Brasa Bar & Grill | 11 | 1.09% | 47.81% | 15.00% |
| 24 | Zepe's Caf  And Bar | 11 | 1.09% | 48.91% | 15.56% |
| 24 | Mercedes Mink | 11 | 1.09% | 50.00% | 16.11% |
| 30 | Club Espana | 10 | 0.99% | 50.99% | 16.67% |
| 30 | Andros Diner | 10 | 0.99% | 51.99% | 17.22% |
| 32 | The Players Club/El Bachatipico Restaurant | 9 | 0.89% | 52.88% | 17.78% |
| 32 | Barbeque | 9 | 0.89% | 53.78% | 18.33% |
| 32 | The Arena Bar | 9 | 0.89% | 54.67% | 18.89% |
| 32 | Iberias Tavern & Rest./Mompou Tapas Bar | 9 | 0.89% | 55.57% | 19.44% |
| 32 | El Merenque Rest. | 9 | 0.89% | 56.46% | 20.00% |
| 32 | The Hideout | 9 | 0.89% | 57.36% | 20.56% |
| 38 | Sol-Mar Bar and Rest/Casa Nova Grill | 8 | 0.80% | 58.15% | 21.11% |
| 38 | Garde Sports Snack Bar | 8 | 0.80% | 58.95% | 21.67% |
| 38 | Portugalia Bar and Rest | 8 | 0.80% | 59.74% | 22.22% |
| 38 | Hilton Newark Penn Station | 8 | 0.80% | 60.54% | 22.78% |
| 42 | North End Grill | 7 | 0.70% | 61.23% | 23.33% |
| 42 | Fonte Dos Namorados Night Club | 7 | 0.70% | 61.93% | 23.89% |
| 42 | Palacio Europa | 7 | 0.70% | 62.62% | 24.44% |
| 42 | Seabra's | 7 | 0.70% | 63.32% | 25.00% |
| 42 | City Chop House | 7 | 0.70% | 64.02% | 25.56% |
| 42 | Flamboyant Manor | 7 | 0.70% | 64.71% | 26.11% |
| 42 | Oasis Liquor Bar | 7 | 0.70% | 65.41% | 26.67% |
| 42 | New Cozy Corner | 7 | 0.70% | 66.10% | 27.22% |
| 42 | New Silver Key Tavern | 7 | 0.70% | 66.80% | 27.78% |
| 42 | Madrid/Lisbon Restaurant | 7 | 0.70% | 67.50% | 28.33% |
| 42 | Best Western Nwk Airport | 7 | 0.70% | 68.19% | 28.89% |

| | | | | | |
|----|------------------------------------|---|-------|--------|--------|
| 53 | Fornos of Spain Restaurant | 6 | 0.60% | 68.79% | 29.44% |
| 53 | River Bank | 6 | 0.60% | 69.38% | 30.00% |
| 53 | Dark Shadows | 6 | 0.60% | 69.98% | 30.56% |
| 53 | O Emigrante Bar & Rest. | 6 | 0.60% | 70.58% | 31.11% |
| 53 | Play House | 6 | 0.60% | 71.17% | 31.67% |
| 53 | 27 Mix | 6 | 0.60% | 71.77% | 32.22% |
| 53 | The Lunch Place | 6 | 0.60% | 72.37% | 32.78% |
| 53 | Vivo Tapas Lounge& Delicias Bakery | 6 | 0.60% | 72.96% | 33.33% |
| 53 | Thomas Bar | 6 | 0.60% | 73.56% | 33.89% |
| 53 | Club Chester | 6 | 0.60% | 74.16% | 34.44% |
| 53 | Fernandez Restaurant and Bar | 6 | 0.60% | 74.75% | 35.00% |
| 53 | Pat's Bill's Bar | 6 | 0.60% | 75.35% | 35.56% |
| 53 | Morgans Whitey's | 6 | 0.60% | 75.94% | 36.11% |
| 66 | Newark Sheraton | 5 | 0.50% | 76.44% | 36.67% |
| 66 | Norwood Lounge | 5 | 0.50% | 76.94% | 37.22% |
| 66 | Rio Douro Bar and Rest | 5 | 0.50% | 77.44% | 37.78% |
| 66 | Xcape Caf  | 5 | 0.50% | 77.93% | 38.33% |
| 66 | Famous Rest & Cocktail Long. | 5 | 0.50% | 78.43% | 38.89% |
| 66 | A Tasca Do Pedras | 5 | 0.50% | 78.93% | 39.44% |
| 66 | Nick's Bar/Killkenny Alehouse | 5 | 0.50% | 79.42% | 40.00% |
| 66 | Epps Lounge | 5 | 0.50% | 79.92% | 40.56% |
| 66 | Casa Vasca Rest | 5 | 0.50% | 80.42% | 41.11% |
| 66 | Lancers Rest | 5 | 0.50% | 80.91% | 41.67% |
| 66 | Wiggles Go-Go | 5 | 0.50% | 81.41% | 42.22% |
| 66 | Assagini Di Roma | 5 | 0.50% | 81.91% | 42.78% |
| 66 | Poor Tuga Bar and Rest. | 5 | 0.50% | 82.41% | 43.33% |
| 66 | Lounge 13 | 5 | 0.50% | 82.90% | 43.89% |

| | | | | | |
|----|--------------------------------------|---|-------|--------|--------|
| 80 | Hollywood Lounge | 4 | 0.40% | 83.30% | 44.44% |
| 80 | Kalypso Bar & Grill | 4 | 0.40% | 83.70% | 45.00% |
| 80 | Temple Sheba | 4 | 0.40% | 84.10% | 45.56% |
| 80 | MMM Bello's Pub | 4 | 0.40% | 84.49% | 46.11% |
| 80 | Hobby's Rest | 4 | 0.40% | 84.89% | 46.67% |
| 80 | Club Vanity | 4 | 0.40% | 85.29% | 47.22% |
| 80 | Casa Nova Grill/Sol-Mar Bar and Rest | 4 | 0.40% | 85.69% | 47.78% |
| 80 | Days Hotel Newark Airport | 4 | 0.40% | 86.08% | 48.33% |
| 80 | In The Mood | 4 | 0.40% | 86.48% | 48.89% |
| 80 | Crystal Caf  | 4 | 0.40% | 86.88% | 49.44% |
| 80 | Titanic | 4 | 0.40% | 87.28% | 50.00% |
| 80 | Sammy's Place | 4 | 0.40% | 87.67% | 50.56% |
| 80 | People's Choice Lounge | 4 | 0.40% | 88.07% | 51.11% |
| 93 | Alice's Pioneer Pub | 3 | 0.30% | 88.37% | 51.67% |
| 93 | The Priory | 3 | 0.30% | 88.67% | 52.22% |
| 93 | Lillian's Treatmount | 3 | 0.30% | 88.97% | 52.78% |
| 93 | QXT's/City Caf  Bar & Rest. | 3 | 0.30% | 89.26% | 53.33% |
| 93 | Lucky 7 Night Club | 3 | 0.30% | 89.56% | 53.89% |
| 93 | Lugo Bar | 3 | 0.30% | 89.86% | 54.44% |
| 93 | Club Kanesshie | 3 | 0.30% | 90.16% | 55.00% |
| 93 | Ben's Sports Bar & Rest | 3 | 0.30% | 90.46% | 55.56% |
| 93 | Coimbra Bar and Rest. | 3 | 0.30% | 90.76% | 56.11% |
| 93 | Lefty's | 3 | 0.30% | 91.05% | 56.67% |
| 93 | Villa Indio | 3 | 0.30% | 91.35% | 57.22% |
| 93 | Brasilia Grill | 3 | 0.30% | 91.65% | 57.78% |
| 93 | House of Stars | 3 | 0.30% | 91.95% | 58.33% |
| 93 | Primabel Bar and Rest | 3 | 0.30% | 92.25% | 58.89% |

| | | | | | |
|-----|------------------------------------|---|-------|--------|--------|
| 93 | A&R Lounge | 3 | 0.30% | 92.54% | 59.44% |
| 108 | Spanish Tavern II | 2 | 0.20% | 92.74% | 60.00% |
| 108 | Uncle Sal's Play Bar 2 | 2 | 0.20% | 92.94% | 60.56% |
| 108 | The Sensation Entert. Complx | 2 | 0.20% | 93.14% | 61.11% |
| 108 | Gandarez Bar & Rest/Tony Da Caneca | 2 | 0.20% | 93.34% | 61.67% |
| 108 | Scully's Publick House | 2 | 0.20% | 93.54% | 62.22% |
| 108 | Passions Sports Bar & Caf  | 2 | 0.20% | 93.74% | 62.78% |
| 108 | Cacchacaria Agua Doce | 2 | 0.20% | 93.94% | 63.33% |
| 108 | Cortico Cervejaria Paulino | 2 | 0.20% | 94.14% | 63.89% |
| 108 | Tio Pepe Restaruant | 2 | 0.20% | 94.33% | 64.44% |
| 108 | 60 Park Grill/Key Club | 2 | 0.20% | 94.53% | 65.00% |
| 108 | Agarimo Tapas Bar Inc | 2 | 0.20% | 94.73% | 65.56% |
| 108 | George and I Tavern | 2 | 0.20% | 94.93% | 66.11% |
| 108 | Offside Bar and Rest | 2 | 0.20% | 95.13% | 66.67% |
| 108 | Don Costa Lounge | 2 | 0.20% | 95.33% | 67.22% |
| 108 | Starlight (Ramada) | 2 | 0.20% | 95.53% | 67.78% |
| 108 | Hawks Patio Lounge | 2 | 0.20% | 95.73% | 68.33% |
| 108 | Day After | 2 | 0.20% | 95.92% | 68.89% |
| 108 | Beira Mar of Spain | 2 | 0.20% | 96.12% | 69.44% |
| 108 | Knockouts | 2 | 0.20% | 96.32% | 70.00% |
| 108 | Chateau of Spain | 2 | 0.20% | 96.52% | 70.56% |
| 108 | Don Pepe Rest & Cocktail Long. | 2 | 0.20% | 96.72% | 71.11% |
| 108 | Campino Mercado XL Lounge | 2 | 0.20% | 96.92% | 71.67% |
| 108 | El Criollo Rest | 2 | 0.20% | 97.12% | 72.22% |
| 108 | Muralhas Restaurant | 2 | 0.20% | 97.32% | 72.78% |
| 108 | La Luna Night Club | 2 | 0.20% | 97.51% | 73.33% |
| 108 | Applebee's Neighborhood Grill | 2 | 0.20% | 97.71% | 73.89% |

| | | | | | |
|-----|---------------------------------------|---|-------|---------|--------|
| 108 | Estrela Da Ponderosa | 2 | 0.20% | 97.91% | 74.44% |
| 135 | Ideal Bar and Rest | 1 | 0.10% | 98.01% | 75.00% |
| 135 | Blitz Sports Bar/Blue Ocean Snack Bar | 1 | 0.10% | 98.11% | 75.56% |
| 135 | El Pastor bar & Rest | 1 | 0.10% | 98.21% | 76.11% |
| 135 | Taste of Portugal | 1 | 0.10% | 98.31% | 76.67% |
| 135 | After Dark | 1 | 0.10% | 98.41% | 77.22% |
| 135 | Mediterranean Manor | 1 | 0.10% | 98.51% | 77.78% |
| 135 | Spanish Sangria Rest | 1 | 0.10% | 98.61% | 78.33% |
| 135 | Paleio Bar & Grill | 1 | 0.10% | 98.71% | 78.89% |
| 135 | The Spot Lounge | 1 | 0.10% | 98.81% | 79.44% |
| 135 | Je's Coffee Shop | 1 | 0.10% | 98.91% | 80.00% |
| 135 | Sophis. Ladies and Gentlemen | 1 | 0.10% | 99.01% | 80.56% |
| 135 | Club Internacional | 1 | 0.10% | 99.11% | 81.11% |
| 135 | Krugs Tavern | 1 | 0.10% | 99.20% | 81.67% |
| 135 | New Paul's Cocktail Lounge | 1 | 0.10% | 99.30% | 82.22% |
| 135 | Spanish Manor | 1 | 0.10% | 99.40% | 82.78% |
| 135 | Knobby's Lounge | 1 | 0.10% | 99.50% | 83.33% |
| 135 | Pepino Bar & Liquor | 1 | 0.10% | 99.60% | 83.89% |
| 135 | Allegro Bar | 1 | 0.10% | 99.70% | 84.44% |
| 135 | Maite | 1 | 0.10% | 99.80% | 85.00% |
| 135 | Happy Hour Caf  | 1 | 0.10% | 99.90% | 85.56% |
| 135 | La Conga Bar | 1 | 0.10% | 100.00% | 86.11% |

APPENDIX F:
DISORDER INCIDENTS CUMULATIVE J-CURVE TABLE FOR 2011

| Rank | Bars | Calls for Service | % Bar Disorder | Cumulative % Bar Disorder | Cumulative % Bars |
|------|---|-------------------|----------------|---------------------------|-------------------|
| 1 | Sagres Bar and Rest | 41 | 4.72% | 4.72% | 0.56% |
| 2 | Brisas Del Mar Rest. | 37 | 4.26% | 8.98% | 1.11% |
| 3 | La Roca Night Club | 31 | 3.57% | 12.54% | 1.67% |
| 4 | Nuestra Casa Restaurante | 26 | 2.99% | 15.54% | 2.22% |
| 5 | April's Lounge/Fleming Ave Bar & Barbeque | 25 | 2.88% | 18.41% | 2.78% |
| 6 | Price's Lounge | 19 | 2.19% | 20.60% | 3.33% |
| 6 | Zepe's Caf  And Bar | 19 | 2.19% | 22.78% | 3.89% |
| 6 | Keen's Corner | 19 | 2.19% | 24.97% | 4.44% |
| 9 | Casa Nova Grill/Sol-Mar Bar and Rest | 18 | 2.07% | 27.04% | 5.00% |
| 10 | El Consorcio Tavern | 16 | 1.84% | 28.88% | 5.56% |
| 11 | The Atmosphere Bar & Lounge | 15 | 1.73% | 30.61% | 6.11% |
| 11 | NJ Tu Casa Rest. | 15 | 1.73% | 32.34% | 6.67% |
| 11 | (Holiday Inn) Teddy's | 15 | 1.73% | 34.06% | 7.22% |
| 14 | Madrid/Lisbon Restaurant | 13 | 1.50% | 35.56% | 7.78% |
| 14 | Thomas Bar | 13 | 1.50% | 37.05% | 8.33% |
| 16 | Portugalia Bar and Rest | 12 | 1.38% | 38.43% | 8.89% |
| 16 | Fornos of Spain Restaurant | 12 | 1.38% | 39.82% | 9.44% |
| 16 | Hell's Kitchen Lounge | 12 | 1.38% | 41.20% | 10.00% |
| 16 | Club Espana | 12 | 1.38% | 42.58% | 10.56% |
| 20 | El Morro Bar | 11 | 1.27% | 43.84% | 11.11% |
| 20 | Tony's Marisqueira | 11 | 1.27% | 45.11% | 11.67% |
| 22 | 60 Park Grill/Key Club | 10 | 1.15% | 46.26% | 12.22% |
| 22 | In The Mood | 10 | 1.15% | 47.41% | 12.78% |
| 22 | 27 Mix | 10 | 1.15% | 48.56% | 13.33% |
| 22 | Misavi Restaurant & Lounge | 10 | 1.15% | 49.71% | 13.89% |

| | | | | | |
|----|--|----|-------|--------|--------|
| 22 | Barbeque | 10 | 1.15% | 50.86% | 14.44% |
| 22 | Nick's Bar/Killkenny Alehouse | 10 | 1.15% | 52.01% | 15.00% |
| 22 | Agarimo Tapas Bar Inc | 10 | 1.15% | 53.16% | 15.56% |
| 22 | Cervejaria Vianense | 10 | 1.15% | 54.32% | 16.11% |
| 22 | Andros Diner | 10 | 1.15% | 55.47% | 16.67% |
| 31 | Miller's Caf  | 9 | 1.04% | 56.50% | 17.22% |
| 31 | People's Choice Lounge | 9 | 1.04% | 57.54% | 17.78% |
| 31 | El Pastor bar & Rest | 9 | 1.04% | 58.57% | 18.33% |
| 31 | Newark Sheraton | 9 | 1.04% | 59.61% | 18.89% |
| 31 | Hilton Newark Penn Station | 9 | 1.04% | 60.64% | 19.44% |
| 31 | Villa Indio | 9 | 1.04% | 61.68% | 20.00% |
| 37 | The Players Club/El Bachatipico Restaurant | 8 | 0.92% | 62.60% | 20.56% |
| 37 | Ecuadominican Sports Bar | 8 | 0.92% | 63.52% | 21.11% |
| 37 | Mediterranean Manor | 8 | 0.92% | 64.44% | 21.67% |
| 37 | Happy Hour Caf  | 8 | 0.92% | 65.36% | 22.22% |
| 37 | Spain Restaurant Inc | 8 | 0.92% | 66.28% | 22.78% |
| 42 | El Merenque Rest. | 7 | 0.81% | 67.09% | 23.33% |
| 42 | River Bank | 7 | 0.81% | 67.89% | 23.89% |
| 42 | Lucky 7 Night Club | 7 | 0.81% | 68.70% | 24.44% |
| 42 | Lugo Bar | 7 | 0.81% | 69.51% | 25.00% |
| 46 | Campino Mercado XL Lounge | 6 | 0.69% | 70.20% | 25.56% |
| 46 | Oasis 93 | 6 | 0.69% | 70.89% | 26.11% |
| 46 | The Hideout | 6 | 0.69% | 71.58% | 26.67% |
| 46 | Maite | 6 | 0.69% | 72.27% | 27.22% |
| 46 | Play House | 6 | 0.69% | 72.96% | 27.78% |
| 46 | Chateau of Spain | 6 | 0.69% | 73.65% | 28.33% |
| 52 | City Chop House | 5 | 0.58% | 74.22% | 28.89% |

| | | | | | |
|----|---|---|-------|--------|--------|
| 52 | Iberias Tavern & Rest./Mompou Tapas Bar | 5 | 0.58% | 74.80% | 29.44% |
| 52 | Esther's Place | 5 | 0.58% | 75.37% | 30.00% |
| 52 | Garde Sports Snack Bar | 5 | 0.58% | 75.95% | 30.56% |
| 52 | Poor Tuga Bar and Rest. | 5 | 0.58% | 76.52% | 31.11% |
| 52 | Hobby's Rest | 5 | 0.58% | 77.10% | 31.67% |
| 52 | Knockouts | 5 | 0.58% | 77.68% | 32.22% |
| 59 | Fonte Dos Namorados Night Club | 4 | 0.46% | 78.14% | 32.78% |
| 59 | Epps Lounge | 4 | 0.46% | 78.60% | 33.33% |
| 59 | Boardwalk Saloon | 4 | 0.46% | 79.06% | 33.89% |
| 59 | Casa Nova Grill | 4 | 0.46% | 79.52% | 34.44% |
| 59 | Famous Rest & Cocktail Long. | 4 | 0.46% | 79.98% | 35.00% |
| 59 | Applebee's Neighborhood Grill | 4 | 0.46% | 80.44% | 35.56% |
| 59 | Norwood Lounge | 4 | 0.46% | 80.90% | 36.11% |
| 59 | A Tasca Do Pedras | 4 | 0.46% | 81.36% | 36.67% |
| 59 | Boi Na Brasa Bar & Grill | 4 | 0.46% | 81.82% | 37.22% |
| 59 | Ideal Bar and Rest | 4 | 0.46% | 82.28% | 37.78% |
| 59 | QXT's/City Caf  Bar & Rest. | 4 | 0.46% | 82.74% | 38.33% |
| 59 | Mercedes Mink | 4 | 0.46% | 83.20% | 38.89% |
| 59 | Sammy's Place | 4 | 0.46% | 83.66% | 39.44% |
| 59 | Morgans Whitey's | 4 | 0.46% | 84.12% | 40.00% |
| 59 | Ms. Theresa's | 4 | 0.46% | 84.58% | 40.56% |
| 59 | Wiggles Go-Go | 4 | 0.46% | 85.04% | 41.11% |
| 59 | Gandarez Bar & Rest/Tony Da Caneca | 4 | 0.46% | 85.50% | 41.67% |
| 76 | Flamboyant Manor | 3 | 0.35% | 85.85% | 42.22% |
| 76 | Spanish Tavern II | 3 | 0.35% | 86.19% | 42.78% |
| 76 | Beira Mar of Spain | 3 | 0.35% | 86.54% | 43.33% |
| 76 | Vivo Tapas Lounge& Delicias Bakery | 3 | 0.35% | 86.88% | 43.89% |

| | | | | | |
|----|--------------------------------|---|-------|--------|--------|
| 76 | Lancers Rest | 3 | 0.35% | 87.23% | 44.44% |
| 76 | Scully's Publike House | 3 | 0.35% | 87.57% | 45.00% |
| 76 | Muralhas Restaurant | 3 | 0.35% | 87.92% | 45.56% |
| 76 | Taste of Portugal | 3 | 0.35% | 88.26% | 46.11% |
| 76 | New Paul's Cocktail Lounge | 3 | 0.35% | 88.61% | 46.67% |
| 76 | The Priory | 3 | 0.35% | 88.95% | 47.22% |
| 76 | Estrela Da Ponderosa | 3 | 0.35% | 89.30% | 47.78% |
| 76 | North End Grill | 3 | 0.35% | 89.64% | 48.33% |
| 76 | John's Place | 3 | 0.35% | 89.99% | 48.89% |
| 76 | Offside Bar and Rest | 3 | 0.35% | 90.33% | 49.44% |
| 76 | Oasis Liquor Bar | 3 | 0.35% | 90.68% | 50.00% |
| 91 | Robert Treat Hotel | 2 | 0.23% | 90.91% | 50.56% |
| 91 | Titanic | 2 | 0.23% | 91.14% | 51.11% |
| 91 | The Arena Bar | 2 | 0.23% | 91.37% | 51.67% |
| 91 | Casa Vasca Rest | 2 | 0.23% | 91.60% | 52.22% |
| 91 | Rio Douro Bar and Rest | 2 | 0.23% | 91.83% | 52.78% |
| 91 | Don Pepe Rest & Cocktail Long. | 2 | 0.23% | 92.06% | 53.33% |
| 91 | McGovern's Tavern | 2 | 0.23% | 92.29% | 53.89% |
| 91 | Ben's Sports Bar & Rest | 2 | 0.23% | 92.52% | 54.44% |
| 91 | Day After | 2 | 0.23% | 92.75% | 55.00% |
| 91 | Club Chester | 2 | 0.23% | 92.98% | 55.56% |
| 91 | Xcape Caf  | 2 | 0.23% | 93.21% | 56.11% |
| 91 | O Emigrante Bar & Rest. | 2 | 0.23% | 93.44% | 56.67% |
| 91 | Club Kanesshie | 2 | 0.23% | 93.67% | 57.22% |
| 91 | George and I Tavern | 2 | 0.23% | 93.90% | 57.78% |
| 91 | Coimbra Bar and Rest. | 2 | 0.23% | 94.13% | 58.33% |
| 91 | La Luna Night Club | 2 | 0.23% | 94.36% | 58.89% |

| | | | | | |
|-----|------------------------------|---|-------|--------|--------|
| 91 | Temple Sheba | 2 | 0.23% | 94.59% | 59.44% |
| 91 | Pat's Bill's Bar | 2 | 0.23% | 94.82% | 60.00% |
| 91 | Fernandez Restaurant and Bar | 2 | 0.23% | 95.05% | 60.56% |
| 91 | Club Internacional | 2 | 0.23% | 95.28% | 61.11% |
| 91 | Don Manuel Rest | 2 | 0.23% | 95.51% | 61.67% |
| 91 | Hollywood Lounge | 2 | 0.23% | 95.74% | 62.22% |
| 91 | Cacchacaria Agua Doce | 2 | 0.23% | 95.97% | 62.78% |
| 91 | Lillian's Treamount lg. | 2 | 0.23% | 96.20% | 63.33% |
| 91 | Escorial Bar | 2 | 0.23% | 96.43% | 63.89% |
| 91 | Seabra's | 2 | 0.23% | 96.66% | 64.44% |
| 117 | Arcos Viseu | 1 | 0.12% | 96.78% | 65.00% |
| 117 | Club Vanity | 1 | 0.12% | 96.89% | 65.56% |
| 117 | Three Friends Tavern | 1 | 0.12% | 97.01% | 66.11% |
| 117 | Je's Coffee Shop | 1 | 0.12% | 97.12% | 66.67% |
| 117 | Alice's Pioneer Pub | 1 | 0.12% | 97.24% | 67.22% |
| 117 | Skipers Plane Street Pub | 1 | 0.12% | 97.35% | 67.78% |
| 117 | The Village Bar & Rest | 1 | 0.12% | 97.47% | 68.33% |
| 117 | Sophis. Ladies and Gentlemen | 1 | 0.12% | 97.58% | 68.89% |
| 117 | Best Western Nwk Airport | 1 | 0.12% | 97.70% | 69.44% |
| 117 | Felor Do Minho Bar | 1 | 0.12% | 97.81% | 70.00% |
| 117 | MMM Bello's Pub | 1 | 0.12% | 97.93% | 70.56% |
| 117 | Spanish Manor | 1 | 0.12% | 98.04% | 71.11% |
| 117 | A&R Lounge | 1 | 0.12% | 98.16% | 71.67% |
| 117 | New Silver Key Tavern | 1 | 0.12% | 98.27% | 72.22% |
| 117 | Knobby's Lounge | 1 | 0.12% | 98.39% | 72.78% |
| 117 | Sport Club Portugues | 1 | 0.12% | 98.50% | 73.33% |
| 117 | El Criollo Rest | 1 | 0.12% | 98.62% | 73.89% |

| | | | | | |
|-----|---------------------------------------|---|-------|---------|--------|
| 117 | Dark Shadows | 1 | 0.12% | 98.73% | 74.44% |
| 117 | Tio Pepe Restaruant | 1 | 0.12% | 98.85% | 75.00% |
| 117 | Hawks Patio Lounge | 1 | 0.12% | 98.96% | 75.56% |
| 117 | Allegro Bar | 1 | 0.12% | 99.08% | 76.11% |
| 117 | Uncle Sal's Play Bar 2 | 1 | 0.12% | 99.19% | 76.67% |
| 117 | Fernandes Restaurant II | 1 | 0.12% | 99.31% | 77.22% |
| 117 | Green Street Caf  | 1 | 0.12% | 99.42% | 77.78% |
| 117 | Lounge 13 | 1 | 0.12% | 99.54% | 78.33% |
| 117 | Blitz Sports Bar/Blue Ocean Snack Bar | 1 | 0.12% | 99.65% | 78.89% |
| 117 | The Lunch Place | 1 | 0.12% | 99.77% | 79.44% |
| 117 | Crystal Caf  | 1 | 0.12% | 99.88% | 80.00% |
| 117 | The Newark Club | 1 | 0.12% | 100.00% | 80.56% |

APPENDIX G:
BAR PROFILES

Introduction

In order to better understand the nature of bar disorder in Newark, NJ additional research was completed and included here. These observations are drawn from numerous sources including drives through these neighborhoods, the collection of social media and online reviews, Google street views, and site visits. Lori Scott Pickens, the Director of Community Outreach for the Rutgers University School of Criminal Justice, was invaluable in this process and graciously offered her expertise, advice, and time. As a result, these combined sources allow for a holistic view of the both disorderly bars indentified in this study and those drinking establishments with no disorder calls for service. Future research in this area can greatly contribute to the understanding of the nature of bar disorder in Newark, NJ. These bar profiles offer a starting point for these endeavors.

High Disorder Calls for Service

Home Territory/Neighborhood Bars

Keen's Corner

Keen's Corner (spelled "Korner" on the bar sign) is located in the Fairmount neighborhood of Newark in the West Ward. The majority of the disorder calls for service at this location are for disorderly persons. Keen's has the characteristics of a home territory bar or marketplace bar. It does not advertise to attract customers but appears to be frequented by locals. There are no reviews online or on social media outlets. While located on a busy main road (Central Avenue) the building is rundown and appears to be poorly maintained. Paint is peeling off of the brick façade and the windows and doors are covered with metal security grilles. The building is for sale, as are others in the area.

Across the street is an empty lot filled with weeds and litter and surrounded by a high fence.

The surrounding blocks exhibit signs of urban blight including poorly maintained multifamily dwellings, abandoned buildings, and overgrown vacant lots. There are also numerous locations where garbage, furniture and broken appliances are discarded, including down alleyways, in parking lots, and in the street. Nearby Woodland Cemetery, a privately owned establishment, is very poorly maintained, with walls crumbling, headstones broken, and waist high weeds. Known as a high crime area, the blocks surrounding Keen's Corner experience high rates of drug and violent crimes and other disorder crimes.

Zepe's Cafe And Bar

Zepe's Café and Bar is located in the East Ward of Newark in the Ironbound neighborhood. It is marketed as part coffeehouse and part bar. The building is located on a side street with other small storefronts. It is a tidy and clean area with a well maintained storefront, although graffiti can be seen elsewhere on the block. The disorder calls for service for this location are mostly for disorderly persons although there are a number of noise complaints. Reviews of this location are mixed. While many reviews rated it at three or four stars out of five, others reviewers were much more negative. Customers have complained of poor service, poor food, and even a physical altercation between the bar staff and patrons.

Price's Lounge

Price's Lounge is a home territory neighborhood drinking establishment located in the Lower Clinton Hill neighborhood in the South Ward of Newark. The majority of the disorder calls for service at this location are for disorderly persons, but there are also noise complaints. The location is marketed online and on social media as a casual neighborhood bar and nightclub. The interior is dark wood paneling decorated with tinsel garlands and seasonal paper cutouts. The bar, in conjunction with a group called "The Home Boys," organizes and markets bus trips to casinos and karaoke nights. Photos from this location show a mature customer base, with most individuals appearing to be between the ages of 40 to 60.

Nicknamed "Telephone Heights," this area on the borders of the South and Central Wards and the Fourth and Fifth police precincts is a known gang territory and experiences disproportionate levels of crime and disorder. The building's exterior looks rundown, with the fabric awning damaged and solid metal security grilles covering the doors and windows. The back of the building borders a basketball court. The area is characterized by weeds, litter and graffiti. The surrounding neighborhood includes overgrown lots used as a dumping ground for refuse, a high-rise apartment building and blocks of garden apartments. The windows are covered with security bars.

Brisas Del Mar

Brisas Del Mar is located in the East Ward of Newark in the Ironbound neighborhood. It is located in a predominantly residential area with a few industrial properties. Off the main thoroughfares, it is unlikely that patrons would chance across this bar without first knowing where it was located. Most of the disorder calls for service

at this location are noise complaints, with some disorderly person reports. Reviews online are mixed. While some people rate this location highly, others gave it very poor reviews. Reviews most commonly made note of the poor service from staff, poor food, and high prices. The building is well maintained with a brick façade and colorful awning. It is located on the corner of two side streets in an area with both residential buildings and storefronts. The surrounding area is clean and without litter or graffiti.

Attractor Bars

La Roca Night Club

La Roca Night Club is located in the Lower Roseville section of Newark's North Ward at the corner of N 5th St. and Park Ave. Most disorder calls for service at this location are for disorderly persons or noise, but there are some panhandling complaints as well. During the day this location sells package goods. At night the establishment is a high energy dance club known to attract crowds. Reviewers report going to La Roca to go drinking with members of the opposite sex and as a group with family and friends. Customers note that the owner is often on the premises.

The club is located at the intersection of a busy thoroughfare near Branch Brook Park. However, this bar is located only blocks from a very distressed, blighted area characterized by vacant houses, empty lots, and a series of housing units notorious for criminal and gang activity. On the opposite corners are a fast food restaurant, a gas station and a fenced car lot. The club appears to have been recently painted including a Puerto Rican Flag painted over the door. The windows and doors of La Roca and nearby businesses are covered with security bars.

Nuestra Casa Restaurante

Nuestra Casa Restaurante is located in the Ironbound on Ferry St., a busy main road with shops. Disorder calls for service at this location are for disorderly persons and noise complaints. Reviews on social media are mostly positive and describe this nightclub as a popular, fun dance club and a place for men to meet women. Amateur video of this nightclub shows a dark, crowded dance floor. The music is loud and neon lights are flashing. There appears to be little seating and people are jostling for space on the edges of the dance floor. Bouncers are visible standing in front of the exits and along the walls.

The Atmosphere Bar & Lounge

The Atmosphere Bar and Lounge is located in the Upper Clinton Hill neighborhood of Newark's South Ward. Disorder calls for service at this location are for disorderly persons. It is marketed as a nightclub with karaoke, low priced drink specials and DJs. Dominating three or four lots on the corner of Wainwright St. and Nye Ave., it is a relatively new building with a fenced and gated parking lot and solid security shutters covering the doors and windows. It also offers takeout dining service and houses three residences on the property above the club. Online reviews describe the surrounding area as a "rough area" and "the hood." One individual wrote that they lived within a few blocks of this establishment and were awoken at 3 a.m. by people shouting and gunfire. The surrounding area is primarily residential, with a small corner store and a weedy fenced lot across the street. It is known to experience high numbers of violent and property crimes, with known gang activity in the Nye Ave. area.

NJ Tu Casa

NJ Tu Casa is located in the Seventh Avenue neighborhood of Newark's North Ward. Disorder calls for service at this location are for disorderly persons. It is characterized as a fast paced bar featuring dancing, karaoke, live music and, according to some reviewers, attractive female staff. Online reviews of this location are polarized; reviewers either love or hate this establishment. One customer went there for dinner using an online coupon they had purchased and reported that they food was only "halfway decent" and the owner argued with them over redeeming the coupon. Another reviewer commented that "just because you stuff 6 airheaded girls with big chests behind a tiny bar does not mean that you have an attractive establishment."

The reviewer went on to say there was "nothing appealing about this place" and that the surrounding area was "shady" and "seedy." The adjacent neighborhood is predominately commercial, with businesses lining Broadway. Residences in the immediate vicinity are a mix of single and multi-family dwellings with varying levels of care and maintenance. NJ Tu Casa is a little rundown itself and the block has numerous graffiti tags and litter. All of the store fronts on this block have metal security grilles.

April's Lounge/Fleming Ave Bar & Barbeque

April's Lounge and Fleming Ave Bar and Barbecue are directly across the street from each other in the East Ward Ironbound neighborhood. Disorder calls for service at this location are mixed, including complaints of prostitution, noise, and disorderly persons. Drink specials are offered at these locations and April's Lounge is an exotic dance establishment (both hallmarks of attractor bars and marketplace bars). Since the study period this strip club has closed and reopened after being remodeled. There are no online or social media reviews for these locations.

Low Tolerance Bar

Casa Nova Grill/Sol-Mar Bar and Restaurant

Casanova Grill and Sol-Mar are two Newark landmarks located on opposite corners from one another. The disorder calls for service from these locations are mostly noise complaints with some calls for disorderly persons. Casanova is a brick walled Brazilian steakhouse or “rodizio,” which an online reviewer claimed to translate from the original Portuguese to “meat raining from the sky.” An all-you-can-eat barbeque buffet with an extensive drink menu, Casanova is markedly different from many of the other most disorderly locations. With white tablecloths and neat place settings, this location is known for good food at good prices, with an attentive staff. Social media and online reviews are very positive. While live music and dancing are sometimes featured, an online reviewer described the patrons as a quiet group, and said that the place “was kind of dead” for a Friday night. This dining and drinking establishment markets itself very differently from the attractor and home territory bars on the top ten lists. Zagat rated, Casanova is listed as having “bang for the buck” with “senior appeal” and a “lively” atmosphere. Appealing to a more mature customer base with a comparably sedate ambiance and activities, Casanova attracts order rather than disorder.

Sol-Mar is considered to be fancier than Casanova, slightly more upscale and very popular. The professionally designed website includes a gallery of pictures and video tour of the restaurant and bar. The video shows a granite topped bar, mosaic tile work, and a carefully decorated and well maintained interior. The indoor dining room boasts tablecloths and place settings while a seasonal outdoor dining and bar area is more casual. Videos show couples, families and patrons of all age groups. Online reviewers

mentioned multiple visits to this location, and compare this location favorably to similar drinking establishments. The service is also described as friendly, polite and accommodating. Also Zagat rated, Sol-Mar is described as a “moderately priced Newark ‘stalwart’ where an ‘attentive’ staff ensures a ‘relaxing’ experience; the old world–inspired ‘fancy restaurant side’ is complemented by an ‘easygoing’ bar area where you can ‘absorb the local flavor.’” Sol-Mar’s marketing and advertising also sets it apart as a distinct typology. In addition to using discount dining certificates via Groupon to attract more customers, complimentary shuttle service is offered to and from Newark hotels, Penn Station, the Prudential Center, Red Bull Stadium and NJPAC. This is a clear indication that Sol-Mar seeks to actively attract clientele from the nearby recreational and cultural centers.

Sagres Bar and Restaurant

Sagres Bar and Restaurant is a popular establishment located just off of Ferry St. The disorder calls for service at this location are split between noise complaints and reports of disorderly persons. This bar is known for good food served in large portions, particularly seafood, and good sangria. During the summer months outdoor seating is available, and the establishment is described in online reviews as usually busy year round. A favorite of locals, this Portuguese bar and restaurant has some of the characteristics of a home territory bar. More casual than some of the other nearby restaurants, the bar portion of Sagres is frequented by a regular group of working class patrons from the surrounding neighborhood. Sagres also exhibits some of the features of an attractor bar. Marketing on social media advertizes “Sexy Karaoke” on the weekends. However, some aspects of Sagres are unique. While popular, the patrons of Sagres are a mixture of locals and customers from the cultural center including NJPAC. Online

reviews report walking from NJPAC to Sagres before or after events, and the atmosphere is described as friendly, with an attentive staff.

All three of these drinking establishments are located in the Ironbound, Newark's nightlife center. Described by online reviews as the "Heart of Ferry St." it is one of the main roads through this neighborhood. While Ferry St. is lined with storefronts, many of which are Portuguese restaurants, the side streets are predominantly residential. While some neighborhood in Newark have changed dramatically over the years, the Ironbound has remained unchanged and well maintained with few vacant properties and "immaculate" upkeep. This area is described on social media and in online reviews as "vibrant" and "safe." The streets are clean without litter or graffiti. This area is busy with shoppers during the day and the patrons of bars, restaurants and clubs at night.

Transitional Bar

Teddy's

Located in a predominately industrial and commercial area outside of Newark's neighborhoods, Teddy's at the Holiday Inn has multiple disorder calls for service for both disorderly persons and prostitution. It has been renovated and redecorated since the study period. Now decorated as a sports bar, it has a pool table and many large flat screen TVs most often broadcasting multiple sporting events. Reviews online describe the food as "fair" and one customer said he got the impression that his waiter "doesn't enjoy being a waiter." It's interesting to note that none of the online reviewers were from Newark, but were instead travelers to the Newark area. Many stated that they went to Teddy's since it was near their hotels or they were looking to "kill time" waiting for a shuttle to the airport. One reviewer said that their experience was overall pleasant, but that they were

“not sure that it's it worth coming here from any great distance.” Another said, “It isn't a place that say[s] ‘Hey...Let's plan a dinner at Teddy's.’” While it has some of the earmarks of an attractor bar, Teddy's is unique in that it both lacks a regular customer base and does not attract customers from the surrounding areas. Instead, Teddy's is a place visited out of convenience by people in the area for traveling purposes.

Bars with Few or No Disorder Calls for Service

Attractor/Skid Row

1. *Don Costa*
2. *Alice's Pioneer*
3. *George & I*
4. *Day After*

One example of a potential skid row bar is Don Costa, a strip club located on a residential street in the Ironbound. While no disorder calls for service were recorded at this location, there are signs that it may experience high rates of unreported disorder. They have hired security staff and offer nightly specials and holiday and seasonal promotions. They advertise with sexualized images of women offering multiple drink specials and free food, also indicators of an attractor bar looking to entice customers. Online reviewers note that the club was dark, dirty, the music was too loud and the bouncers were patting people down as they entered the strip club. While there are many indicators that this bar likely experiences high rates of bar disorder, the fact that there were no disorder calls for service during the two year study period suggests that any disorder incidents may either be tolerated by management and staff, or handled privately by their security staff without contacting the police.

Several other strip clubs have similar patterns of having multiple indicators of bar disorder with few disorder calls for service. Alice's Pioneer Club, the George & I and the Day After experienced only five disorder calls for service in two years among these three establishments. While Alice's has since closed, it was characterized in social media reviews as being in a rough neighborhood with aggressive bouncers. The George & I sells packaged goods during the day, but offers exotic dancing, pool, drink specials and free food without a cover charge. This Ironbound location was also in the news after two

men attempted to commit arson at this club after an argument with the owner. The Day After also offers exotic dancing, although customer reviews complained of high prices and a very dark room. Again, these indicators of disorder combined with few disorder calls for service suggests that these are skid row establishments which tolerate disorder or handle problems internally.

Home Territory/Neighborhood Bars

Krug's Tavern

An example of a very orderly bar is Krug's Tavern in the Ironbound, known for its 12 oz burgers and beer. A very popular establishment, it has reviews on many social media outlets and websites, most of which are positive in nature. Most often praised was the food, its quality, the extensive drinks menu and the reasonable prices. The staff was described as attentive and professional. Reviewers and social media described a regular group of customers and fans who routinely frequent this establishment and commented on the rapport between the regulars and bartenders. One reviewer said the location "reminds me of Cheers," with the friendly environment. Well lit and decorated with (reasonably) attractive décor, it is likely that the reason no disorder calls for service were made for this location is because it is not disorderly. Krug's has effective, vigilant staff and a regular group of patrons who set the tone for the bar, and disorderly behaviors are not allowed. This bar epitomizes the home territory typology.

McGovern's

Another similar establishment is McGovern's, an Irish bar located on the borders of University Heights and the Central Business district. With no disorder calls for service in 2010 and only two in 2011, this bar is popular with Rutgers students and staff, particularly from the law school and school of criminal justice. It is also popular with off duty police officers, and the bar displays a variety of policing paraphernalia from flags and helmets to nearly an entire wall of police patches. There is a regular customer base and many patrons can be observed chatting familiarly with bar staff. While there are some drink specials offered and the bar can become crowded at peak times, there is food available for purchase (and it is good!), there is plenty of seating and the music is kept to a reasonable level. When asked if bar disorder was ever a problem here, one staff member laughed and said, "That kind of bullshit doesn't happen here. We don't let it." A nearby patron added, "And neither would we."