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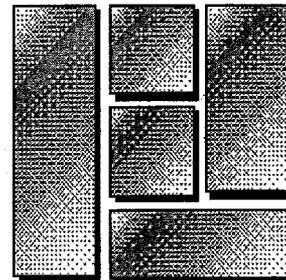
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200519

# EVALUATION OF THE YOUTH CURFEW IN PRINCE GEORGE'S COUNTY, MARYLAND

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## FINAL REPORT



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**July 7, 2000**

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## **Introduction**

Despite decreasing juvenile crime across the country, policymakers have been actively sponsoring restrictive, and sometimes punitive, measures that limit the rights of youth. One of these measures is the curfew, a tool that limits when youth under a certain age can be out on the streets without a parent or guardian. The curfew is seemingly a simple law that shows the community that "something is being done about juvenile crime."

The number of localities imposing youth curfews has grown tremendously since 1990. According to a recent report by the National League of Cities, 110 cities have established curfews between 1995 and 2000. A 1997 survey by the U.S. Conference of Mayors found that 276 out of 347 surveyed cities with a population over 30,000 had nighttime curfews. At least forty-seven percent of the 276 cities began their curfews after 1990 (U.S. Conference of Mayors, 1997). The overwhelming majority (93 percent) of surveyed cities felt that a nighttime curfew is a useful tool for police officers.

This report presents research findings of an evaluation of Prince George's County, Maryland's youth curfew law. The analyses address (1) whether curfews have been effective in reducing violent victimization, and (2) the geographic clustering of victimization that is often associated with youth offending. Interviews with county police officers were conducted to determine that the curfew actually was enforced as intended. The interviews also were used to determine whether enforcement patterns varied across the six police districts. The methodology included ARIMA models to examine a monthly time series of victimization, and exploratory spatial analysis to examine crime clustering during the curfew time period.

## **Background**

The Evaluation of the Youth Curfew in Prince George's County (PGC) represents an important opportunity to test the effectiveness of a popular approach to reducing youth victimization. At the time the proposal was written, there were no published, independent evaluations using personal victimizations as a measure of how well curfews are doing as a means of reducing youth crime. (Since then, a few evaluations have been conducted and the results are summarized in the next section.)

Advocates of the curfew point to four major justifications for the laws: (1) to protect youth, (2) to reduce crime, (3) to protect society, and (4) to reinforce parental authority. Local legislatures in many jurisdictions have written their laws with these goals in mind. The laws vary from city to city, and some jurisdictions have both nighttime and daytime curfews. The curfews generally are targeted to youth under 17 and specify the time that youth must be off the streets or are restricted from certain businesses. Most curfews have a number of exceptions that allow the youth out after curfew hours to go to work or to go to social functions like sports games and theater events.

Enforcement of curfews also varies by jurisdiction. Some laws specify that police can arrest youth and prosecute them as curfew violators; others require ticketing of youth; while others specify that police can bring the violators to a detention facility and have the parent bring the child home after a fine is paid (Bilchik, 1996). In the latter instance, fines increase for repeat violators.

One theory behind curfews is that the curfew *incapacitates* young potential offenders by keeping unsupervised youth off the street during hours when risk of crime is high. Many curfew laws operate so that youth found violating the curfew are held in custody until a parent or guardian can pick them up. Therefore, these incapacitated youth are unable to commit crimes. At the same time, it changes the activities of potential youth victims who, without the curfew, may be out in public spaces without a capable guardian, and therefore, be more vulnerable as a crime target. This is in line with *routine activities theory* which posits that an individual's risk of victimization is related to common day activities that increase or reduce exposure to motivated criminal offenders.

In addition to limiting the number of motivated offenders and suitable targets, some curfew laws give police the authority to *reduce social disorder through increased surveillance* by removing a group of youth loitering on the streets or in other public places (Podolefsky, 1983; Podolefsky and Dubow, 1981; Weisel et al, 1994). The increased presence of police through directed patrols may in and of itself reduce disorder and crime (Chaiken, et al. 1975; Sherman, 1990; Sherman, et al, 1995). Research using unsupervised, loitering youth as a measure of social disorder has shown that high disorder areas may likely be high crime areas (Skogan, 1990). Research by Sampson and Groves (1989) testing the effects of disorganization on victimization found that the level of unsupervised teenage peer groups had the largest independent effect on all forms of victimization. When disorder is reduced, or residents perceive disorder has been reduced, they are less fearful (Lewis and Maxfield, 1980; Skogan, 1990). In theory, then, curfews can also serve to make residents less fearful about walking alone in their neighborhood late at night. More residents out at night would increase the presence of *capable guardians*, which also should reduce the levels of victimization (Cohen and Felson, 1979; Felson, 1994, Sherman et al., 1989).

In Texas, at least 15 cities, including Dallas, Ft. Worth, San Antonio and Austin, have had curfews since the early 1990s. Many of the cities that have new curfew laws have actually had similar juvenile justice policies on the books for decades. In some cities, curfews have existed for centuries. During the reform era of the late 19th century, curfews were heralded as the newest reform to look out for and protect the well-being of children. For many cities, curfews became part of the widespread child-saving movement that swept through the early 1900s, and included the formation of the juvenile court (Platt, 1969). However, it is also important to point out that many scholars studying that era suggest that the child-saving movement was a subtly-disguised means to control the growing unruliness of youth.

There is little documentation showing consistent enforcement of the curfew in those early years, and researchers have concluded that enforcement was light. It wasn't until the baby boomers reached their teens in the late 1950s that the big cities enacted new curfew laws. With the new curfew laws came renewed enforcement. An estimated fifty percent of the big cities had a curfew law by 1960 (Note 1958). Furthermore, as the idea of rehabilitation fell by the wayside and states became more punitive toward juveniles in the 1970s and 1980s, curfews again gained momentum. In a time when gang violence was on the rise and the promise of quick profits enticed youth into peddling crack and other drugs, curfews became an easy method to keep youth off the streets.

But enacting curfews has not been easy. Jurisdictions that have embraced curfews are being challenged for restricting unnecessarily youths' constitutional rights. Civil libertarians have gone to court against the curfew. Oakland, CA delayed imposing a curfew for fear of a successful legal challenge. As cities begin to construct their curfew legislation, the ACLU has been quick to challenge curfew legislation once it begins. Such is the case with curfew legislation in San Diego and other large cities.

In the last few decades, few state courts have struck down juvenile curfews. The Illinois case of *People v. Chambers* (1976) was interesting in that the curfew in question was enacted by the state legislature and covered the entire state. The state supreme court upheld the law, acknowledging the state's interest in reducing juvenile crime and the state's authority to protect children. A recent case in which the court struck down the curfew occurred in the District of Columbia. The District's law, enacted in 1995, was challenged by the ACLU on the grounds that the restrictions unfairly targeted minors and violated their rights of equal protection and due process under the law. The safety benefits of the law were also questioned. U.S. District Judge Emmet G. Sullivan struck down the law fifteen months after it began saying that the District had not shown the safety benefits of the law (D.C. could not demonstrate that most crime occurred late at night). The District appealed and lost again in a 2 to 1 opinion issued by the D.C. Circuit Court last spring. However, after a full review by the federal appeals court (January 27, 1999), the curfew was allowed to resume in the summer of 1999.

It is not only the civil libertarians that do not like the curfew laws. Some police officials have gone on record stating that a curfew is not an efficient method of spending crime-fighting dollars. Some police officers see curfews as baby-sitting children or simply a quick fix. Some recognize that the statistics are inconclusive. In Phoenix, which began its curfew in February 1993, the law is backed by youth programming and services. The number of 16- and 17-year-old suspects in violent crimes fell to 70 in 1993 from 84 the previous year. But crime continued to rise despite the curfew. Homicides rose to 176 in 1993 from 158 in 1992. In addition, while the number of crime victims ages 16-17 increased only slightly--there were 319 in 1993 and 315 the year before--the total number of victims 15 and younger increased from 318 to 357 (San Diego Union-Tribune, May 29, 1994: A-1).

Despite ongoing skepticism, the curfew remains popular with parents and even some youth. In inner city areas, some youth feel that now there is reason to remain indoors at night, where it will be safer than hanging out in the streets. In the case of Phoenix, where statistics may not show reductions in crime that can be attributed to the curfew, many feel the curfew is working because youth are off the streets. Police picked up over 5,000 curfew violators from February 17, 1993 to March 22, 1994. Twenty-nine percent of these youth were linked to gangs, 21 percent were school dropouts, 18 percent had prior felony arrests and 12 percent were either on probation or parole. The violators are taken to youth centers where they can receive counseling, job and educational opportunities.

Mayors are often too quick to credit their curfews as the reason crime has dropped. For instance, after New Orleans began enforcing their curfew, Mayor Marc Morial stated, "We've saved some lives. Our numbers show we think we've made a dent in juvenile crime." Morial said the overall murder rate was down by 22 percent in 1996. He credited the curfew. When police measured juvenile crime during curfew hours they found that in the law's first 10 months, armed robbery was down by 33 percent; rape dropped 67 percent (from six rapes to two); auto thefts dropped 42 percent (93 to 54). These were the only statistical data available (The Courier-Journal, October 6, 1996; 5A), but researchers later found out that other cities without curfews are experiencing similar decreases in crime. In a similar case, proponents of the curfew in Monrovia, California declared that following the adoption of the curfew, there was a 32 percent decline in residential burglaries. Upon closer scrutiny, it was determined that Monrovia had already experienced a forty percent decline in burglary for each of the several years prior to adopting the curfew (Males and Macallair, 1999).

### **The Statistical Research: A Literature Review**

As the number of public officials praising their local curfews grows, researchers are beginning to challenge the way the crime statistics are being gathered and used to support the new laws. Evidence regarding the effectiveness of youth curfews is largely absent, and the appeal of the concept is still largely intuitive. Furthermore, local authorities typically measure curfew effects using arrest rates. Using arrest rates confounds effects of offenders' behavior and enforcement policy (Blumstein et al., 1986). Law enforcement agencies which heavily enforce curfews will have more arrests, and it is very difficult to determine at what point in time arrests should begin to decrease due to curfew enforcement. Furthermore, almost all of the evaluations that exist come from within the jurisdiction where the curfew is taking place--either the mayor's office or the police department itself. The paucity of research is surprising given the abundance of articles in the popular media espousing curfews.

The reported results from the survey by the U.S. Conference of Mayors did not distinguish between "success" based on anecdotal evidence and "success" based on official statistics. The report discusses the reduction of "crime" but does not provide any detail as to whether crime means *any reported offenses, arrests or victimizations*. In a

recent study, two researchers analyzed arrest records, reported crime and mortality data from jurisdictions throughout California for 1980 through 1997 and found that there is no support for the hypothesis that localities with curfews experience lower crime levels, accelerated youth crime reduction or lower rates of violent death than localities without curfews (Males and Macallair, 1999). Their literature review on curfew studies found only twenty-five studies of curfews nationwide, and most were philosophical in nature, not analytical. The studies that performed more in-depth statistical analyses had methodological problems such as small numbers or no comparison group or jurisdiction. Reynolds (1997) studied the impact of the New Orleans' curfew on violent victimizations and found a significant small reduction in victimizations for victims of all ages, but victimization returned to pre-curfew levels shortly after, when enforcement slowed. Reynolds found no impact on victimizations when he examined only victimizations of juveniles. A more recent analysis of the impact of curfew laws on juvenile crime was conducted by an expert on interrupted time series designs (McDowall, 1998; McDowall, Loftin and Wiersema, 1999). In McDowall's analysis of county level data of large American cities, he found limited evidence that curfews may be effective in reducing juvenile crime rates. McDowall examined the effect of arrests for curfews on other arrests and found no evidence that curfew arrests reduce juvenile arrests for other crimes. In addition, McDowall *et al.* evaluated curfews' impact on homicide using vital statistic counts of homicide victims age 17 or younger for a number of counties. The study found no impact on juvenile homicide victimizations.

Many experts say it will take years to determine a curfew's effect on violent crimes. Males and Macallair declare, "without long-term, large scale, and controlled statistical analyses, it is not possible to reach preliminary conclusions as to whether curfew enforcement reduces, increases, or has no effect on crime." Indeed, a sound analysis would require a few hundred points of data (gathered over continuous months).

### **Prince George's County's (PGC) Curfew**

The Prince George's County curfew ordinance requires those younger than 17 to be off the streets and out of other public areas from 10 p.m. to 5 a.m. on weeknights and from midnight to 5 a.m. on weekends. The ordinance was passed on November 21, 1995 and enforcement began July 1, 1996. It replaced a 1967 law that permitted police to disperse loitering youth during curfew hours, but included no penalties. Under the 1995 ordinance, youth violating the law are not arrested but are taken into custody until a parent can pick them up. The law set a schedule of fines for violations of the curfew<sup>1</sup>; parents of children who violate the curfew law are fined \$50 for the first offense, \$100 for the second offense, and \$250 for subsequent offenses. Owners of public establishments are fined up to \$500 for allowing a juvenile to be in their establishment or on the premises (knowingly) during curfew hours. In addition, the legislation provides for the

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<sup>1</sup>Exceptions to the law include when a juvenile is legally employed and carrying a certified Employment Card or Exception Card; when a juvenile is accompanied by his parent or other authorized adult; and when a juvenile is returning home by the most direct route within one hour after the end of an activity. More details on the law, including other exceptions can be found in Appendix C.

county to charge parents a "baby sitting fee" if the parents arrive more than one hour after they have been notified that their children are in custody.

The Prince George's County Police Department has six police districts and each district has a Youth Services Officers (YSO), whose role is to process curfew violations. Every time a youth is stopped on the street by a police officer, the officer fills out a J-2 form that contains the youth's demographic information and the nature of the police stop. The J-2s are passed onto the YSO. The YSO examines the form to see if the officer has indicated that the youth was in violation of the curfew. If the officer marked that the youth was in violation, the YSO sends a letter to the parent to inform them that their child violated the curfew. Although the curfew regulation states that for a first offense the parent receives a \$50 fine, the YSOs generally only send a warning letter for the first offense. Some YSOs call the parent and youth in for a meeting or the YSO will visit the parents and the youth in the home. Two thousand curfew violations were recorded in police records since July 1, 1996. Curfew violations "recorded" does not necessarily indicate that the violations were then processed by a YSO. For some of the recorded violations, the juveniles simply were warned by the police officer on the street. The monthly range of violations processed generally ran from zero to ten, but there was much variation across police districts and Youth Services Officers. In the summer months, some police districts processed 20 to 30 curfew violations. None of the officers interviewed indicated that youth violating the curfew were brought to the station or a baby sitting fee was charged to the parent under their tenure as YSO. When youth are stopped for a curfew violation, the street officers record a youth's information and tell the youth to go home.

In addition to being the first of Washington, D.C.'s major suburban jurisdictions to experiment with restricting the nighttime activities of juveniles as an anti-crime measure,<sup>2</sup> Prince George's County offers several advantages as the site for an evaluation of youth curfews. One barrier limiting research on youth curfews in many jurisdictions is poor police record data--records with large amounts of missing data on age of victim or time of day of victimization. Prince George's County incident records are sufficient in both size (i.e., numbers of incidents) and completeness. In recent years, youth have accounted for one-third of arrests for aggravated assaults and robbery in PGC (Pan, 1996), driving up the number of victimizations to youth. The records are incident-based (reported offenses) and include the variables *age of victim* and *time of day of victimization* (the data are described in more detail below). In addition, the nature of PGC's curfew ordinance lends itself to an intervention analysis because the county conducted a large-scale campaign to educate parents and youth about the law's requirements, and did not initiate a comprehensive set of youth programming and services to go along with the curfew as did the often-in-the-news curfew cities of Dallas and Phoenix. Examination of records and discussions with officers revealed that the county is enforcing the basic parts of the

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<sup>2</sup> Although Washington, D.C. adopted a curfew in the summer of 1995, police did not enforce it, and the courts eventually struck it down until 1999, when the appeals court ruled the curfew could commence.

curfew ordinance. Onset and operation of the intervention--curfew enforcement--is clear cut in the case of Prince George's County.

### The Intervention Analysis

The intervention analysis addresses the following questions:

- 1) Did the curfew reduce victimizations of youth under 17 during curfew hours?
- 2) If there was a reduction in the number of victimizations of youth under 17, what was the nature of the effect? Was it gradual or abrupt, temporary or permanent?

Because Prince George's County is different from other jurisdictions in terms of its demographics and crime rates, and is a county, not a city, it would be difficult to find another jurisdiction to serve as an appropriate comparison group. Washington, D.C., the least dissimilar nearby jurisdiction, only intermittently enforced a curfew during a roughly similar period of time. Instead of using a potentially inappropriate comparison jurisdiction, this study relies on several comparison groups of offenders and offenses within Prince George's County that should not be directly affected by the treatment (curfew). The curfew should not directly affect youth over the curfew age, or victimizations occurring before curfew hours. By using persons over curfew age and victimizations that happen before curfew hours as comparison groups, much of the threat of history to internal validity is eliminated because it is unlikely that a treatment-correlated historical event would apply only to the under 17-year olds.

The general hypothesis to be tested is that violent victimizations of youth under 17 years of age during curfew hours will be lower in the period after enforcement of the curfew began compared to the period before the curfew. This time series model, in its simplest form, can be diagrammed as:

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O <sub>A1</sub>	O <sub>A2</sub>	O <sub>A3</sub>	O <sub>A4</sub>	O <sub>A5</sub>	X	O <sub>A6</sub>	O <sub>A7</sub>	O <sub>A8</sub>	O <sub>A9</sub>	O <sub>A10</sub>
O <sub>B1</sub>	O <sub>B2</sub>	O <sub>B3</sub>	O <sub>B4</sub>	O <sub>B5</sub>		O <sub>B6</sub>	O <sub>B7</sub>	O <sub>B8</sub>	O <sub>B9</sub>	O <sub>B10</sub>
O <sub>C1</sub>	O <sub>C2</sub>	O <sub>C3</sub>	O <sub>C4</sub>	O <sub>C5</sub>		O <sub>C6</sub>	O <sub>C7</sub>	O <sub>C8</sub>	O <sub>C9</sub>	O <sub>C10</sub>
O <sub>D1</sub>	O <sub>D2</sub>	O <sub>D3</sub>	O <sub>D4</sub>	O <sub>D5</sub>		O <sub>D6</sub>	O <sub>D7</sub>	O <sub>D8</sub>	O <sub>D9</sub>	O <sub>D10</sub>
O <sub>E1</sub>	O <sub>E2</sub>	O <sub>E3</sub>	O <sub>E4</sub>	O <sub>E5</sub>		O <sub>E6</sub>	O <sub>E7</sub>	O <sub>E8</sub>	O <sub>E9</sub>	O <sub>E10</sub>
O <sub>F1</sub>	O <sub>F2</sub>	O <sub>F3</sub>	O <sub>F4</sub>	O <sub>F5</sub>		O <sub>F6</sub>	O <sub>F7</sub>	O <sub>F8</sub>	O <sub>F9</sub>	O <sub>F10</sub>

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where A is the outcome variable: victimizations of youth within curfew age (12 to 16) during curfew hours. B and C are victimizations to youth over the curfew age during

curfew hours (B is 17-21 year olds and C is 22-25 year olds). D, E and F represent victimizations outside of curfew hours (D is youth within curfew age, E is 17-21 year olds and F is 22-25 year olds). Series B and C may show some effects because curfew age youth may be responsible for victimizations of older youth, and if so, the curfew could potentially be reducing victimizations of youth in the older age groups by keeping motivated offenders under the age of 17 off the streets. However, if effects are found for Series B and C, it is hypothesized that Series B will have smaller effects than Series A, and Series C will have smaller effects than Series B because the risk of victimization by youth will decrease as age increases (Perkins, 1997). Series D--victimizations to youth under 17 outside of curfew hours--may increase because of temporal displacement effects (youth moving their offending behavior to times when they can be out on the street), and Series E and F should show no positive or negative curfew effects.

### **The Data and Analysis Plan**

Data for this study are supplied by the Prince George's County Police Department. The time-series data are incident reports for all violent victimizations that occurred in the county from January 1992 through March 1999. Victimization offenses include homicide, rape, robbery, aggravated assault, and non-aggravated assault. The data were calibrated in monthly intervals, with 54 months as the pre-intervention period and 33 months for the intervention period. This research used victimizations not victimizations *events*. The former captures the true number of victims, not just the number of criminal events (incidents) that had victims. The dependent variable was measured as the number of victimizations divided by the number of youth within each age group (i.e., 12-16, 17-21, 22-25) multiplied by 1,000. The U.S. Census website<sup>3</sup> provided population estimates by age through 1998. Monthly populations by age were then computed from those estimates.

The effect of the curfew law was analyzed using a dummy variable coded 0 before July 1, 1996 and coded as 1 otherwise. Based on conversations with police personnel, the author expected to find that the law had an immediate and permanent, as opposed to gradual but permanent, effect on victimization when the county began enforcement of the law. Police officers and county officials felt that their widespread efforts to inform parents and youth about the revised curfew would be sufficient to create an immediate effect when enforcement began. Although the law was passed in November 1995, the specification of the model is based on when enforcement began, not on the date of the passage of the law, because no action was taken to introduce the law, or enforce it, until July 1, 1996. A brochure explaining the curfew was sent with June report cards to all county students in the eighth through tenth grade.

The study uses autoregressive integrated moving average (ARIMA) techniques to assess the impact of the curfew on victimization in Prince George's County. ARIMA techniques involve transforming the dependent series into a new set of observations that

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<sup>3</sup> The website can be found at: <http://www.census.gov/population/www/estimates/countypop.html>

are distributed independently and normally with a mean of 0 and a constant variance. This is known as "pre-whitening." After the series is pre-whitened, a transfer function is used to estimate the impact of the intervention on the pre-whitened dependent series. The resulting model is subjected to diagnostic tests to determine if the model is adequate. If the model is not adequate, a new model is estimated until a statistically adequate model is found. The transfer functions considered for this study are (1) an abrupt and permanent decrease in the rate of victimizations (2) a gradual and permanent decrease, and (3) an abrupt, but temporary decrease, where the rate of victimization returns to preexisting levels as time passes. As indicated above, the author hypothesized that any impact of the curfew will be abrupt (or immediate) and permanent.

## Findings

Table 1 provides an overview of victimization in Prince George's County from January 1, 1992 through March 31, 1999. Almost forty percent of all victimizations occur to youth and young adults age 12 to 25. A much smaller percentage of victimizations (10.6%) occurs to individuals in that age group during curfew hours.

**Table 1. Victimization in Prince George's County, MD, January 1992- March 1999**

Total Victimization — All Ages	89,613
Victimization of Youth and Young Adults 12-25	35,115(39.2%)
Victimization Occurring During Curfew Hours	25,355 (28.3%)
Victimization of Youth and Young Adults 12-25 Curfew Hours	9,512 (10.6%)

The figures in Table 2 show the percentage of victimizations that fall within the curfew age group (12-16) and the two comparison age groups. The table separates victimizations into two time periods: those that occurred during curfew hours and those that occurred during non-curfew hours. Although youth age 12 to 16 make up roughly 15 percent of the victims during the day and early evening, the percentage drops to about 5 during curfew hours. This is understandable in that there is less reason for youth younger than 17 to be out of the home where they are more at risk of victimization, than the older youth. In addition, youth within the 12 to 16 age range are more likely to be under the authority of their parents; parents' influence or authority generally decreases as youth get older.

**Table 2. Victimization by Age Group, Curfew and Non Curfew Hours  
January 1992 – March 1999**

<b>Curfew Hours – Total</b>	25,355
12 to 16 Year Olds (target group)	1132 (4.5%)
17 to 21 Year Olds (comparison)	4479 (17.7%)
22 to 25 Year Olds (comparison)	3901 (15.4%)
<b>Non- Curfew Hours — Total</b>	64,258
12 to 16 Year Olds (comparison)	9322 (14.5%)
17 to 21 Year Olds (comparison)	9270 (14.4%)
22 to 25 Year Olds (comparison)	7011 (10.9%)

Figure 1 depicts the rate of victimization by age group from January 1992 through March 1999. The vertical line in 1996 represents the date that enforcement of the curfew began. Eyeballing the graph reveals no clear cut evidence that victimizations decreased in any age group, although it looks like there are no high peaks for any age group for the first 18 months after enforcement began in July 1996. Though not shown in Figure 1, the mean of monthly victimizations for the three series are as follows: 3.10 for the 12-16 age group; 10.0 for the 17-21 age group and 11.26 for 22-25 age group. The means for the older age groups are more than twice the rate of the target/curfew age group. Figure 2 provides the means (monthly victimization) for the pre-curfew and post-curfew time periods for the target age group (12-16). Again, note that the mean number of monthly victimization incidents is very low (3.30 pre-curfew and 2.78 post-curfew). The difference in means is significant at the .05 level (one-tailed test). The data were then subjected to the more sophisticated ARIMA techniques to determine if the significance found with the t-test remains when the intervention analysis is run.

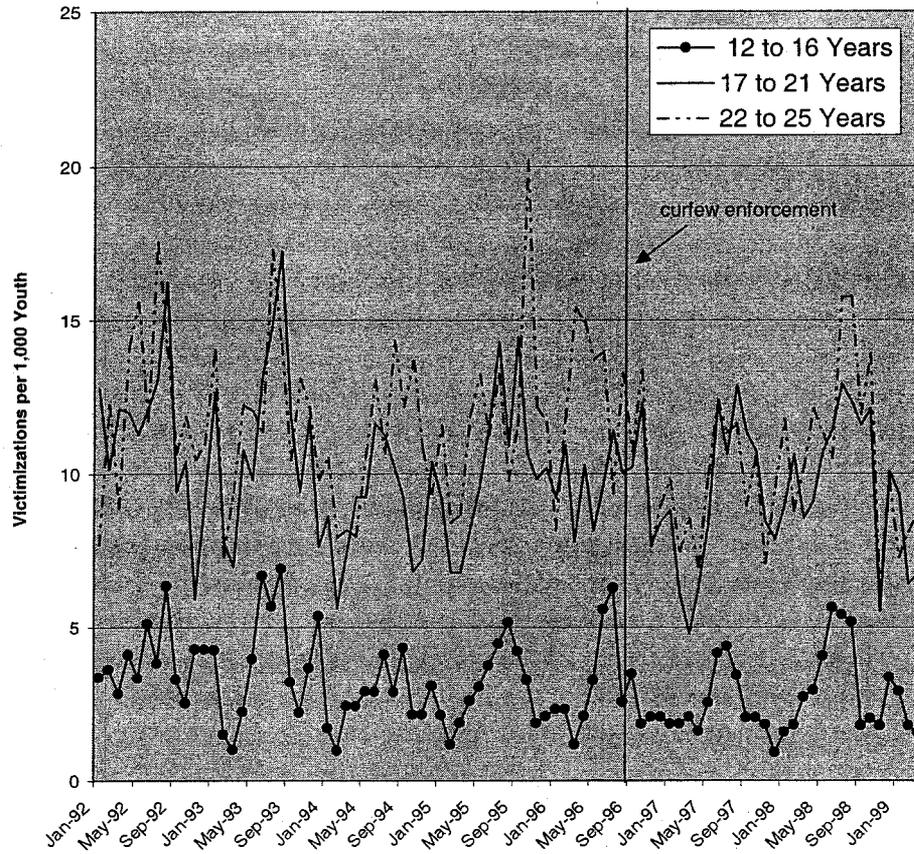
Table 3 shows the parameter estimates for the intervention and its standard error achieved by estimating a zero-order transfer function intervention model. This model tests whether curfew enforcement produced a significant abrupt and permanent reduction in victimization. Other transfer functions were estimated, but the results are not shown because the abrupt, permanent model was the most appropriate model. As one can see from the table, although there was a decrease in victimization for the curfew age youth (12-16) after curfew enforcement, the effect was not significant. The direction of the effect was in the predicted *direction* for each age group, but interestingly, there was a significant reduction in victimization to youth in the older age group—22-25. The mean rate of victimization for that age group was roughly 12 victimizations per 1,000 youth age 22-25, and after the curfew, the rate dropped by 1.9 victimizations per 1,000 youth. This suggests that perhaps police visibility increased, causing older troublemaking youth to remove themselves from the streets, which in turn had an impact on victimization. But, if this was the case, it is surprising that the effect was not significant for the 17-21 year old age group—even recognizing that the 17-21 year olds had a slightly smaller base rate of victimization. Table 3 also shows that none of the parameters for the non-curfew hours age groups were significant, but that victimizations to 17-21 year olds *increased*—albeit very slightly—during non-curfew hours. Perhaps this is somehow related to the finding of no significant effect for the 17-21 year olds during curfew hours.

**Table 3. Intervention Estimates for Effect of Curfew on Victimization Events**

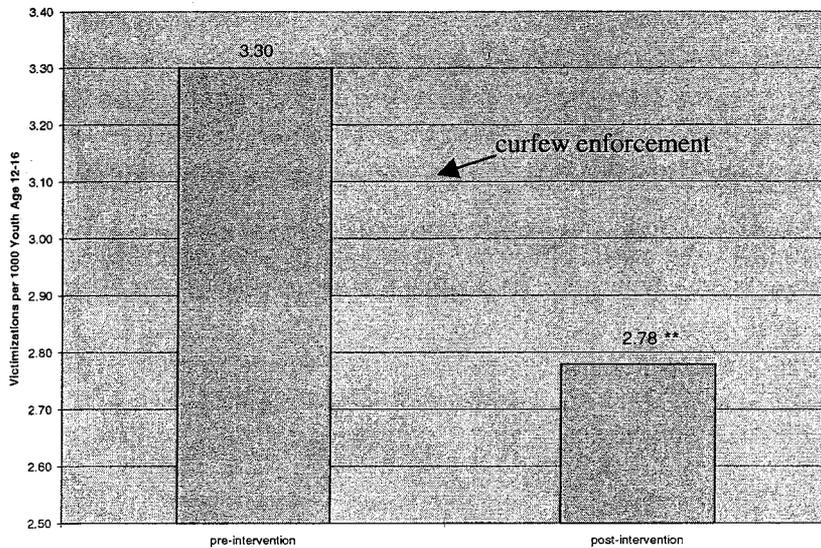
Victimization Series	Intervention Parameter	Standard Error
12 to 16 Year Olds — Curfew Hours	-.472	.472
17 to 21 Year Olds — Curfew Hours	-.924	.854
22 to 25 Year Olds — Curfew Hours	-1.904**	.784
12 to 16 Year Olds — Non-Curfew Hours	-1.83	1.02
17 to 21 Year Olds — Non-Curfew Hours	.069	.635
22 to 25 Year Olds — Non-Curfew Hours	-.723	.708

\*\*p < .05

**Figure 1. Victimization Rate, by Age Group Over Time**



**Figure 2. Means for Pre- and Post Intervention Victimization Rates, 12-16 Year Olds**



\*\*p < .05

The above results are for the county as a whole. To determine if there was a reduction in impact in the areas that experience the most victimization, analyses were also conducted on the combined victimization of the three police districts within the Capital Beltway— Police Districts I, III, and IV (see Figure 4 later in the report). These districts border the District of Columbia, and also contain the majority of the county’s population. The mean number of monthly victimizations for the target/curfew age group over the entire time series for the three districts is 9.21.<sup>4</sup> The results of the time series analysis for Districts I, III and IV combined was similar to the county as a whole (not shown). The parameter estimate for the target group was -1.38, (standard error 1.36). A reduction in victimization occurred after enforcement of the curfew, but the parameter estimate was not statistically significant.

Although the original hypotheses were formulated for specified age groups, the author also conducted analyses using the total number of victimizations for the county (all ages combined). Figure 3 displays the monthly victimizations from January 1992 through March 1999. For all victims combined, the number of victimizations during curfew hours and during non-curfew hours was not affected by the introduction of the curfew ordinance in July, 1996. Table 4 shows the results derived from the construction of the ARIMA models for all ages of victims combined. Although there was a reduction in the number of victimizations after the curfew, the estimates are not statistically significant.

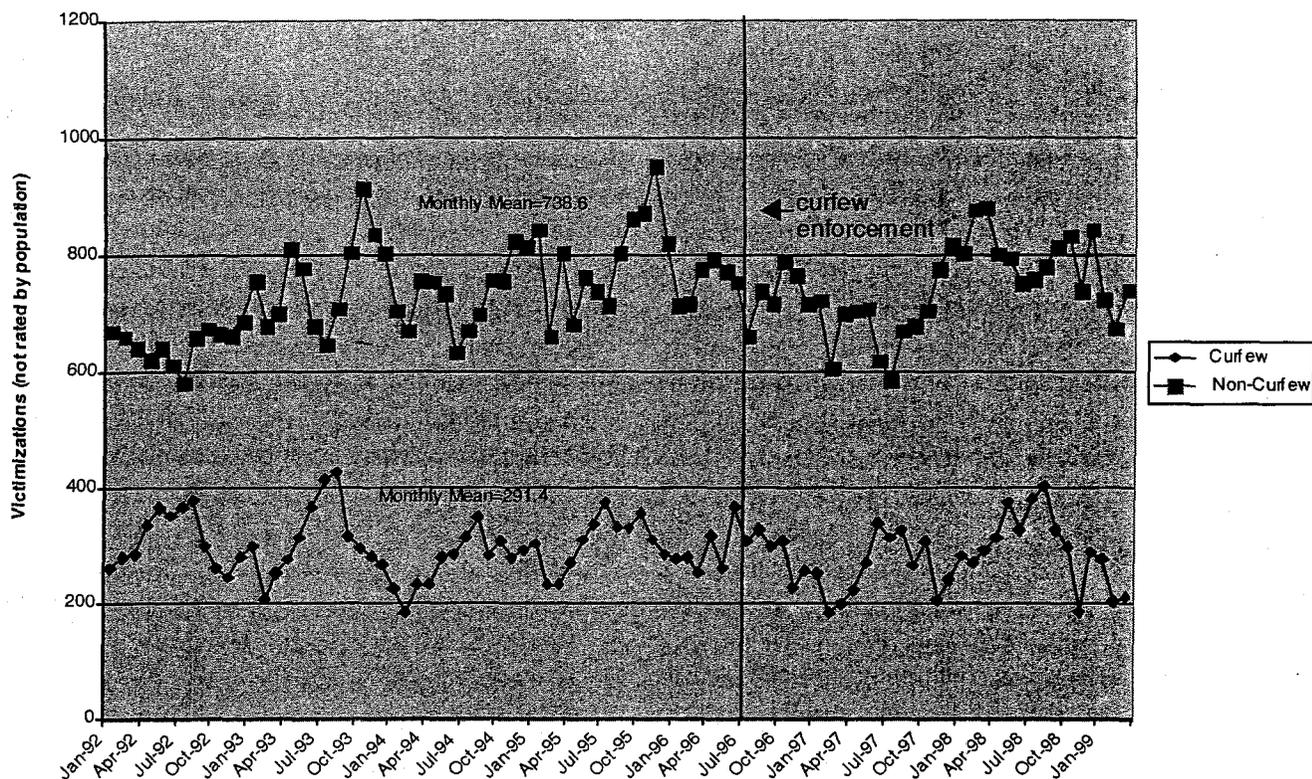
**Table 4. Intervention Estimates for Effect of Curfew on Victimization- All Ages**

Victimization Series	Intervention Parameter	Standard Error
All Age Victims — Curfew Hours	-38.01	21.54
All Age Victims — Non- Curfew Hours	-0.671	32.38

\*\*p < .05

<sup>4</sup> When conducting the analysis using three police districts, as opposed to the entire county, the time series is not based on youth population (i.e., is not a “rate”) because no estimates of population were available by police district. In addition, victimization events/offenses, not *number of victims* are used to better stabilize the time series. Therefore, the mean monthly victimizations of the three districts combined can not be compared to the means used earlier in the report.

Figure 3. Victimization, All Ages Over Time



This study also examined the clustering of victimization during curfew hours in order to detect any changes in the location and concentration of victimization after the curfew was implemented. The remaining sections of the report discuss the results of the spatial analysis.

### The Spatial Analysis

The objective of the spatial analysis is to examine whether the curfew affected the spatial dynamics of victimization before and after the curfew in areas of high crime concentration. This analysis will answer the following questions:

- 1) Was crime clustering in hotspot areas during curfew hours reduced after the curfew began?
- 2) Did any hotspot areas completely disappear after the curfew was implemented?
- 3) Were new hotspot areas created after the curfew began?
- 4) If a reduction or elimination of hotspot areas occurred, did it last?
- 5) Does examination of curfew hour hotspot areas generate any hypotheses about youth behavior or victimization of youth and young adults?

The design is based on the creation of a geographic information system (GIS) that plots the spatial location of the victimization events that occurred to youth between the ages 12 and 25. Because the curfew is specifically designed to stop behaviors (i.e. loitering or hanging out in groups in public spaces) that may give rise to chronic crime problems (Skogan, 1990), this research hypothesized that if the curfew has been

implemented so as to maximize its crime control impact, patterns of victimization events would change more extensively in high crime areas than elsewhere after the curfew is implemented. The study uses victimization events as opposed to victimizations (plotting all victims of multiple victim events) to avoid skewing the clustering when events had multiple victims. For instance, if in one month there was an assault that had five victims, this incident would have shown up as a hotspot for that month if the plotted variable was victims. In this study an incident with more than one victim is counted as one event.

High concentration areas were identified using the nearest neighbor clustering technique of the CrimeStat program (Levine, 1999). Nearest neighbor clustering is a hierarchical technique that begins by grouping points based on the next closest point (nearest neighbor). This technique generates ellipses around clusters of incidents; the user specifies the probability level for the random expected nearest neighbor, the minimum number of incidents (events) to form an ellipse and the number of standard deviations for determining the size of the ellipse. This study uses one standard deviation ellipses with 90 percent confidence that the clustering is spatially closer than would have happened by chance if the crimes were spread evenly over the county. Criteria for choosing the minimum number of events was chosen after preliminary examination of the data. For yearly changes in clusters, the study used 25 as the minimum number of victimization events; for monthly changes, the study uses five events.

## Findings

Figure 4 provides a map of the entire county, which is divided into six police districts, as shown. The smaller gray lines represent the police beats within the districts. Victimization is concentrated within the three police districts (I, III, and IV) that border the District of Columbia. The hotspots that are identified in this analysis are all located within these districts.<sup>5</sup> *All the maps (Figures 4 through 21) can be found at the end of the report, preceding the references.*

Figures 5 through 11 are maps of the county showing the locations of victimization clustering for each year from 1992 through 1998.<sup>6</sup> Remarkably, the clusters remain very stable over the years. There is some movement, but looking at Figure 12, one can see that almost all hotspot locations were hot in more than one year, with some locations having clusters for at least three of the years.

Establishing that victimization event clustering is fairly stable over the study period, the author then examined the locations and densities of the *monthly* clusters before and after curfew enforcement (July 1, 1996). The intent is to determine if there is a

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<sup>5</sup> The clustering method used does not take into account the population of the area.

<sup>6</sup> There was little variation in number of victimization events each year. To avoid any confusion on the maps, these numbers are not shown in the figures (1992 had 1098 incidents; 1993 had 1076 incidents; 1994 had 896 incidents; 1995 had 1002 incidents; 1996 had 959 incidents; 1997 had 816 incidents, 1998 had 969 incidents).

reduction in the number of clusters, a reduction in the density of the events within the clusters, and/or a shift in the location of the clusters. Even if the *number* of monthly victimization events after the curfew was roughly similar to the *number* of events before the curfew, it is possible that the *locations* of youth offending and the *magnitude of youth offending in a particular location* changed because of curfew enforcement, thereby influencing the spatial patterns.

The next maps display the monthly clusters of victimization events in an attempt to answer the question: Was crime clustering in hotspot areas during curfew hours reduced after the curfew began? Figure 13 shows the clustering (using a minimum of five events for clustering) for the month before curfew enforcement began. Two clusters emerge from 91 victimization events. In July—the month that the curfew began—only one cluster emerges from roughly the same number of victimization event—89 victimization events. (Figure 14). Looking at these two maps, it appears the number of clusters was reduced in the month after the curfew began. The one cluster that remains in July (the lower cluster) changed shape slightly, probably because the cluster had one more point associated with it, than it did in June (7 incidents in July, compared to 6 in June—again, the number of incidents is not shown on the maps).

Figures 15 through 18 provide the hotspot maps for August through November. The author uses these maps to determine if the number of clusters remained at one in the months following July, 1996. It is not until October that the number of clusters exceeds the number of clusters that appeared in the month before the new curfew was enforced. In October, the number of clusters is at a high of four. There is some movement of the clusters from June through November, but, given the limitations of the exploratory spatial analyses, the cause of the cluster movement cannot be ascertained from the maps.

Figure 19 overlays six-month clustering patterns for 1996 in order to provide an additional perspective for examining pre- and post- curfew enforcement spatial changes. The minimum number of events needed to form a cluster was set at 25 and from the map, one can see that it appears that two clusters in the lower part of the map (further away from Washington), and one in the north area of the county did not appear in the six months following curfew enforcement. After conducting additional analyses (maps not shown), it appears that one of these clusters (located in Police District III) is, for the most part, eliminated after the curfew was implemented. However, for this cluster, there is some indication that the concentration of points within the cluster had been reduced a few months before the curfew was implemented, leading the author to believe the reduction may not necessarily be due to the curfew. Because there is the possibility that youth moved their activities to other areas after curfew enforcement, the author looked for new locations of clusters, but none emerged after July 1, 1996 (the location of the monthly clusters after the curfew are for the most part, the same locations of the yearly clusters pre-curfew shown in Figures 5 through 8).

Though not shown, the clustering indicated that of all months, July has the densest clusters (i.e., the clusters have the highest number of events within them) and most

clusters each year, with the exception of the year the curfew was introduced (1996).<sup>7</sup> To determine if the clustering that was witnessed earlier in 1996—before the curfew—was mostly eliminated in July, the author reduced the minimum number of monthly events needed to find clustering from five to four events (Figure 20), and found that some clustering remained in July 1996, though the ellipses contained fewer events.

Overall, the maps indicate that there may have been some reduction in the number of clusters and the density of the clusters after curfew enforcement began. The number of clusters remain around two, until October, when the number of clusters jumps to four. The one cluster that appears to have mostly disappeared is located in Suitland, Maryland (Police District III), along the border to District IV. No new clusters emerged after curfew enforcement, suggesting that youth activity was dispersed from the existing hotspot rather than displaced into a new location.

## Discussion

The time series analysis revealed there was little support for the hypothesis that the Prince George's County curfew reduced violent victimization of youth *within curfew age*. There is support, however, for the hypothesis that the curfew was associated with a reduction in victimization to older youth and young adults, ages 22-25. The finding of no significant effect in terms of curfew age youth could be related to the fact that there were so few monthly victimizations of curfew age youth. As stated earlier, the older age groups had monthly means that were more than twice that of the mean of victimizations for curfew age youth. It remains surprising, however, that victimizations of 17-21 years olds would not be affected by the curfew. Discussions with the Youth Services Officers (YSO) did not yield any explanations for this finding.

Interviews with the officers revealed that each police district acts independently with regard to curfew enforcement. There is no central authority within the police department that oversees the responsibilities of each Youth Services Officer. Hence, there is much variation in the level of effort YSOs place on creating curfew awareness and processing violations. Some YSOs take it upon themselves to inform new officers about the curfew and remind students periodically by visiting classrooms or sending flyers to the schools with the COPS officers. Almost all of YSOs that were interviewed have been in their position less than two years.

Regarding the spatial analysis, it is difficult to draw any direct conclusions regarding the influence of the curfew. To determine if crime clustering in hotspot areas during curfew hours reduced after the curfew began, the author examined monthly maps from June, 1996 through November, 1996. These maps did not display any discernible change or new pattern of clustering after the curfew. Because July 1996 only had one cluster, and the month of July had more clustering in other years (these maps were not

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<sup>7</sup> To examine seasonality in victimization, the data were aggregated for each month over the years (e.g., July 1996, July 1997 and July 1998 were examined together; August 1996, August 1997, and August 1998 were examined together, etc).

shown), there may have been some temporary spatial shift (in the month of July) due to the curfew.

The spatial analyses also examined whether any hotspots totally disappeared. The cluster maps of monthly victimizations and six month maps (January to June/July to December for 1996) showed that it is possible that a cluster in Suitland, Maryland (Police District III) disappeared after curfew enforcement began. The Youth Services Officer and other officers in the District could not identify any potential causes for the apparent disappearance of the cluster because most officers who took part in the interviews had not been working in that police district in 1996. The author scanned local newspapers that were printed in the early to mid 1990s in an attempt to identify any special police enforcement or youth programming in Suitland, Maryland that could account for the disappearance of the cluster, but nothing regarding Suitland was found. However, the search revealed that the Prince George's County Police Department began to use hotspot mapping to bolster officer deployment in high crime areas around the spring/summer of 1996. The initiative, called the Violence Abatement Project, paid officers overtime for extra patrols in hotspots that the department identified using computer-generated maps.

In addition to the possible loss of a hotspot, no new clusters emerged after the curfew was enforced. Although this is arguably good news for proponents of the curfew, the cause may not necessarily be attributed to the curfew, but could be attributed to the Violence Abatement Project.

The final research question this study set out to answer was: does examination of curfew hotspot areas (those areas which are hotspots during curfew hour) generate any hypotheses about youth behavior or victimization of youth and young adults? The spatial analysis revealed (Figures 5 through 12) that clusters of youth victimization, when examined yearly, were highly stable. The knowledge that the location of victimization event clusters has remained relatively stable over six years, coupled with the findings that July of each year has a large number of clusters, suggests that a summertime late night power shift patrol may be worth considering.<sup>8</sup> The majority of Youth Service Officers indicated that curfew violations are highest in summer months. Perhaps more police presence or even stronger community guardianship or cautious victims at these times and places is necessary. Not related to the curfew's effect, but surprising in its frequency, the maps showed that almost all of the clusters cross beat boundaries (for instance, see Figure 12). In fact, clusters often occur where three beats intersect. It would be interesting to determine if this is happening by chance or whether offenders actually know the deployment structure or the beat officers themselves, and are taking advantage of beat boundaries to avoid police attention. The fact that it is true for so many clusters suggests looking into samples of incident reports from several of the clusters, to see if the underlying incidents seem related in some way. If the incidents have similarities, then it

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<sup>8</sup> Understandably, a power shift patrol would be dependent upon police priorities and administrative policies.

may make sense to set up problem-oriented policing projects to deal with these clusters, or maybe even modify the dispatch rules that were set up to maintain beat integrity.

Because it is remarkable that high victimization areas during the late night period have remained the same over a number of years, further analyses were conducted to examine the characteristics in the areas that have remained hotspots over the years. The author examined the characteristics of the most stable cluster over the seven year period. The cluster is located in the Glassmanor area in Police District IV (see the cluster that is furthest south on Figure 12). The author overlaid 1990 U.S. Census block group data on the Glassmanor hotspot (Figure 21).<sup>9</sup> The cluster lies at the intersection of four block groups, (bordered by the District of Columbia line, Owens Street, St. Barnabus Road, and Interstate 95). However, the yearly victimization cluster falls mostly on one block group (Tract 8016, Block Group 1) over all seven years. While the four block groups share boundary lines, the demographics of the residents are quite different. In terms of total population, the range is from 9,700 in one block group to only 1,200 in another. The one block group in which the cluster mostly lies (Tract 8016, BG 1) has a very high population density. The block group size is small (roughly .29 square miles), but it contains 1,424 housing units and 3,600 people. The high population and housing density could be driving the clustering. If the clusters are not simply an artifact of high density, determining what may be causing the clustering of victimization could help focus efforts on locations that are amenable to change. These areas may be appropriate for coordinated county priorities that include neighborhood involvement.

## Conclusion

This study set out to provide a rigorous assessment of the impact of a county's revised curfew law. Prince George's County Police Department has a comprehensive incident-based computer system and supportive officers that made a detailed and thorough evaluation of one jurisdiction's curfew policy possible. Recent curfew evaluations that used aggregate data and compared across cities and counties had suggested that future research focus more specifically on individual jurisdictions. Prince George's County's curfew law specifies that youth under the age of 17 must be off the streets at 10 p.m. on week nights and midnight on weekends. Violations are considered civil offenses, not criminal, and penalties for violation are fines, directed to the parents or guardian. The county provides no special youth programming or counseling for youth or families in violation. Essentially, the county's curfew policy does not involve a very large expenditure in time or dollars.

The findings, in summary, showed that:

- Any impact of the law on the target group of youth—ages 12-16—was small, and not statistically significant.

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<sup>9</sup> Square miles was not part of the U.S. Census Data for block groups, but was determined by measuring distances using the mapping software. Hence, this is simply an approximation.

- The curfew was associated with an immediate and permanent reduction in victimization to youth/young adults between the age of 22-25.
- The impact of the law on reducing victimizations to all individuals (models run with all ages combined) was small and not significant.
- It could not be concluded with any certainty from the exploratory spatial analyses that the size or number of hotspot areas was reduced after enforcement of the revised curfew, and that any changes found in the spatial patterns were due to the curfew law. On a positive note, there was no evidence of new hotspot clusters after June 1996, which could mean that the curfew did not have any spatial displacement effects. However, this study did not examine if youth victimization clusters moved to earlier or non-curfew *times*.
- The hotspots or clusters of victimization during curfew hours remained markedly stable over seven years.

While the findings do not provide overwhelming evidence either in support of or against the curfew, they do provide some evidence that Prince George's County's policy—a policy that consumes little extra resources—may have some effect in reducing violent victimization. An obvious limitation to this study is that generalizability is limited to jurisdictions that are similar to Prince George's and/or have similar curfew regulations. Another limitation in this study, as well as the other studies on curfews, is that the research does not take into account what youth programming or other events are happening in the community that may effect crime/victimization at the time curfew enforcement began. For instance, the Chief of Police's Violence Abatement Project was implemented a few months before the curfew and may have had a strong impact on victimizations of 22-25 year olds that showed up in this study as associated with the curfew. The Violence Abatement Project may have kept youth from committing crimes during curfew hours because police flooded the high crime areas and made gang and drug sweeps that affect all age offenders. Yet it is still puzzling that no statistically significant effect was found for the 17 to 21 year olds, when an effect was found for the 22-25 year olds.

Interviews with officers revealed that curfew enforcement and processing was not a priority in recent years, and the level of effort made to create awareness and process violations greatly varies across police districts. Beat officers spend the overwhelming majority of their time responding to 911 calls. It is up to the Youth Services Officer, who is in charge of processing curfew violations, to make youth and parents aware of the curfew. Perhaps steady and consistent enforcement and processing of curfews across all police districts would have contributed to a larger reduction of victimization. However, given the limited resources that law enforcement agencies often have, greater curfew enforcement may not have been an option. Future research on the impact of curfews

should include times series measures of resource allocation, enforcement and arrest, as well as contain adequate measures that control for events that are happening in the community. In addition, because only about 30 percent of youth victimization is reported to the police, it is important to explore the use of such measures as calls for police service. Calls for service may provide more context to youth victimization and arrest patterns.

With the increasing number of police departments computerizing incident-based data that includes the age of the victim, location of incident, and time of day of incident, micro-level research of program impacts on crime has great potential in terms of improving quasi-experimental designs. Continuing to explore the spatial dimensions of youth crime using new methods and technology will generate new and valuable insights to the context of crime and victimization over time and space.

Figure 4. Prince George's County Police Districts and Beats

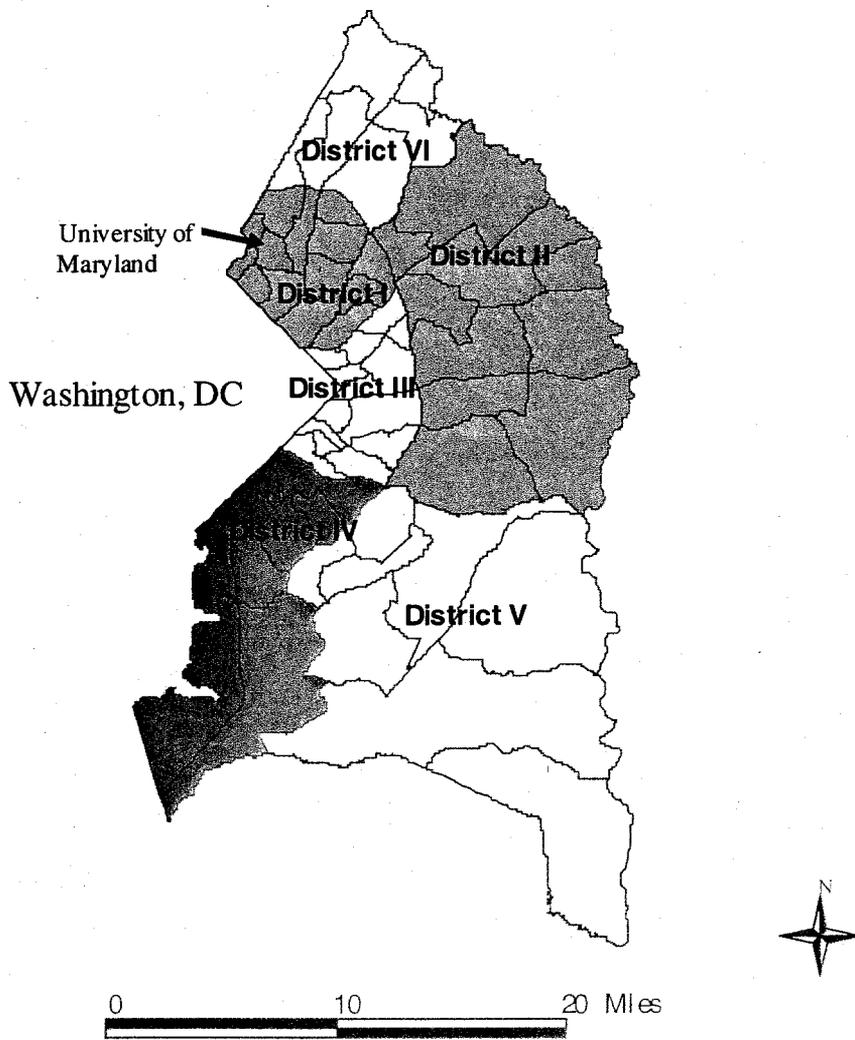


Figure 5: 1992 Event Clusters

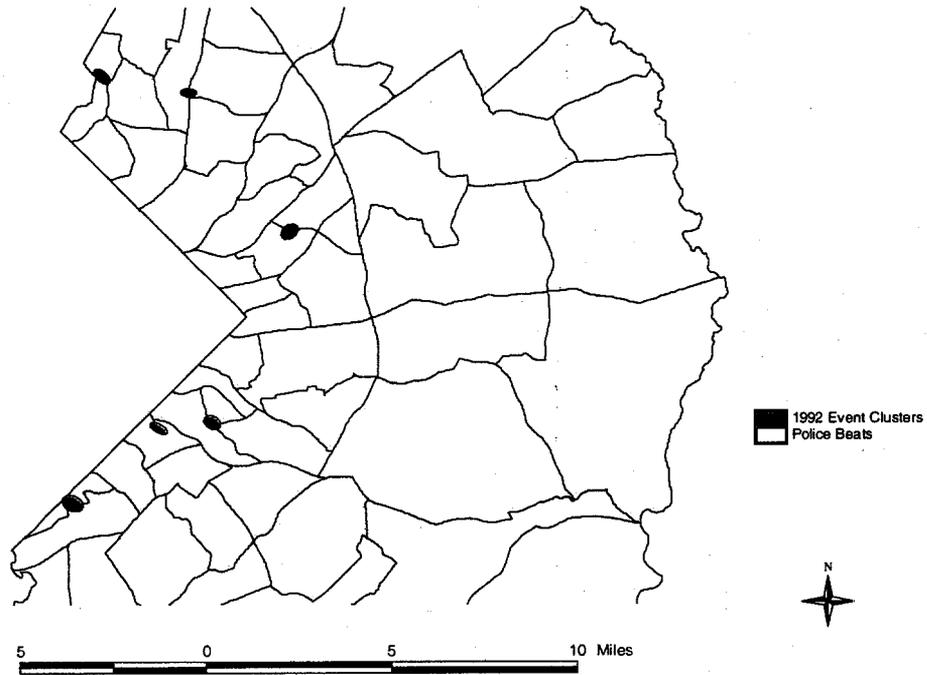


Figure 6: 1993 Event Clusters

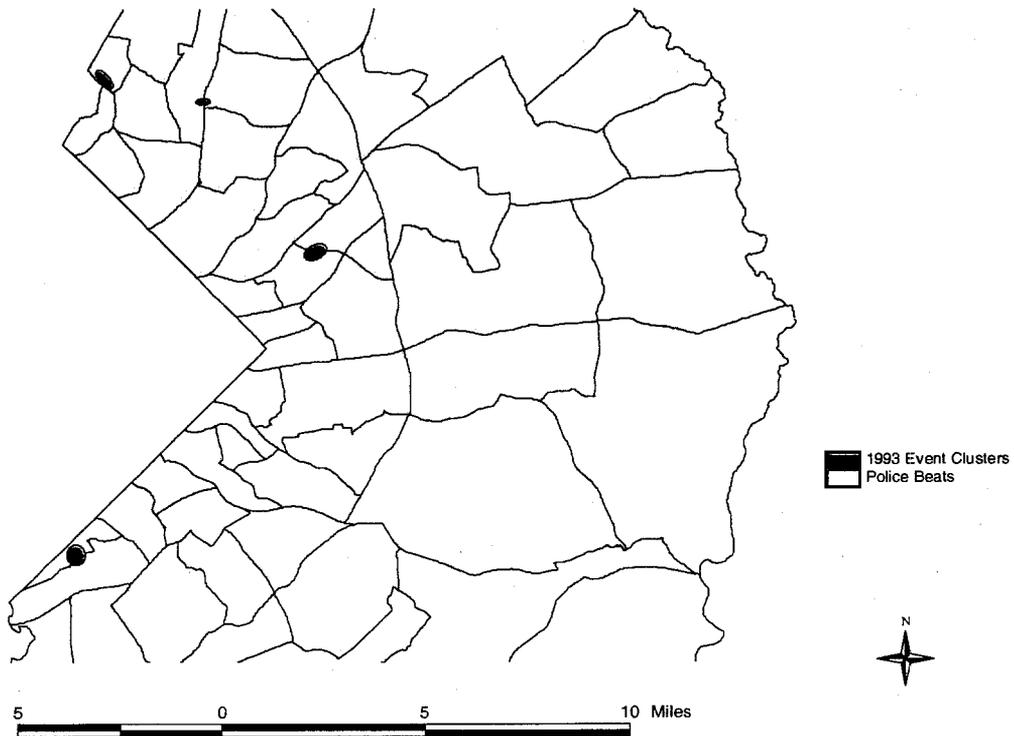


Figure 7: 1994 Event Clusters

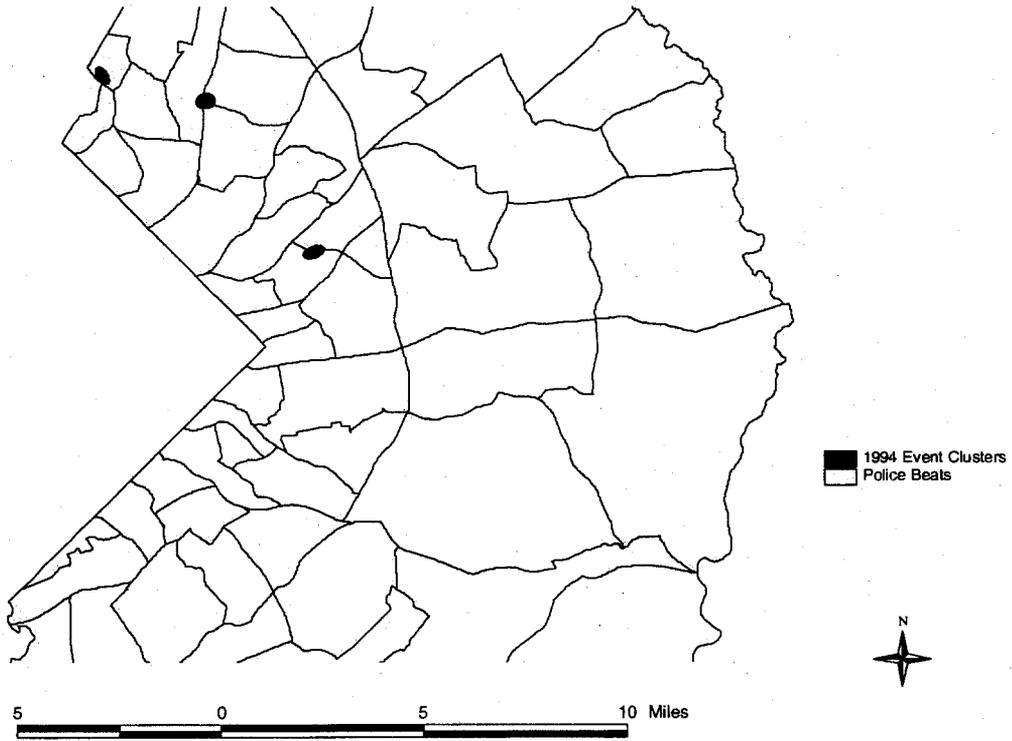


Figure 8: 1995 Event Clusters

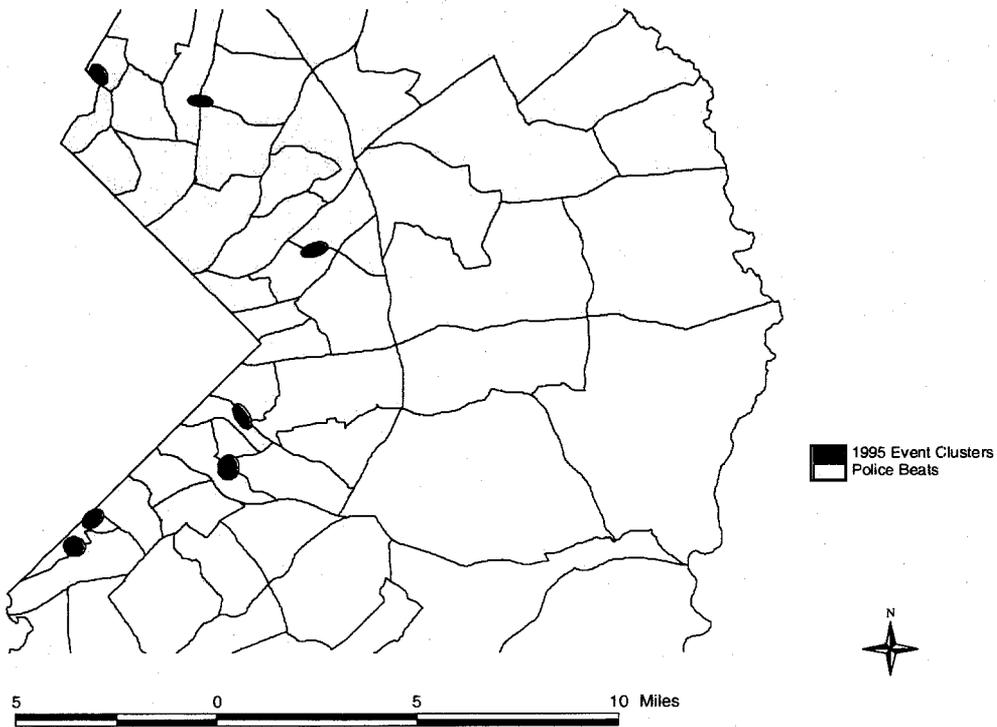


Figure 9: 1996 Event Clusters

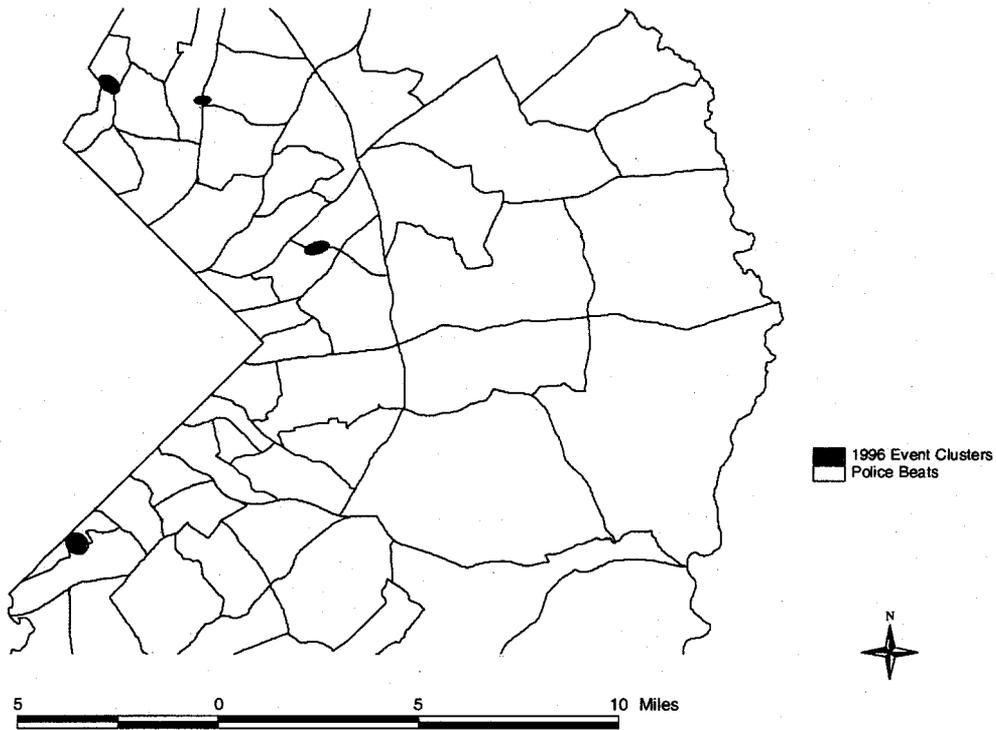


Figure 10: 1997 Event Clusters

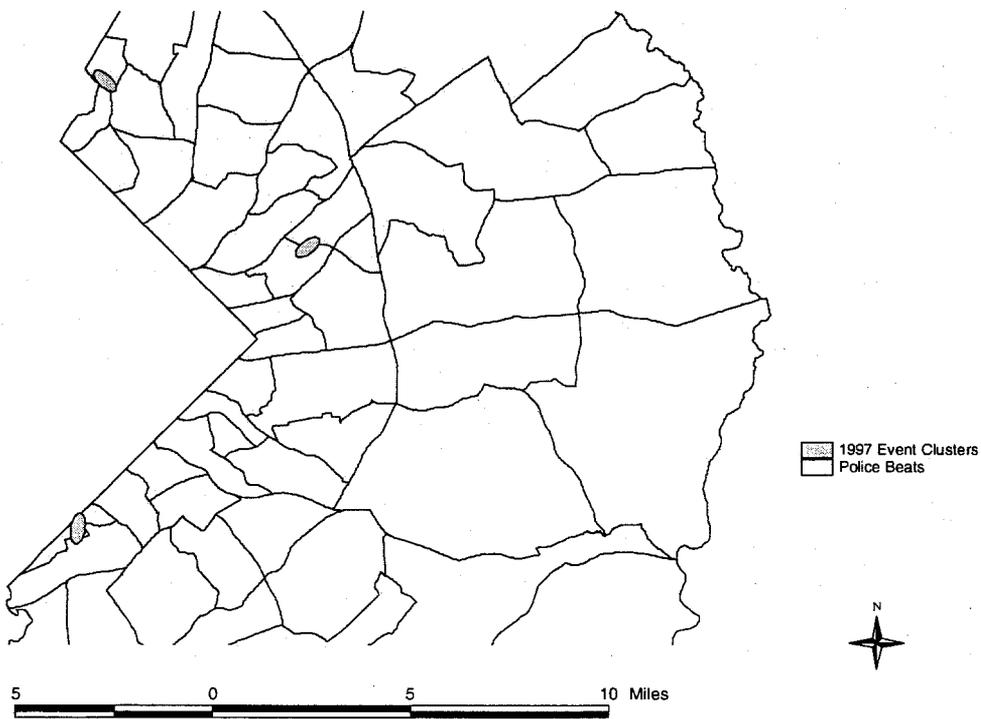


Figure 11: 1998 Event Clusters

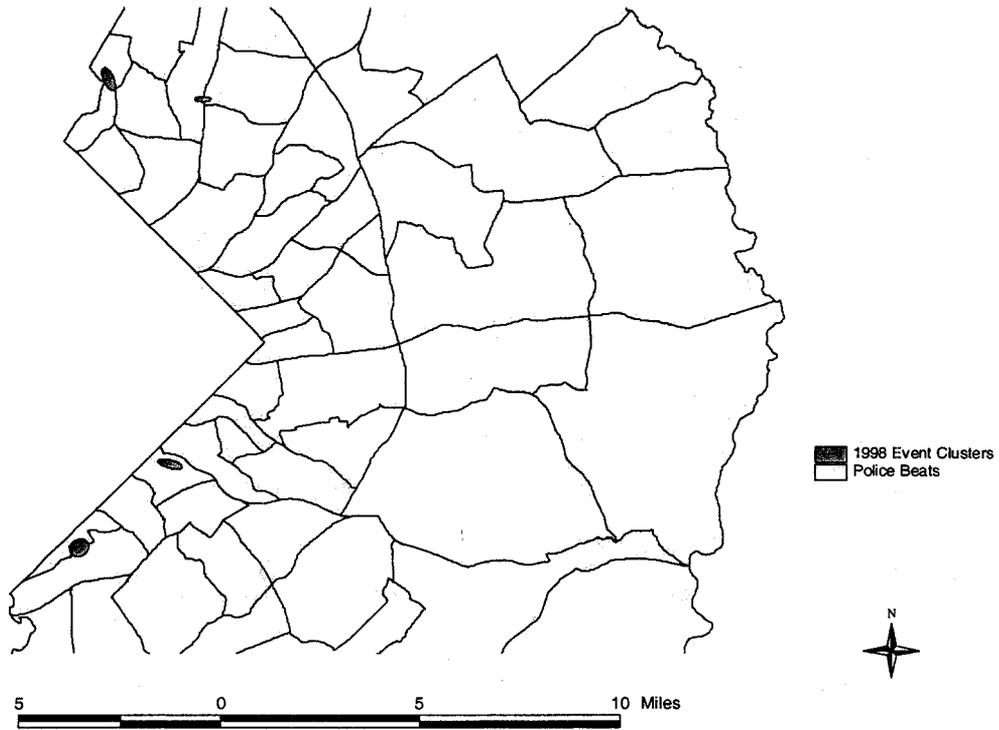


Figure 12: 1992-98 Event Clusters

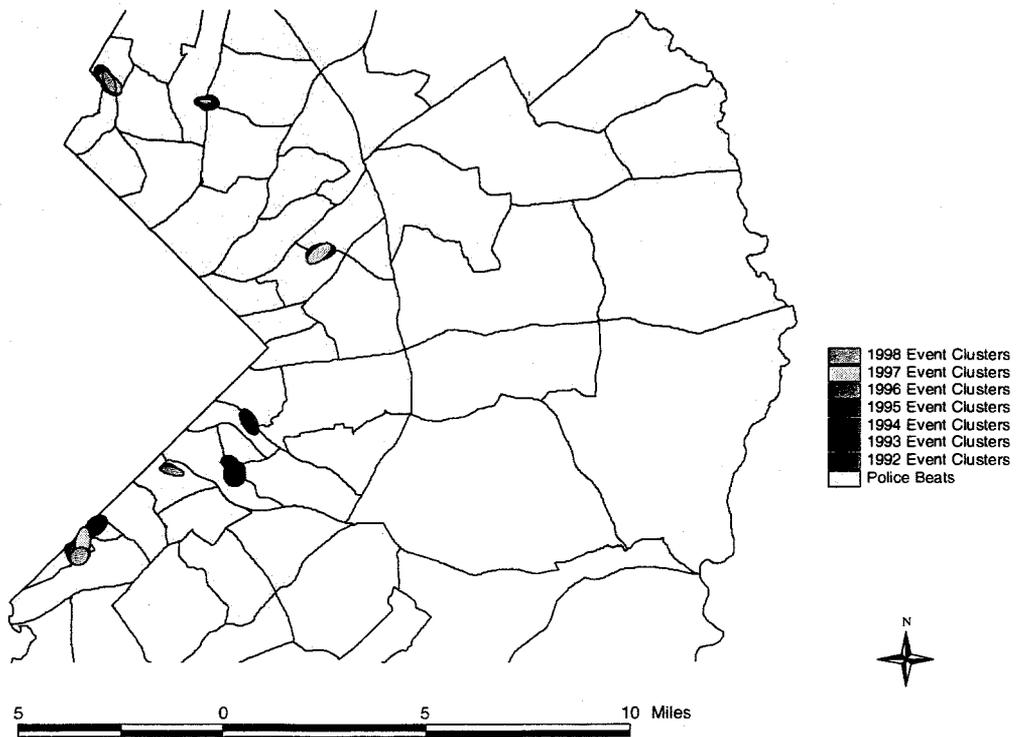


Figure 13: June 1996 Event Clusters

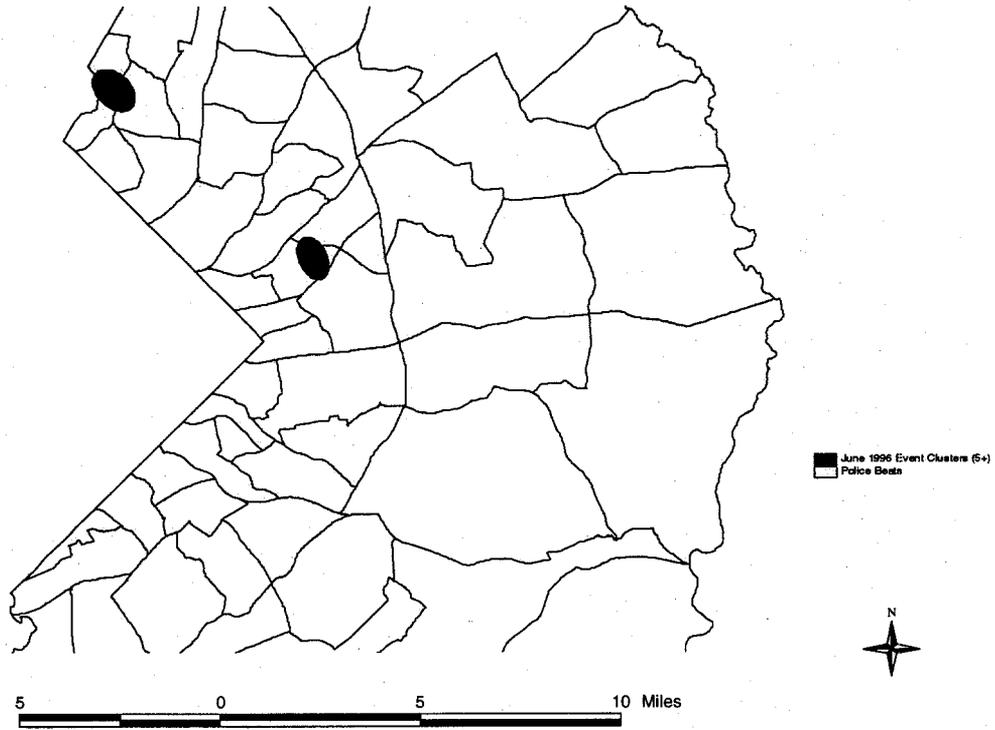


Figure 14: July 1996 Event Clusters

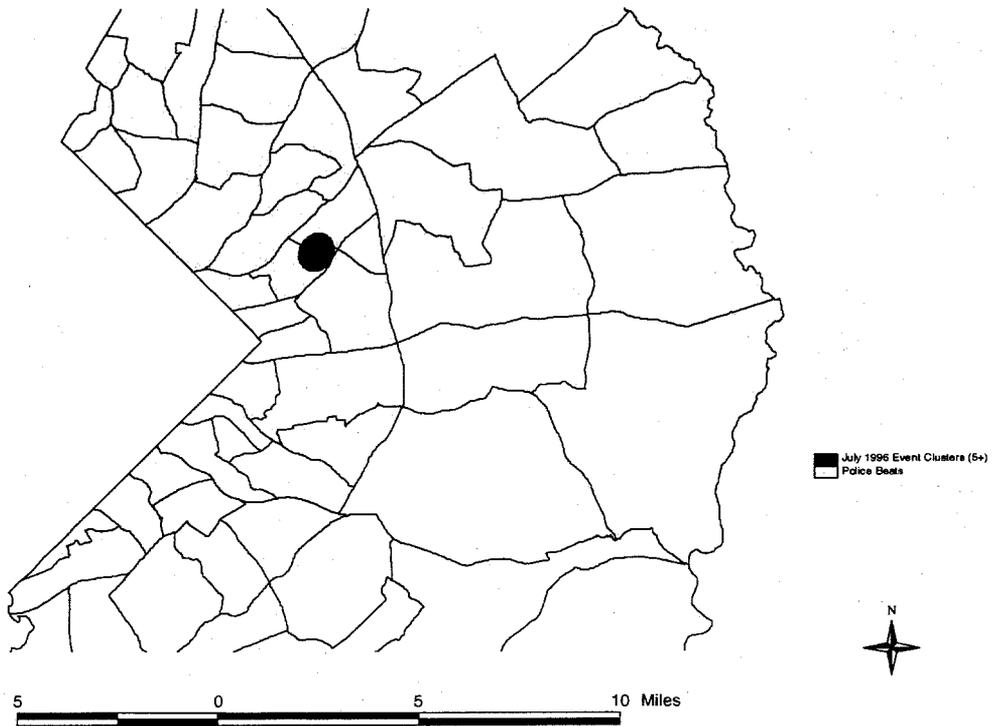


Figure 15: August 1996 Event Clusters

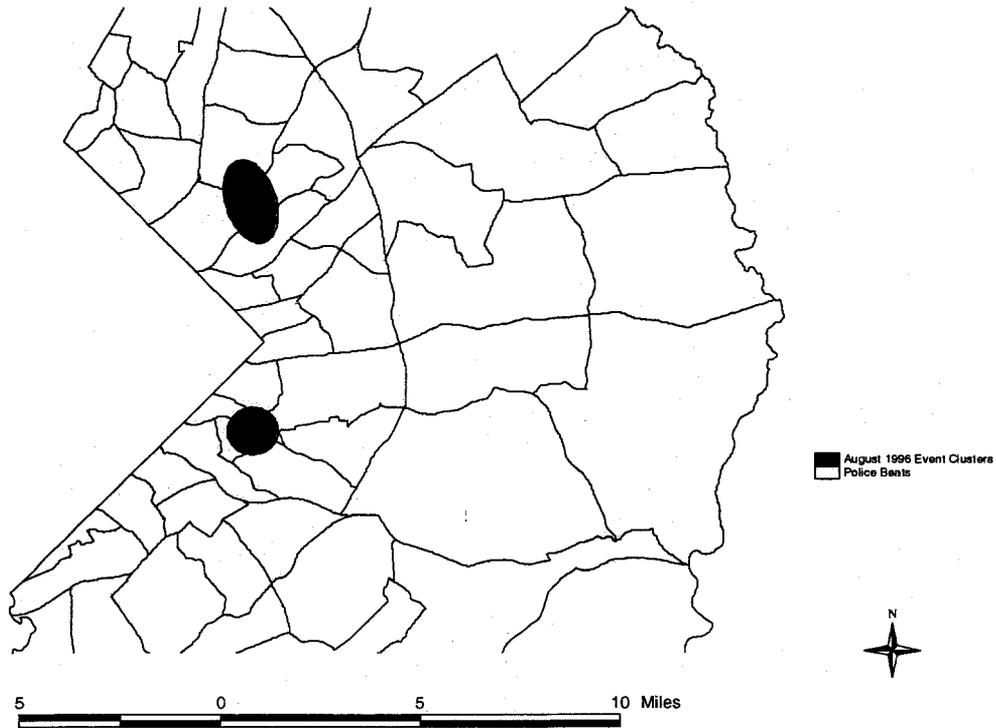


Figure 16: September 1996 Event Clusters

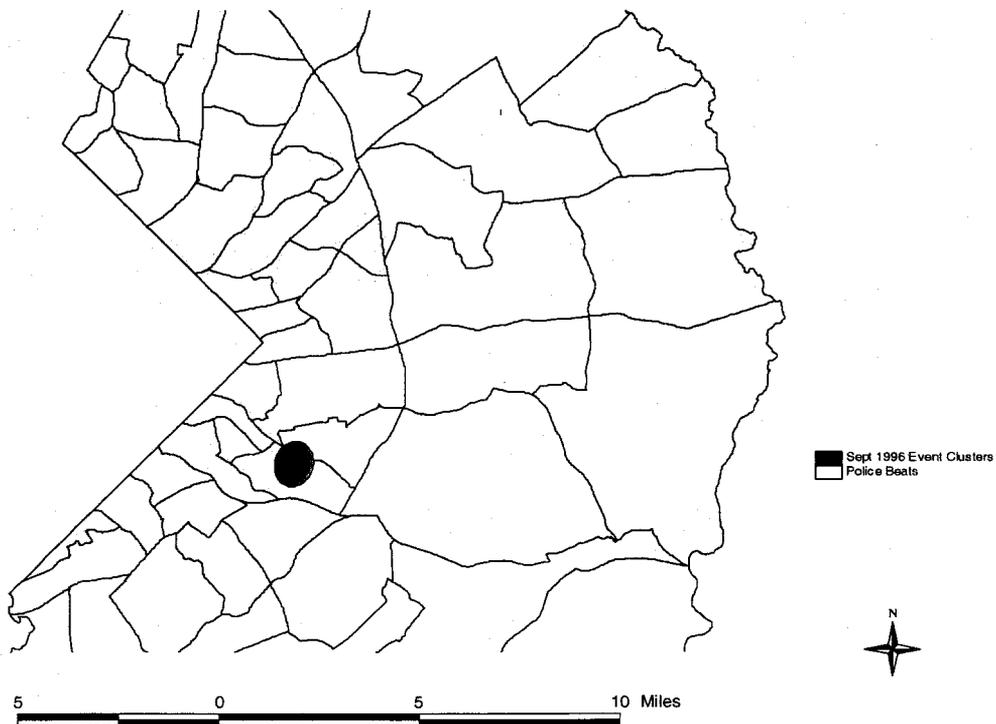


Figure 17: October Event Clusters

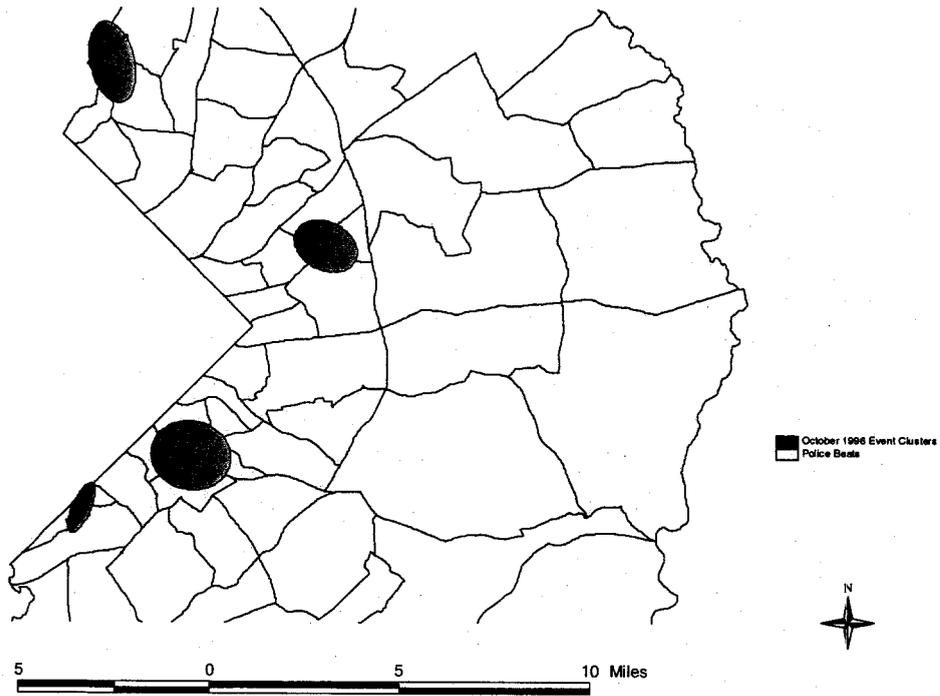


Figure 18: November Event Clusters

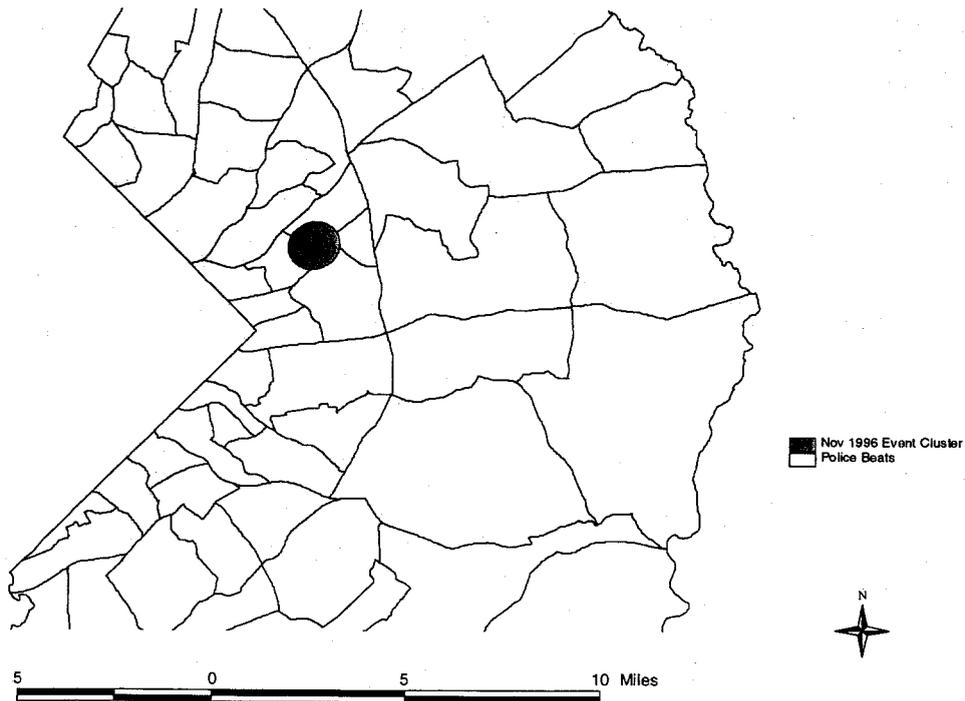


Figure 19: Jan.- June versus July - Dec. 1996 Event Clusters

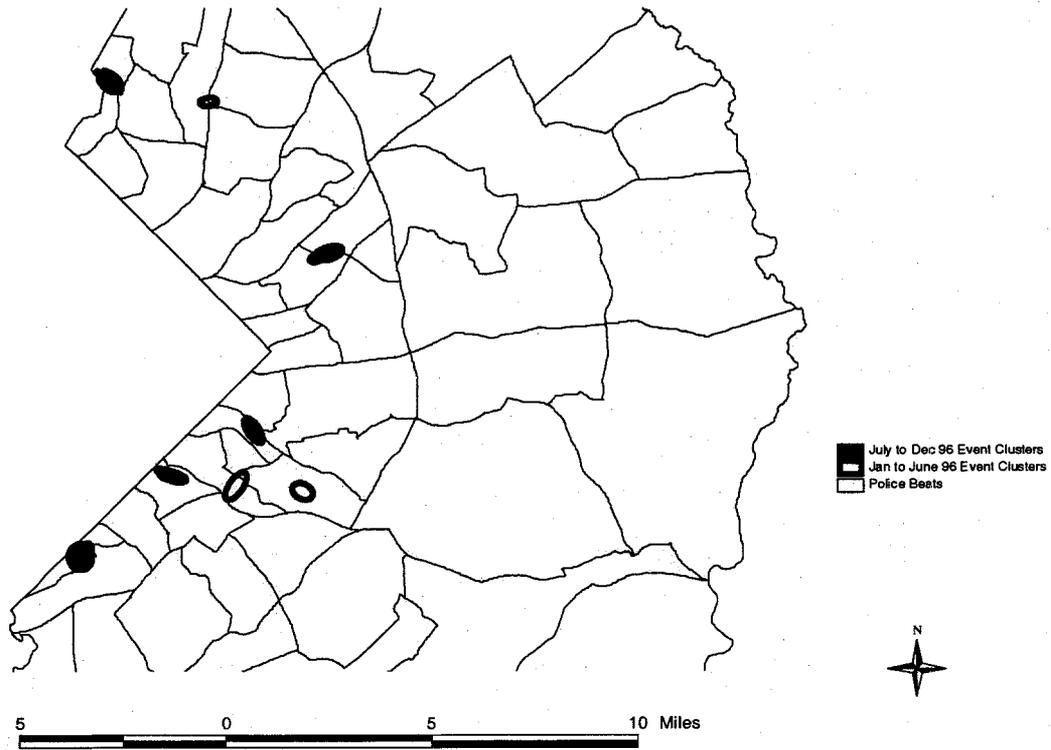
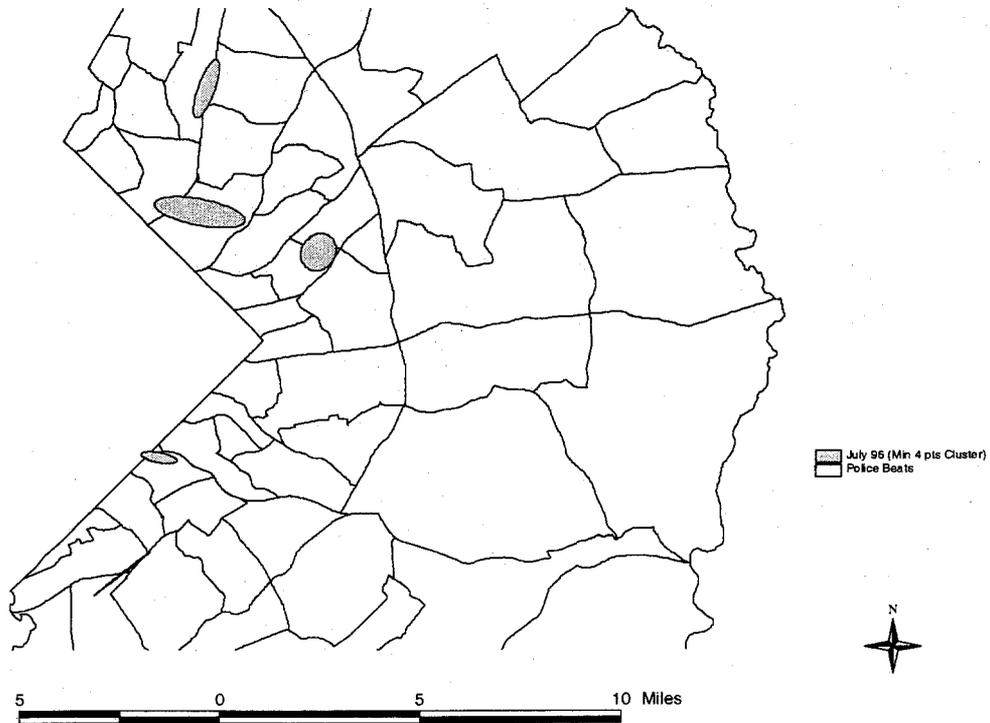


Figure 20: July 1996 Event Clusters- Four Event Minimum



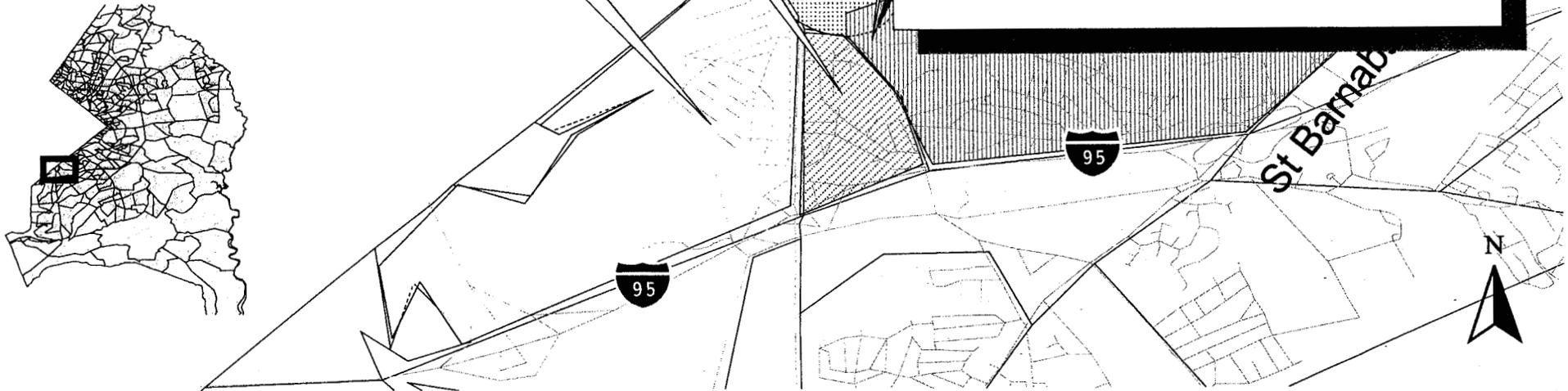
**Figure 21**  
**Prince George's County, MD**  
**Block Group Demographics for Glassmanor Area**

MD 003 Tract 8015 BG 1  
 Tot Population: 1,229  
 Tot Aged 12-16: 100  
 Tot Aged 17-24: 148  
 Tot Housing Units: 408  
 Square Miles: ~.33  
 Med Income: Ranked 3rd lowest  
 Poverty: 5.7% of Tot Pop

MD 003 Tract 8016 BG 1  
 Tot Population: 3,603  
 Tot Aged 12-16: 282  
 Tot Aged 17-24: 533  
 Total Housing Units: 1,424  
 Square Miles: ~.29  
 Med Income: lowest [\$33K and under]  
 Poverty: 5.6% of Tot Pop

MD 003 Tract 8015 BG 2  
 Tot Population: 1,648  
 Total 12-16: 116  
 Total 17-24: 159  
 Tot Housing Units: 525  
 Square Miles: ~1.63  
 Med Income: Ranked 3rd lowest  
 Poverty: 1.2% of Tot Pop

MD 003 Tract 8017.03 BG 1  
 Tot Population: 9,701  
 Tot Aged 12-16: 761  
 Tot Aged 17-24: 1,404  
 Tot Housing Units: 3,428  
 Square Miles: ~1.34  
 Med Income: 2nd lowest [\$40K and under]  
 Poverty: 9.6% of Tot Pop



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