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The Relationship between SLUP6 Businesses and Negative Outcomes in DeKalb County

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Executive Summary

DeKalb County, Georgia passed a statutory provision to subject the following businesses to a special land use permitting process: 1) auto repair shops, 2) convenience stores and gas stations, 3) fast food restaurants, 4) liquor stores, 5) pawn shops, and 6) check cashing outlets. The ordinance contends that the proliferation of these "SLUP6" businesses is associated with negative public safety, public health, and economic development outcomes. This report systematically assesses this contention. A review of the existing statutory landscape uncovered ample evidence of suburban and urban jurisdictions subjecting these sorts of businesses to special permitting processes. The published literature reveals a number of rigorous studies documenting significant relationships between SLUP6 businesses and negative public safety, public health, and economic development outcomes. The literature documents associations between retail alcohol outlets and neighborhood rates of crime, payday lending/ pawn shops and crime, fast food restaurants and public health, gas station convenience stores and public health, and auto body shops and property values. These impacts are frequently shown to be stronger in predominantly minority and lower SES communities. Upon accessing and cleaning relevant data from DeKalb County agencies, the Georgia Department of Public Health, the Atlanta Regional Commission, and the U.S. Census Bureau, we conducted a series of geospatial mapping analysis and statistical modeling exercises to explore the impact of SLUP6 business on the levels of crime, vehicle accidents, and residential property values in unincorporated DeKalb County. Statistical models suggest that the presence and proliferation of these businesses significantly increase the levels of crime and auto accidents and decrease residential property values in the surrounding areas. In most cases, the changes represent more than two-fold increases over what are experienced in areas that do not have licensed SLUP6 businesses. These associations remain

stable when holding constant relevant factors such as levels of poverty, population, racial composition, other business types, and the age or condition of homes in the area. Specifically,

- Holding constant poverty, race, and population, each additional SLUP6 institution located in a census tract at the end of 2012 is associated with an increase in the 2013-2015 violent crime count of 5.5% for that census tract. The following net increases in violent crime counts were observed for the individual SLUP6 types: auto repair shops (6.4%), gas station/convenience store (13.2%), liquor stores (50.5%), fast food restaurants (31.8%) pawn shop or check cashing outlets (98.3%). These net violent crime increases exceeded those observed in census tracts containing a bank, grocery store, or full service restaurant.
- Overall, 2013-2015 violent, property, and public order crime counts more than double in census tracts that added certain types of SLUP6 businesses 2010-2012 compared to those tracts that did not.
- Blocks that contained a fast food restaurant at the end of 2012 experience 69.0% more auto crashes in 2014-2015 than blocks that do not have a fast food restaurant and those that contain an auto body shop have 141% more crashes than blocks that do not. These increases exceed the levels experienced for other types of businesses.
- Blocks containing two or more auto repair, convenience/gas station or fast food establishment within 1,000 feet of another at the end of 2012 experienced much higher levels of crime and auto crashes in subsequent years than those blocks with only one such on it.
- The presence of any SLUP6 business on a block in 2015 significantly decreases its residential property values that year by an average of $13,519. One can expect with 95%

confidence that this change will range from $-24,912 to $-2,125 in median assessed value. The presence of a full service restaurant, grocery store or bank is linked to increases in residential property values (although these were not statistically significant). Specifically, the presence of a bank, grocery store, or full service restaurant increased median property value by $10,567 (with a 95% confidence interval of $-2,045 to $23,180).

Built Environments and Community Well-being

Legislation

There exists a statutory provision in DeKalb County, Georgia mandating a special land use permitting process for the following businesses: 1) auto repair shops, 2) convenience stores and gas stations, 3) fast food restaurants, 4) liquor stores, 5) pawn shops, and 6) check cashing outlets. The ordinance contends that the proliferation of these "SLUP6" businesses is associated with negative public safety, public health, and economic development outcomes. There exists a long tradition of legislative bodies imposing restrictions of location, density, and permitting rules associated with select types of land uses. The following text identifies a sampling of legislative efforts that apply to businesses that fall into the SLUP6 category. In 2009, Cleveland Ohio created a zoning requirement that requires 1,000 feet spacing between check cashing facilities and limits the number of these businesses to 1 per 20,000. In 2008, Mesquite, TX imposed a similar 1,000 feet spacing requirement. In addition, they require a 500 foot buffer from highways, and 200 feet from residential areas. They further must be housed in stand-alone single-use structures. Pima, AZ and Wauwatosa, WI created similar zoning restrictions (1320 feet from other non-chartered financial institutions and 500 feet from residential areas in Pima and 2500 feet from other cash businesses and 250 feet from residential areas in WI). Creve Coeur, MO limits the number of check cashing facilities to 1 per 15,000 residents, requires a 1000 feet spacing from other check cashing, pawn shops, alcohol serving businesses, gambling facilities, and drug treatment centers. Check Cashing and Pawn Shops have been subject to zoning requirements based on distance in Casa Grande, AZ, Sacramento, CA, Memphis, TN, and Springfield, IL, Salt Lake City, UT. They have been subject to zoning requirements related to density in Mesa, AZ, Peoria, AZ, Phoenix, AZ, Tempe, AZ, Tucson, AZ, Belleville, IL, Blue

Springs, KS, Shawnee, KS, Gladstone, MO, St. Joseph, MO, Las Vegas, NV, American Fork, UT, Green Bay, WI, and many others.

A number of cities have also legislated alcohol sales. For example, Denver, CO requires liquor outlets to be spaced at least 1,000 feet apart, as does Dawsonville, GA. Laurel, MD requires a special conditional use permit for liquor outlets, as does Los Angeles, CA. Polk, FL requires 1,000 or 2,500 feet distances from churches and schools for alcohol outlets. In San Antonio, TX, that distance is 300 feet.

Fast food restaurants have also been subject to zoning laws. For example, in July of 2008, Los Angeles, CA passed a 1 year moratorium on opening or expanding fast food establishments. San Francisco, CA restricted fast food establishments in the Geary Boulevard sub-district. Detroit, MI requires a minimum distance of 500 feet between fast food outlets and schools. Calistoga, Truckee, and Cotati California all prohibit fast food in their historic downtown districts. Seaside and Carmel passed ordinances prohibiting new fast food outlets.

Literature Review – Linking SLUP6 Businesses to Public Health, Safety &Property Values

Researchers have systematically investigated the relationship between SLUP6 businesses and various negative social outcomes. Below we review the research on liquor stores and crime, fringe banking establishment and crime, fast food restaurants and public health, auto repair shops and property values, and gas stations and convenience stores and public health.

Retail Alcohol Outlets and Crime. Retail alcohol outlets are correlated significantly with violent crime (Berke et al., 2010; Bernasco & Block, 2011; Gruenewald et al., 2006). For example, in a study of 1,637 zip codes in California, Gruenewald and colleagues (2006) found that the rate of assault was significantly increased in areas that had a higher density of off-premise alcohol outlets (this excludes bars). Interestingly, they found that the density of bars

was not significantly correlated with assault. Paralleling this finding, in a study of 74 larger cities in Los Angeles County, CA, there was a strong correlation (r = .47) between off-site alcohol outlet (i.e., liquor store) density and violent crime rates. This association held in multivariate analyses that controlled for median income, % unemployed, % Black, % Latino, % female headed households, ratio of males in the city between 20-29 to males 40-44, total population, and number of households in the city. Moreover, this finding extends to robbery. In a study of 24,594 census blocks in Chicago, Bernasco and Block (2011) find that for each additional liquor store, the expected number of robberies is increased by 67%.

These impacts of alcohol retail outlets may be most pronounced in areas that are impoverished or predominantly minority. For example, Berke and colleagues (2010) reported in the *American Journal of Public Health* that alcohol density was increased in Latino communities. Specifically, they find that "In high proportion Latino communities, retail alcohol density was twice as high as the median density." In addition, they conclude that "greater density of alcohol retailers was associated with higher levels of poverty and with higher proportions of Blacks and Latinos in urban census tracts."

Fringe Banking (Pawn Shops/Check Cashing) and Crime. Pawn Shops are what Brantingham and Brantingham (1995) call "crime attractors." These are intuitions that provide specific opportunities for crime. They are places that "make them well suited for motivated offenders to find attractive and weakly guarded victims or targets" (Bernasco & Block, 2011, 45). In an analysis of 75,065 robbery incidents recorded by the Chicago Police Department between 1996-1998, Bernasco and Block find that each additional pawn shop or check cashing establishment increase the rate of Robbery by 53%. Similarly, in their study of "fringe banking" and crime, Kubrin and colleagues (2011) studied 116 census tracts in Seattle, WA. They find a

strong and statistically significant association between the number of payday lending establishments and both violent (r = .48) and property (r = .56) crime. This association between payday lending establishments and both violent and property crime hold in multivariate models that adjust for neighborhood disadvantage, the rate of young males in the tract, residential instability, the % of female-headed households, distance from the central business district, and the population size of the census tract. Kubrin and colleagues (2011, 464) conclude that their findings "indicate that important broader community costs also might persist – such as exposure to crime – that all residents pay when they reside in neighborhoods with a concentration of payday lenders."

Fast Food and Public Health. Scholars have documented an association between consumption of fast food and obesity at the individual level. Aggregate studies show that the prevalence of fast food establishments are correlated with increased obesity as well (Davis and Carpenter, 2009). For example, Morland and Evenson find that the prevalence of obesity was multiplied by 1.36 times for each additional fast food franchise. After adjusting for individual-level covariates, the prevalence of obesity was still increased by the presence of fast food franchises (PR = 1.30). Similarly, Alter and Eny (2005) found that the density of fast food restaurants was significantly correlated with mortality (AOR = 2.52) and acute coronary hospitalizations (AOR = 2.62). Specifically, they find that areas with 0-9.5 fast food restaurants per 10,000 population had a 35.2% lower mortality rate than areas with 9.6-19.2 fast food restaurants per 10,000 population. Moreover, the areas with the lowest rate of fast food establishments had a 62.4% lower rate of mortality, compared with those areas with the highest rate of fast food restaurants (19.3 establishments per 10,000 population, or higher). In a separate state-level analysis, Maddock (2004) found that the number of fast food restaurants per square

mile was significantly associated with obesity rates. Indeed, in a state like Georgia, which had the 36th highest rate of obesity, the state was ranked 28th for the most fast food restaurants per square mile (140). This leads Maddock to conclude "... advocacy for health-promoting environmental change will become an important task for health-promotion practitioners" (142).

These impacts of fast food restaurants may be most exaggerated for individuals living in areas exhibiting low socio-economic status (SES).[1] For example, in a study of 269 postal districts in Australia, Reidpath and colleagues (2002) found that people living in the lowest SES areas had 2.5 times the exposure to fast food restaurants of those living in the highest SES areas. Specifically, for those in the lowest category of SES, there were 5,641 people per one fast food restaurant. In the highest category of SES, there were approximately 14,256 people per one fast food restaurant. This indicates increased density of fast food establishments in poorer areas. This research was replicated in Scotland and England, where Cummins and colleagues (2005) found that the most socioeconomically disadvantaged areas had significantly more McDonald's restaurants per capita than the less disadvantaged areas. For example, in the most deprived 20% of areas, there were .03 and .025 McDonald's restaurants per 1,000 citizens in England and Scotland respectively. In contrast, in the highest 20% of areas in SES, the comparable rates were .007 and .004 for England and Scotland respectively. These patterns also hold in the U.S. For example, a study in New Orleans found that median household income and the percentage of residents who were Black both significantly correlated with fast food outlet density (Block, Scribner & DeSalvo, 2004).

[1] Socioeconomic status is a term used to refer to the relative social status or class of an individual, group, or geographic area. This concept is generally measured using a combination of education, income, and occupational indicators.

Auto Body Shops and Property Values. There is some evidence that automotive repair shops may be correlated with lower residential property values. For example, Saphores and Aguilar-Benitez (2005) find that "smelly polluters" such as car paint and body shops reduce residential property values by approximately 3.4%.

Gas Stations and Convenience Stores and Public Health. Gas station/convenience stores have important impacts on the wellbeing of local communities. For example, Morland and Evenson (2008) found that the presence of convenience stores with gas stations was significantly associated with increased prevalence of obesity. Specifically, for every additional convenience store with a gas station, the prevalence rate of obesity was multiplied by 31%. In a summary of 54 studies in the U.S. between 1985 and 2008, Larson and colleagues (2009) summarized that neighborhood residents who have limited access to convenience stores have healthier diets and lower rates of obesity.

The impact of gas stations may vary by race and SES. For example, Franco and colleagues in their 2008 study of Baltimore found that the Healthy Food Availability Index of Black neighborhoods with convenience stores was 3.78, but white neighborhoods with convenience stores had a HFAI score of 5.05. Similarly, lower SES neighborhoods with a convenience store had an average HFAI score of 3.50, bug higher SES neighborhoods with a convenience store had an average HFAI score of 5.25. Higher scores on the HFAI indicate access to healthier foods. This suggests that Black neighborhoods with concentrations of convenience stores (primarily 7-11 type stores or gas station convenience stores) have lower access to healthy food options (see also Jago et al., 2007; Powell et al., 2007).

The Current Study

Study Setting

We were commissioned by the DeKalb County Law Department to conduct an independent analysis of the impact that the presence and proliferation of SLUP6 establishments have on the surrounding areas. The analysis was concentrated on unincorporated areas of the county which is comprised of 111 census tracts and 4,463 blocks.[2] We received annual business license data for 2010-2015. There were 21,444 businesses licensed in unincorporated DeKalb County over that time period, with the number in any one year not dropping below 16,000. We hand cleaned this file using Google Maps to increase the precision of businesses listed in the various categories of interest. We concentrated our analysis of SLUP6 businesses licensed for operation during the time period of 2010-2012.[3] During this period, the total number of licensed auto repair shops, check cashing establishments, pawn shops, convenience store/gas stations, fast food restaurants, and liquor stores increased significantly. **In 2010, 753 SLUP6 businesses were located in 84 of the 111 census tracts comprising unincorporated DeKalb County.[4] By the end of 2012, there were 875 SLUP6 businesses located in 85 different census tracts.** In 2010, there were 344 auto repair shops spread across 66 census tracts. By 2012, there were 386 located in 68 different tracts. In 2010, there were 231 businesses comprising the convenience store or gas station category; they were located in 71 different census tracts. By the end of 2012, there were 287 in 75 different tracts. In 2010, there were 92 fast food restaurants located in 44 census tracts. By the end of 2012, the number increased to 93. In 2010, there were 33 licensed liquor stores

[2] The average census block covers .044 square miles of land area while the average census tract covers 1.73 square miles. On average, there are 39 blocks in a block group. The population for a census block group ranges from 600 to 3,000. The population range for census tracts is 1,590-16,588.

[3] Some of the multivariate analyses target 2013 or 2015 to assure temporal ordering with variables of interest.

[4] These 111 census tracts are further partitioned into 270 census blocks and 4,463 face blocks.

spread across 28 tracts. By the close of 2012, the number increased to 53 located in 37 different tracts. Pawn shops and check cashing establishments exist in smaller numbers than the other SLUP6 categories. The literature routinely lumps these businesses together under the heading of "fringe banking outlets." In line with the literature and to allow for a more stable multivariate analysis, we combined pawns shops and check cashing establishments into a single category. In 2010, there were 50 of these businesses located in 29 different census tracts of unincorporated DeKalb County. By the end of 2012, the number increased to 51 located in 30 census tracts.

The central premise of the SLUP6 ordinance is that certain businesses are related to negative social outcomes while others are not. **We attempted to assess this premise by conducting parallel analyses on businesses that provide similar services or have similar features as SLUP6 establishments but are generally thought to have a more positive impact on the surrounding areas. In particular, we identified full service restaurants, grocery stores, and banks for this counterfactual analysis.** Full service restaurants represent a good contrast to fast food restaurants, as they tend to attract a more affluent and law abiding clientele, generate less auto traffic in and out of the establishment due to longer meal times and a lack of a drive-thru window, and are believed to enhance real estate values. Grocery stores provide a solid comparison group for liquor stores, convenience stores and gas stations, as they tend to be located in shopping centers as opposed to in a stand-alone format and sell goods deemed to be healthier for residents. Banks represent a meaningful contrast to fringe banking establishments such as pawn shops and check cashing establishments. Banks also allow for a viable comparison to fast food outlets in that both normally have a drive-up window but the stable hours and clientele of the former are seen as being more beneficial to the socio-economic well-being of the community than the latter. **The above mentioned business license database contained 350 full**

service restaurants located in 67 census tracts, 118 banks located in 35 different census tracts, and 87 grocery stores spread across 48 census tracts of unincorporated DeKalb County. On whole, the business license data above provides robust numbers of the business types of interest broadly distributed across the geographic area under study.

Negative Social Outcomes

The language of the SLUP6 ordinance, existing literature, and data availability led us focus our analysis on the following three outcome measures: crime, auto accidents, and residential property values. The DeKalb County Police Department provided data on all reported crimes in unincorporated DeKalb for 2010-2015. **We focus our analysis on reported crime data at the census tract level for 2013-2015. We consider all forms of crime but particular attention is paid to the relationship between the presence and proliferation of SLUP6 businesses and violent crime, as it is the greatest concern of the public and highest priority for public officials.** During that time period, the 111 census tracts in question experienced between 0 and 1918 overall reported crimes,[5] with an average 179 per tract. Counts of reported violent crime[6] varied from 0 to 315 incidents per tract with an average of 52. Property crime[7] levels varied from 0 to 1,287, with an average of 96 per tract. Public order offending[8] ranged from 0 to 362 crimes per tract, with an average of 41.

Next, we attempted to access reliable data that would allow for a meaningful assessment of the relationship between SLUP6 businesses and negative public health outcomes. We

[5] Overall crime is a count of the number of auto thefts, burglaries, breaking and entering of an automobile, robberies, shoplifting, thefts, receipt of stolen property, robberies, curfew violations, damaged property, narcotics violations, obstructing a police officer, peeping toms, prostitution, assaults, sex offenses, rapes, weapons violations and homicides.

[6] Violent crime included assault, robbery, rape and other sex offenses, weapons violations, and homicide.

[7] Property crime included auto theft, burglary, B&E of an automobile, robbery, theft, shoplifting, and receipt of stolen property.

[8] Public order crimes included trespassing, curfew violations, damaged property, narcotics offenses, obstructing a police officer, peeping toms, and prostitution calls.

attempted to locate data on obesity or heart disease. Unfortunately, there does not exist population based data on obesity for DeKalb County or any other county in the state. While the Behavioral Risk Factor Surveillance Survey yields obesity estimates for adult residents of DeKalb County and the Youth Risk Behavior Survey provides similar data on high school students, both of these data collection efforts rely on non-geo-located samples and are not amenable to the present inquiry that must be able to reliably differentiate between obesity levels in one area of the county relative to another area. The lack of geo-located obesity data led us to turn elsewhere for this dimension of our analysis. The Georgia Department of Public Health maintains a database on all emergency room admissions and hospital discharges in the state. A disease/event code is assigned to each case and data is collected on the person's current address. The dataset contains a number of codes for cardiovascular events such as heart attacks, strokes, and heart disease. We considered these data as viable source of data on cardiovascular events but found that data precision issues and privacy protections compromised their utility for our analysis. The Department of Public Health also maintains data on all auto accidents occurring in the state. Auto accidents represent a significant public health concern. Moreover, given the visibility of these events as well as insurance requirements, state authorities are able to compile reliable data on auto accidents. These data are publicly available and geocoded down to the address level. Substantively, the high levels of access and egress associated with SLUP6 businesses and the corresponding increased risk of traffic accidents is one of the primary concerns that prompted them being subject to licensure restrictions. As such, we analyzed any traffic accident reported in 2014-2015 that occurred in unincorporated DeKalb. **We chose to focus the auto accident analysis only on fast food, auto repair, gas stations/convenience stores, as this subset of SLUP6 businesses is associated with high traffic volume entering**

and exiting the location while pawn shops, liquor stores and check cashing establishments are not. These data were compared to crash data for face blocks containing a bank, grocery store, and/or full service restaurant. Given the high volume of traffic accidents occurring along commercial thoroughfares, we were able to analyze their occurrence at the face block level as opposed to the broader census block group or tract level.[9] Unincorporated DeKalb County contains 4,463 face blocks. There are 1,773 of these face blocks containing one or more fast food restaurant, auto repair shop, or gas station/convenience store. From 2014 through 2015, the number of traffic accidents reported on these 1,773 face blocks ranged from 1 to 147 with an average of 6.8 accidents per block. For comparison purposes, we also analyzed auto accidents occurring on face blocks containing a bank, grocery store, and/or full service restaurant. The number of traffic accidents reported on these face blocks ranged from 0 to 47 with an average of 4.5 accidents per block.

Finally, we accessed the 2015 tax digest for DeKalb County to assess the relationship between SLUP6 businesses in operation at the start of 2015 and residential property values in the surrounding unincorporated area that same year. The relationship between SLUP6 businesses and property values was compared to the presence of banks, grocery stores, and full service restaurants. We focus this analysis at the face block level to allow for meaningful yet focused insights on the impact that these businesses have on the property values of adjacent parcels. A total of 198 of the 4,463 face blocks in unincorporated DeKalb County contained at least one residential property as well as one or more SLUP6 business in 2015 (auto repair, check

[9] The average census block covers .044 square miles of land area, while the average block group covers .71 miles and a census tract 1.73 square miles. On average, there are 39 blocks in a block group. The population for a census block group ranges from 600 to 3,000. The population range for census tracts is 1,590-16,588.

cashing, pawn, convenience, gas, fast food, or liquor).[10] There were a total of 522 SLUP6 businesses on these blocks. The 2015 median value of a residential property located on these blocks ranged from $2,000-$1.16 million.[11] The average median residential property value on SLUP6 blocks was $143,680. For comparison purposes, we also analyzed residential property values for 159 face blocks containing at least one parcel of residential property along with a bank, grocery store, or full service restaurant. There were 246 of these three types of businesses located on the face blocks under study.

Analysis Plan

Once we collected and cleaned the licensure, crime, crash, and property value data above, the next step was to conduct a series of empirical exercises on these data. We did so in two ways. First, we used GIS software to provide a series of visual representations of the relationship that exists between the presence of specific business types and negative social outcomes. Maps are presented in the text and appendices of this report to provide a simple picture of how the presence of SLUP6 relate to subsequent levels of crime[12] and auto crashes.[13] While the maps that are presented in the text below and attached appendix are visually pleasing and intuitive, they provide a rudimentary tool through which to assess the relationship between the presence of certain types of businesses and negative social outcomes. The existing literature shows that socio-economic factors are relevant to the relationships and must be simultaneously factored into the equation. As such, the second step in our analysis plan involved a estimating a series of multivariate statistical models that allows us to capture the effect that SLUP6 businesses have on

[10] We elected to use face blocks as opposed to the larger block group unit of analysis to reflect the fact that tax assessors focus on block faces when setting residential property values. As such, we accepted excluding from our analysis many blocks with no residential properties in order to produce the most accurate estimates possible.
[11] The low end of this range is the result of empty residential parcels located in depressed areas of the county.
[12] We map the locations of businesses at the end of 2012 against cumulative crime counts for 2013-2015.
[13] We map the locations of businesses at the end of 2012 against auto accidents in 2014-2015.

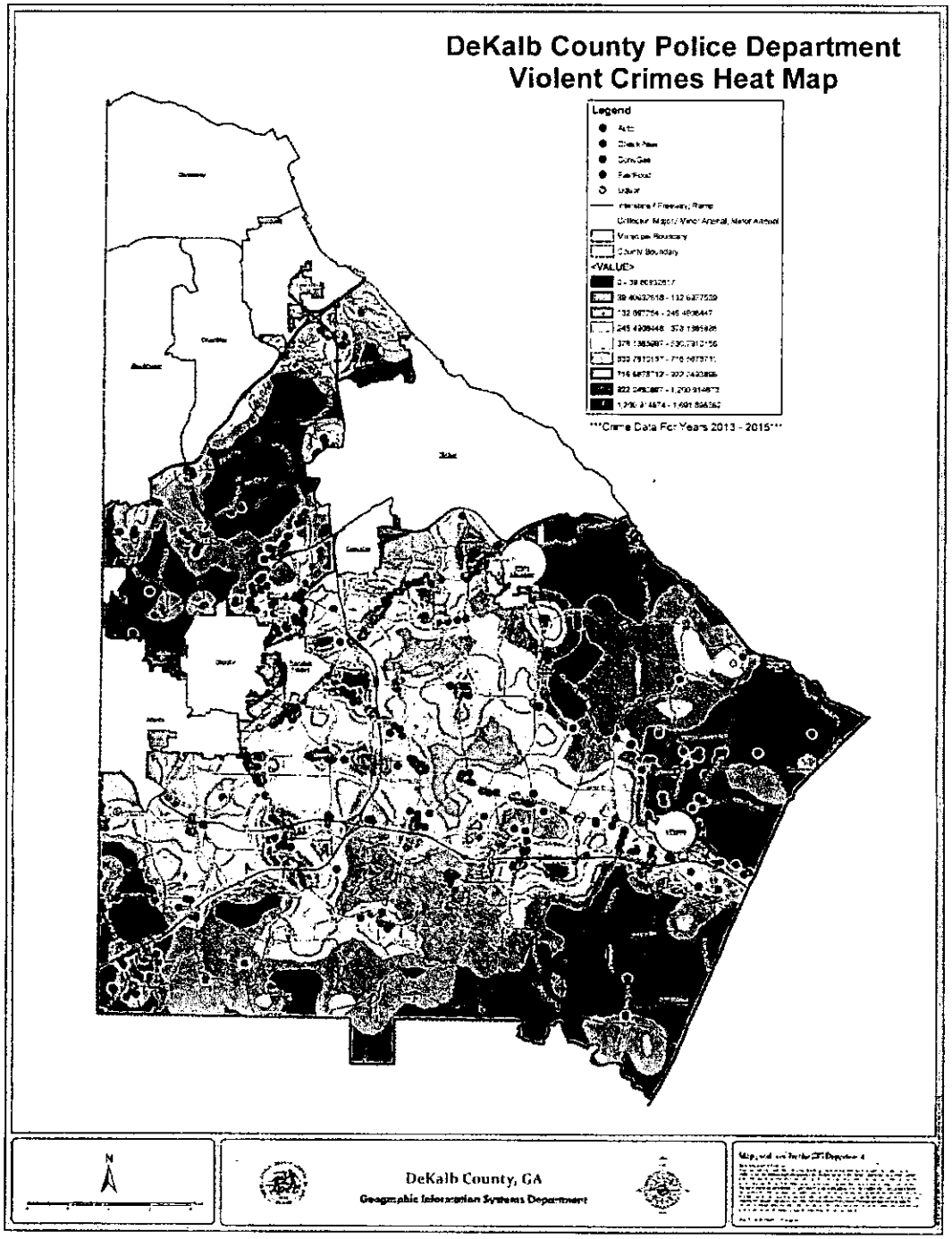
crime, crashes, or property values while holding constant other relevant predictor variables. These models provide a more complete and substantively meaningful approximation of the effect of SLUP6 presence and proliferation.

Results

Crime Analysis

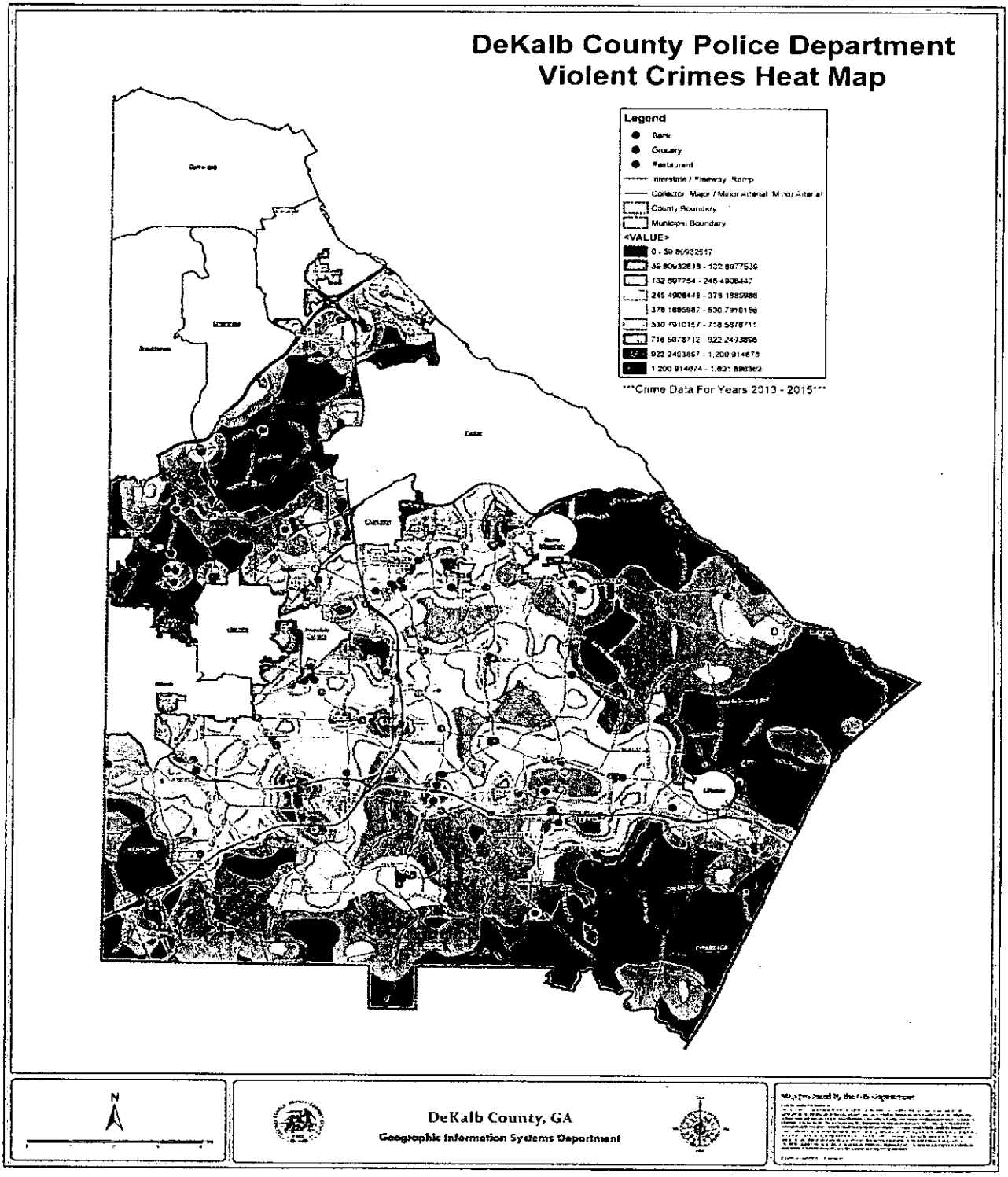
The map below provides a visual representation of the bivariate (1-on-1) relationship between the location of licensed SLUP6 businesses at the end of 2012 and occurrence of 2013-2015 violent crimes. Research on the relationship between crime and land use suggests that it takes some time for new land uses to impact the social dynamics (e.g., crime) of the surrounding community. We chose to focus on violent crime, as it is the greatest concern of the public and highest priority for public officials. That said, the appendix to this report provides maps for all crimes as well, broken out for all of the categories of businesses detailed in the text of the report. In the map below, red dots represent the location of the 386 auto repair shops licensed to operate by the end of 2012.[14] Royal blue dots represent 51 check cashing or pawn shops, green dots 287 gas stations or convenience stores, purple dots 93 fast food restaurants, and light blue dots 53 liquor stores. Referring to the background shading of the map, red depicts those areas with the highest levels of reported 2013-2015 violent crime, yellow illustrates moderate levels of violent crime, and blue shading shows the low crime areas. **With the exception of auto repair shops (red dots), one notes that the SLUP6 businesses are largely concentrated in the areas with moderate to high levels of reported violent crime.**

[14] Business licenses are issued annually in DeKalb County. Year to year the county experiences some turnover in the number of establishments classified under the various types of businesses, as new locations come on line or others close or the location gets repurposed into a different business type. For all crime-based maps and multivariate analyses we use licensure data for 2012 and crime data from 2013-2015 to assure proper temporal ordering of the relationship under consideration.



The next map plots the location of grocery stores, full service restaurants, and banks onto a heat map of violent crime in unincorporated DeKalb County. Pink dots denote the location of

the banks, light green dots grocery stores, and light blue dots full service restaurants.



Notice that many more of these non-SLUP6 business types are located in low crime areas. While there is a relationship between crime and these types of businesses, it is less pronounced than what is observed for the SLUP6 businesses.

Next we estimated multivariate models that take into account the distribution of the 2013-2015 crime counts (negative binomial regression models) but simultaneously hold constant population size (number of people in the census tract), race (% black) and poverty (proportion below the poverty line) based on the 2010 decennial census and the 2014 American Community Survey. The results of those models are presented below. **Overall, there are statistically significant associations between SLUP6 institutions (measured as a count at the end of 2012) and 2013-2015 crime counts at the census tract level, holding constant population size, racial composition and poverty**.

Crime and SLUP6 institutions. For each additional SLUP6 institution (auto repair, check cashing, pawn, convenience, gas, fast food, or liquor) located in a census tract of unincorporated DeKalb County at the end of 2012, the 2013-2015 total reported crime for the area increased by 6.6%, holding constant population, race and poverty. **Each additional SLUP6 institution is associated with an increase in the violent crime count of 5.5% for a census tract, holding constant population, race and poverty levels in the area.** Corresponding changes in the property crime and public order crime counts were shown to be 6.9% and 6.0%. All of the above changes in crime count variables were statistically significant ($p < .05$), except the public order numbers. These findings are consistent with those observed in the previous studies.

Crime and Gas Stations and Convenience Stores. The multivariate models also allow us to estimate the unique impact that the individual SLUP6 business types have on the levels of reported crime in the surrounding census tract. **Controlling for the influence of population,**

race, and poverty, levels of all variants of reported crime occurring in a census tract are consistently and strongly associated with increased numbers of gas stations and convenience stores in the area. For each additional gas station or convenience store located in a census tract of unincorporated DeKalb County at the end of 2012, the 2013-2015 total reported crime for the area increased by 14.6%, holding constant population, race and poverty. **Each additional gas station/convenience store located in a census tract at the end of 2012 is associated with an increase in the 2013-2015 violent crime count of 13.2%, holding constant population, race and poverty. This pattern of findings is consistent with those observed in prior studies (Berke et al., 2010; Bernasco & Block, 2011; Gruenewald et al., 2006; Brantingham & Brantingham, 1995; Bernasco & Block, 2011; Kubrin et al., 2011).** Corresponding changes in the property crime and public order crime counts were shown to be 15.1% and 13.2%. All of the above changes in crime count variables were statistically significant ($p < .05$).

Crime and Liquor Stores. **Controlling for the influence of population, race, and poverty, levels of all variants of reported crime in a given census tract are consistently and strongly associated with increased numbers of liquor stores in area.** For each additional liquor store located in a census tract of unincorporated DeKalb County at the end of 2012, the 2013-2015 total reported crime for the area increased by 61.3%, holding constant population, race and poverty. **Each additional liquor store is associated with an increase in the violent crime count of 50.5%, holding constant population, race and poverty. This finding is consistent with what has been observed in past studies (Berke et al., 2010; Bernasco & Block, 2011; Gruenewald et al., 2006).** Corresponding changes in the property crime and public

order crime counts were shown to be 68.5% and 57.0%. All of the above changes in crime count variables were statistically significant ($p < .05$).

Crime and Fast Food Restaurants. **Controlling for the influence of population, race, and poverty, levels of all variants of reported crime in a census tract are consistently and strongly associated with increased numbers of fast food restaurants in the area.** For each additional fast food restaurant located in a census tract of unincorporated DeKalb County at the end of 2012, the 2013-2015 total reported crime for the area increased by 42.3, holding constant population, race and poverty. **Each additional fast food restaurant in a census tract is associated with an increase in the violent crime count of 31.8%, holding constant population, race and poverty.** Corresponding changes in the property crime and public order crime counts were shown to be 48.6% and 36.2%. All of the above changes in crime count variables were statistically significant ($p < .05$).

Crime and Pawn Shops and Check Cashing Establishments. **Controlling for the influence of population, race, and poverty, levels of all variants of reported crime in a census tract are consistently and strongly associated with increased numbers of pawn shops and check cashing establishments in the area.** For each additional one of these "fringe baking" outlets located in a census tract of unincorporated DeKalb County in 2012, the 2013-2015 total reported crime for the area increased by 78.9%, holding constant population, race and poverty. **Each additional pawn shop or check cashing outlet in a census tract is associated with an increase in the violent crime count of 98.3%, holding constant population, race and poverty. This finding is consistent with those found in previous studies (Brantingham & Brantingham, 1995; Bernasco & Block, 2011; Kubrin et al., 2011).** Corresponding changes in

the property crime and public order crime counts were shown to be 51.6% and 61.7%. All of the above changes in crime count variables were statistically significant ($p < .05$).

Crime and Auto Repair Shops. **We observed a statistically significant relationship between the number of auto repair shops in operation in a given census tract and the levels of reported crime in that area for all crime types, except public order crimes.** For each additional auto repair shop located in a census tract of unincorporated DeKalb County at the end of 2012, the 2013-2015 total reported crime for the area increased by 7.1%, holding constant population, race and poverty. Each additional auto repair shop in a census tract is associated with an increase in the violent crime count of 6.4% in the area, holding constant population, race and poverty. Corresponding changes in the property crime and public order crime counts were shown to be 7.1% and 6.4%. All of these results were statistically significant ($p < .05$), except for public order crime.

Crime and Banks, Grocery Stores & Full Service Restaurants. As noted above, we conducted a series of counterfactual analyses to examine the premise that crime is more closely associated with the presence of certain types of businesses (i.e., SLUP6 entities) than others. We chose banks, grocery stores, and full service restaurants for the reasons detailed above. **We observed mixed findings with respect to the relationship between the presence of banks and levels of reported crime in a census tract** This is not surprising given the lack of a sound theoretical explanation to connect these two entities and the fact that we were unable to locate any previous studies designed to assess the relationship between auto repair shops and crime. For each additional bank located in a census tract of unincorporated DeKalb County, the 2013-2015 total reported crime for the area increased by 10.8%, holding constant population, race and poverty. Corresponding changes in the violent, property, and public order crime counts were

shown to be 9.8%, 11.0% and .9%. Only the observed change in property crime counts was statistically significant ($p < .05$).

We observed mixed findings with respect to the relationship between the proliferation of full service restaurants and levels of reported crime in a census tract. This finding is not surprising given the wide array of businesses falling under the heading of full service restaurants; everything from small single item eateries (i.e., specializing in wings or ice cream) to five-star restaurants are included in this analysis. For each additional full service restaurant located in a census tract of unincorporated DeKalb County at the end of 2012, the 2013-2015 total reported crime for the area increased by 6.2%, holding constant population, race and poverty. Corresponding changes in the violent, property, and public order crime counts were shown to be 6.3%, 6.2% and 5.4%. The observed change in total, violent, and property crime counts were statistically significant ($p < .05$) while the changes in public order crime levels were not.

We observed mixed findings with respect to the relationship between the proliferation of grocery stores and levels of reported crime in a census tract. This finding is not surprising given the wide array of businesses falling under the heading of full service restaurants; everything from small ethnic food outlets to massive crime attracting entities such as Walmart. For each additional grocery store located in a census tract of unincorporated DeKalb County at the end of 2012, the 2013-2015 total reported crime for the area increased by 38.8%, holding constant population, race and poverty. Corresponding changes in the violent, property, and public order crime counts were shown to be 34.2%, 41.3% and 33.8%. The observed net change in total, violent, and property crime counts were statistically significant ($p < .05$) while the changes in public order crime levels were not.

Overall, the above supplemental analysis targeting the presence of banks, grocery stores, and full service restaurants suggests that increased commerce (i.e., more businesses) is associated with heightened levels of crime in the surrounding area. These effects exist even when socioeconomic factors such as population density, racial composition, and poverty levels are held constant. While all businesses appear to lead to crime increases, our analysis suggests that businesses such as pawn shops, check cashing outlets, liquor stores, convenience stores, gas stations, and fast food restaurants are correlated with significantly more reported crime in the neighboring areas than are other businesses. We are unable to determine if the businesses produce or attract the crime outcomes.

Crime and the Change in SLUP6 Businesses over Time. Next, we created an indicator of change in the number of SLUP6 institutions (excepting auto repair shops given the lack of relationship detailed above) between 2010 and 2012. There were 49 census tracts that saw their number of pawn shops, check cashing outlets, liquor stores, convenience stores, gas stations, and/or fast food restaurants increase during this two year period and 62 that did not. We then related this change indicator (increasing versus not) to crime counts. **We note that for every crime measure (total, violent, property, and public order offenses), the 2013-2015 count more than doubled when comparing tracts that did not experience a 2010-2012 increase in SLUP6 institutions to census tracts that did experience increases. All differences were statistically significant ($p < .05$).** For example, in census tracts where the number of SLUP6 institutions (excepting auto repair shops) increased from 2010 to 2012, the average 2013-2015 total crime count was observed to be 267.4. That number dropped to 109.6 in tracts that did not experience an increase in SLUP6 businesses. Similarly, tracts experiencing an 2010-2012 increase in SLUP6 businesses experienced an average of 78.0 violent crimes during 2013-2015,

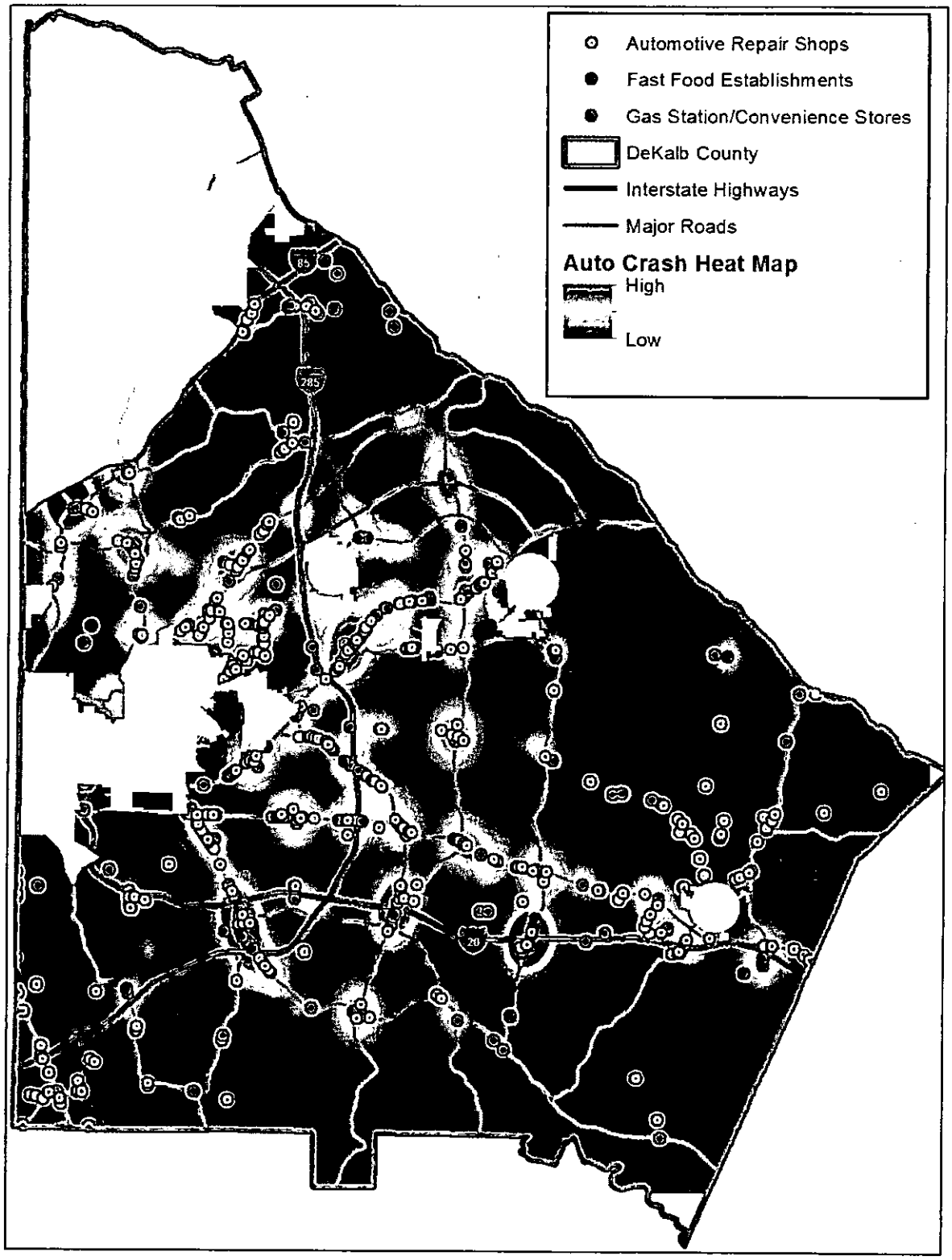
while areas not that did not experience SLUP6 proliferation saw 30.9 violent crimes during that same timeframe.[15]

We estimated negative binomial models that adjust these crime counts for the poverty rate, percent black, and number of individuals living in the census tract. The results below indicate the expected change in the crime counts for census tracts that experienced an increase in SLUP6 businesses to those that did not. **Holding these socio-economic factors constant, those tracts that saw SLUP6 (excluding auto repair shops) numbers increase 2010-2012 experienced a 139.4% growth in violent crime counts from 2013 to 2015 compared to those census tracts that did not experience growth in SLUP6 numbers.** Average overall crime levels in tracts experiencing growth in SLUP6 numbers increased 135.6%, property crime 135.8%, and public order crime 119.0%. All effects were statistically significant.

Auto Accidents Analysis

The map below provides a visual representation of the bivariate (1-on-1) relationship between the location of licensed auto repair shops, fast food restaurants, gas stations and convenience stores at the end of 2012. Other SLUP6 business types (pawn shops, check cashing establishments, and liquor stores) were excluded from this series of analyses because they do not yield high levels of parking lot access and egress like the others do.

[15] The corresponding figures for property and public order crime were 128.2 vs. 53.0 and 61.1 vs. 25.6 respectively.

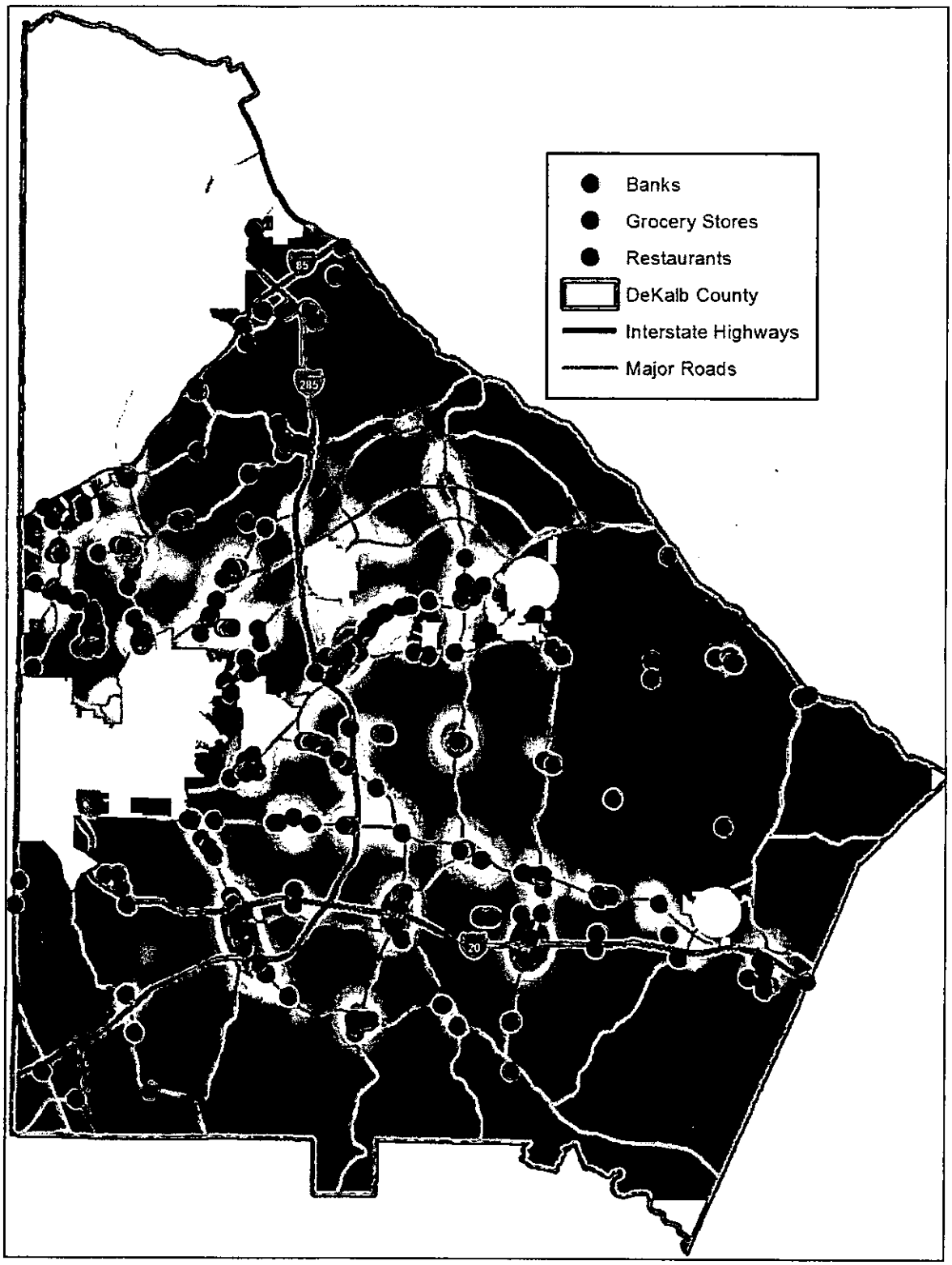

Automotive Repair Shops
Fast Food Establishments
Gas Station/Convenience Stores
DeKalb County
Interstate Highways
Major Roads
Auto Crash Heat Map
High
Low
85
285
20

Note that we chose to focus the text below on all types of auto accidents occurring 2014-2015 but the appendix provides maps for crashes involving pedestrians as well, broken out for all of the categories of businesses detailed in the text of the report. In the map above, gray dots represent the location of the 320 auto repair shops licensed to operate at the end of 2012, while pink dots represent 92 fast food restaurants and blue dots 231 gas stations or convenience stores licensed that year.[16] Referring to the background shading of the map, red depicts those areas with the highest levels of reported 2014-2015 auto accidents, yellow illustrates moderate levels of accidents, and green shading shows the low crash areas.[17] **With the exception of auto repair shops (gray dots), one notes that the select SLUP6 businesses are largely concentrated in the areas that experience moderate or high levels of auto accidents.** This is likely attributable to two factors. First, these businesses tend to be located on congested major roads. Second, they engage in auto oriented commerce, and thus produce a high volume of access and egress from their parking lots.

The next map plots the location of grocery stores, full service restaurants, and banks onto a heat map of auto accidents occurring in unincorporated DeKalb County 2014-2015. In the map below, red dots specify the location of the banks, blue dots the grocery stores, and pink dots full service restaurants. **While there is clearly a relationship between the occurrence of auto accidents and these types of businesses, it is not as pronounced as what is observed for fast food restaurants and convenience stores and gas stations. This led us to further inquiry.**

[16] Business licenses are issued annually in DeKalb County. Year to year the county experiences some turnover in the number of establishments classified under the various types of businesses, as new locations come on line or others close or the location gets repurposed into a different business type.

[17] All findings presented in this section of the report rely on auto accident data for 2014-2015 and business license data for the end of 2012. The Department of Public Health was unable to provide accident data for 2013 and we chose to analyze the business license data for 2012 to remain consistent with the sample used for the crime analyses above. It is possible that the number and location of some businesses changed slightly during 2013.


Banks
Grocery Stores
Restaurants
DeKalb County
Interstate Highways
Major Roads
85
285
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We estimated a series of bivariate models to explore the relationship between select business types and the distribution of auto accidents occurring on a face block. Here, we rely on business license data from the end of 2012 and cumulative crash counts for 2014-2015. **Overall, face blocks that contained one or more licensed fast food restaurant, gas station or convenience store, or auto repair shop at the end of 2012 experienced significantly more total auto accidents in 2014 and 2015**. Specifically, if a block contained a fast food restaurant at the end of 2012, the average number of 2014-2015 crashes was 7.8. If a block did not contain a fast food restaurant at the end of 2012, the average number of 2014-2015 crashes was 2.7. Blocks containing a gas station or convenience store at the end of 2012 registered an average of 7.6 crashes in 2014-2015, while those without such businesses experienced an average number of crashes was 2.6. Finally, blocks containing an auto repair shop experienced an average of 5.8 compared to an average of 2.7 for blocks without auto repair shops. All of these relationships are statistically significant.

For comparison purposes, we also analyzed banks, grocery stores, and full service restaurants. If a block contained a bank, the average number of crashes was 3.0. If a block did not contain a bank, the average number of crashes dropped to 2.8. If a grocery store was present on a block at the end of 2012, the average number of 2014-2015 crashes was 5.8 as opposed to 2.7 on blocks without grocery stores. The presence of a full-service restaurant on a block at the end of 2012 yielded a 2014-2015 crash average of 6.0 while those blocks without such a business experienced an average of 2.7 crashes. Note that the bivariate relationships between crashes and the non-SLUP6 full service restaurants and grocery store businesses approximate those observed for SLUP6 businesses while the data suggests that banks generate fewer crashes than do SLUP6 businesses on a block.

Since face blocks, especially those dedicated to commercial purposes, contain multiple types of institutions, we analyzed these in a multivariate equation to understand the independent contribution of each type of business while also adjusting statistically for the shape of the dependent variable (crashes).[18] This was accomplished using a negative binomial regression model that allowed us to appropriately analyze crash data (counts that are bounded at zero and take on whole integer values) and estimate the unique contribution to crashes of each type of business. **The results of that analysis suggest that numbers of fast food restaurants and auto repair shops located on a given face block both significantly increase the number of crashes on the block, over and above the presence of other institutions, while the presence of grocery stores significantly reduce the number of crashes. The presence of gas stations, banks, and full service restaurants on a given block did not significantly increase or decrease the number of crashes on the street, holding constant counts of the other institutions.** Specifically, blocks that contain a grocery store have 67.9% fewer crashes than blocks that do not have a grocery store, holding constant the presence of gas stations, fast food restaurants, auto body shops, banks, and full service restaurants. Blocks that contain a fast food restaurant have 69.0% more crashes than blocks that do not have a fast food restaurant, holding constant the presence of gas stations, grocery stores, auto body shops, banks, and full service restaurants. Blocks that contain an auto body shop have 141% more crashes than blocks that do not have an auto body shop, holding constant the presence of gas stations, fast food restaurants, grocery stores, banks, and full service restaurants. **Overall, our analysis of auto accident data suggest that the presence of certain types of businesses introduce an added risk for auto accidents on the adjacent road. These findings are consistent with past studies showing that**

[18] We were unable to control for socioeconomic factors in these models since the Census does not provide population, race, or poverty data at the block unit of analysis.

SLUP6 businesses are related to negative public health outcomes in the neighboring communities ((Davis and Carpenter, 2009; Maddock, 2004; Moreland & Evenson, 2008).

Proximity of Multiple SLUP6 Businesses on Crime and Crashes

Many special land use permitting statutes limit the number of certain businesses in proximity to one another. We conducted a series of bivariate analyses to determine if two or more of a given business type located in close proximity are associated with changes in negative social outcomes. First, we created 1,000 foot buffers around each auto repair, fast food, and gas station/convenience store in operation at the end of 2012.[19] Next we populated the 2013-2015 crime and 2014-2015 auto crash counts for each 1,000 foot buffer area. Finally, we compared cumulative crime and crash counts for face blocks in which there were one or more overlapping buffers to face blocks were no overlaps were observed.

The following results were revealed for the automotive repair category. **The presence of multiple auto repair shops in close proximity to one another was associated with significantly higher levels of crime and auto crashes.** Specifically, on face blocks that contained only one automotive establishment at the end of 2012, the average number of 2014-2015 auto crashes was observed to be 4.1. This compares to an average of 9.3 auto accidents during the same time period on face blocks that contained two or more auto repair shops within 1,000 feet of one another. Turning to crime outcomes, we observed an average of 47.9 total crimes 2013-2015 on those blocks containing only one auto repair shop compared to an average of 83.5 on those blocks containing two or more auto repair shops within 1,000 feet of one another. If a face block contained only one auto repair shop at the end of 2012, the average number of violent crimes reported during 2013-2015 was 15.3. For those blocks containing two

[19] We did not analyze liquor stores or check cashing/pawn shops for these analyses, because there were too few of these specific businesses for meaningful comparisons

or more auto repair shops within 1,000 feet of one another, the number increased to 21.5. All of the above changes in crime and crash counts were statistically significant ($p < .05$).

Next, we shift the attention to fast food restaurants. **Here, we observe that the presence of multiple fast food restaurants within 1,000 of one another is associated with significantly higher levels of crime and auto crashes on a face block.** An average of 8.7 auto crashes was reported during 2014-2015 on those face blocks containing a single fast food establishment at the end of 2012. The average number grew to 14.8 crashes on blocks that contained two or more fast food restaurants within 1,000 feet of one another. On average, face blocks containing a single fast food establishment experienced 65.0 total reported crimes 2013-2015. This average more than doubled to 146.1 on those blocks containing two or more fast food restaurants within 1,000 feet of one another. When focusing exclusively on violent crimes, we observe that those blocks containing only one fast food establishment at the end of 2012 experienced an average of 17.6 violent crimes during 2013-2015 compared to nearly double that number (33.9) on blocks with two or more of these businesses located within 1,000 feet of one another. All of the above changes in crash and crime counts are statistically significant ($p. < .05$)

The same exercise was performed for blocks within unincorporated DeKalb County containing gas stations or convenience stores at the end of 2012. **Significantly higher levels of crime and auto crashes were experienced on those blocks containing overlapping gas stations or convenience stores compared to those blocks with only one.** We observed an average of 3.9 auto crashes during 2014-2015 on those blocks that contained a single licensed gas station or convenience store at the end of 2012. That figure nearly tripled to 9.9 on those blocks where there were two or more of those businesses located within 1,000 feet of one another.

Shifting to crime outcomes, we observe that blocks containing a single licensed gas station or convenience store at the close of 2012 experienced an average of 43.3 total crimes during the period of 2013 through 2015. That number doubled to 86.9 total crimes on blocks where there were two or more gas stations or convenience stores situated within 1,000 feet of one another. Finally, an average of 11.9 violent crimes were reported on face blocks housing a single gas station or convenience store, compared to 24.1 violent crimes on blocks where there were two or more of these businesses situated within 1,000 feet of one another. All of the above changes in crime and crash counts were statistically significant ($p < .05$).

Residential Property Value Analysis

In order to investigate the impact of SLUP6 businesses on property values, we estimated multivariate ordinary least squares regression, a technique that allows the estimation of the impact that multiple predictor variables have on a single continuous outcome variable (in this case median property values in 2015 across all residences in a census face block). This exercise allows us to compare blocks that have SLUP6 businesses at the start of 2015 to those that do not in their average (median) property values in 2015. In doing so, we control for relevant factors, such as average square footage of residences in the block, the average condition of the property in the block, and the average age of the homes in the block in 2015.[20] Not surprisingly, several of these control variables are significant predictors of the median residential housing value in a census block. For example, the average assessed condition of residential properties in a block is a

[20] We were unable to control for socioeconomic factors in these models since the Census and American Community Survey do not provide population, race, or poverty data at the block unit of analysis.

strong and significant predictor of median housing values in the area. Average square footage and average age are also significantly associated with median housing value.

Although not statistically significant, the presence of a bank, full service restaurant, or grocery store on the block in 2015 increases the average residential property value that year by about $10,567, while the presence of a SLUP6 business in the block significantly reduces average property value by about $13,519. We constructed 95% confidence intervals around the coefficients for each of the SLUP6 and non-SLUP6 businesses under consideration in order to provide a fair and substantively meaningful description of the relationship between these business types and residential property values in the blocks where they reside. In doing so, we find that the presence of any SLUP6 business decreases median residential property values by as much as $24,912 or as little as $2,135. These two values represent the minimum and maximum values for the impact that a SLUP6 business could plausibly have on a block, with 95% confidence. Conversely, one would expect with a 95% confidence level that the presence of a full service restaurant, bank, or grocery store in a block would alter its median residential property values by anywhere from $-2,045 to $23,180.

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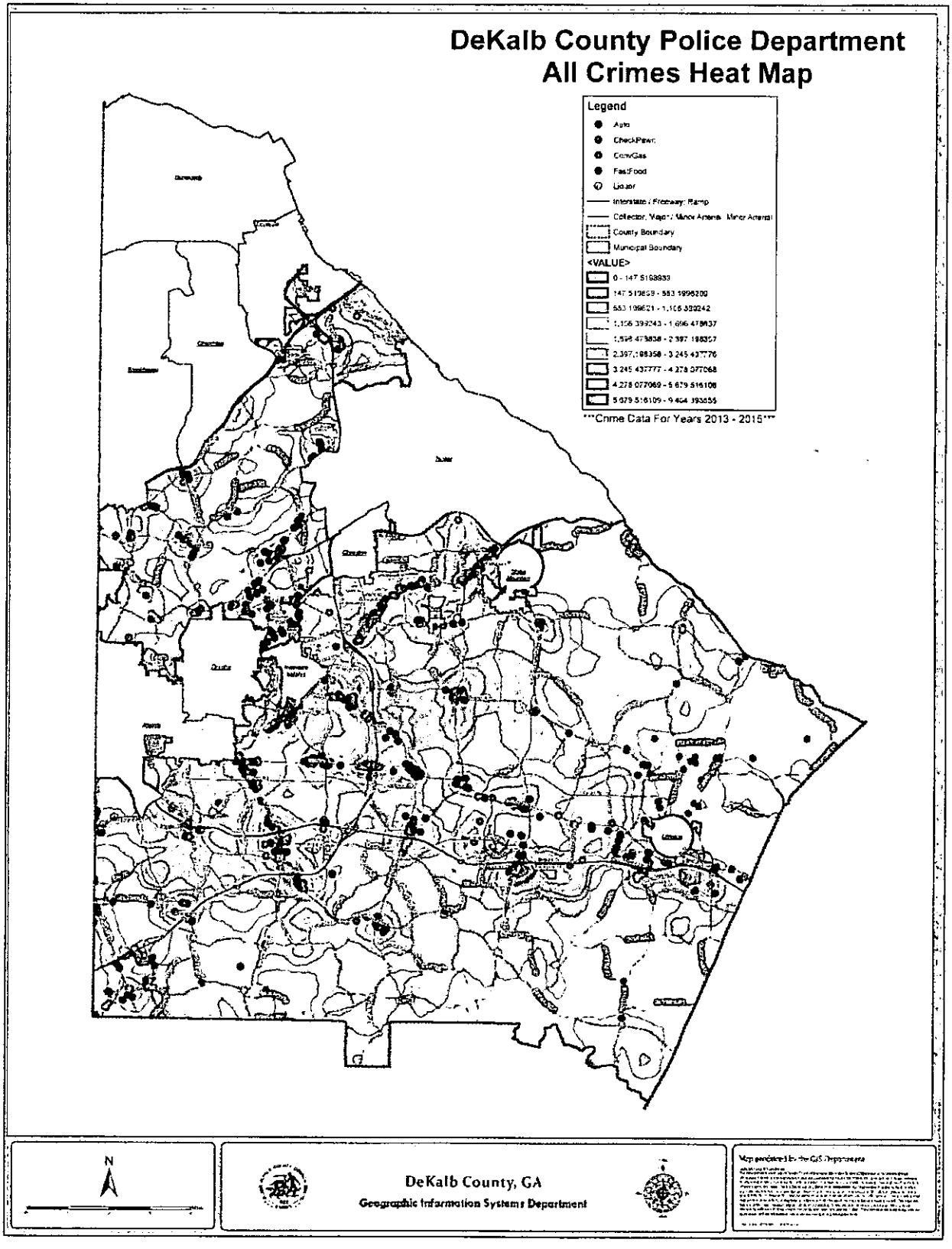
Appendix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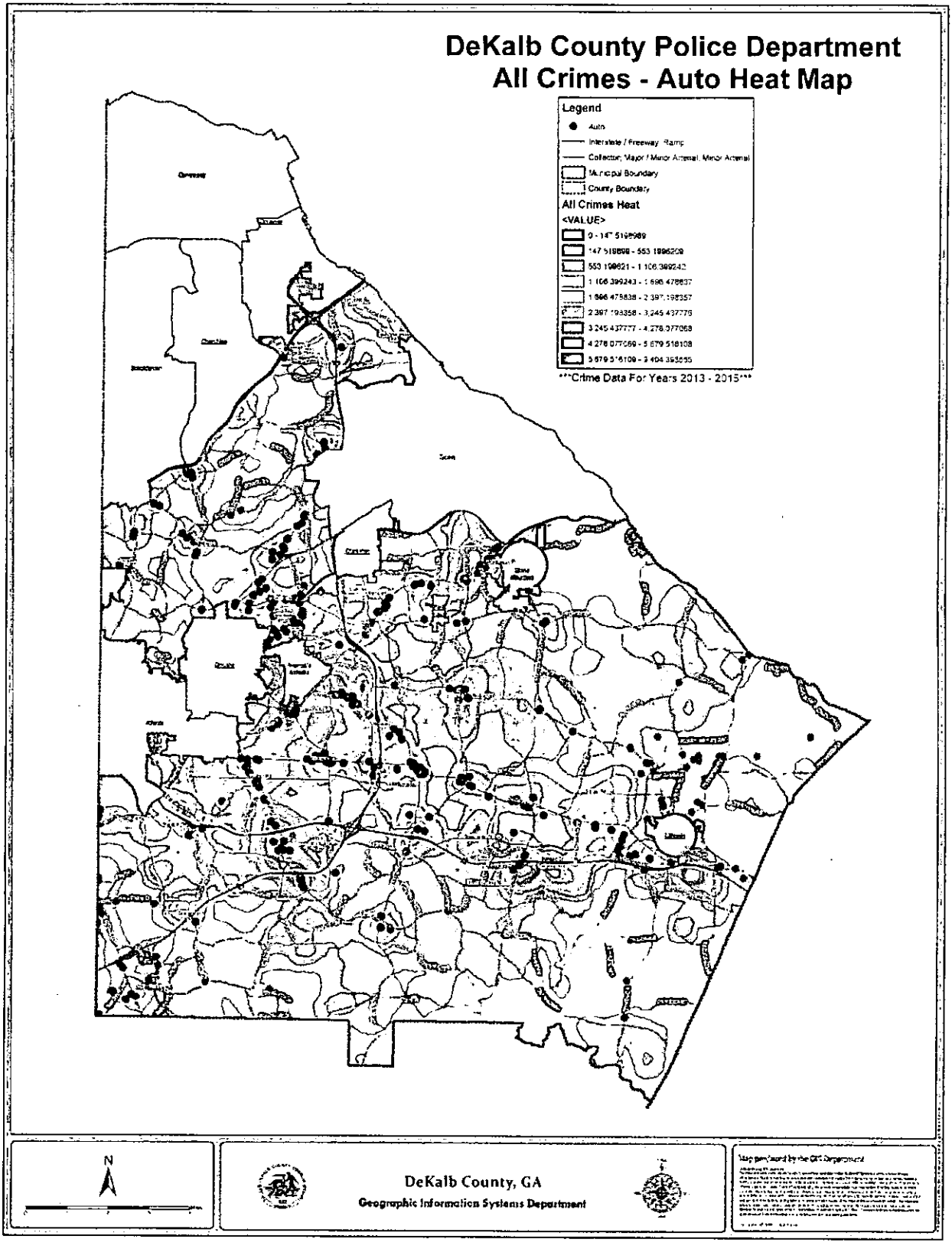
DeKalb County, GA
Geographic Information Systems Department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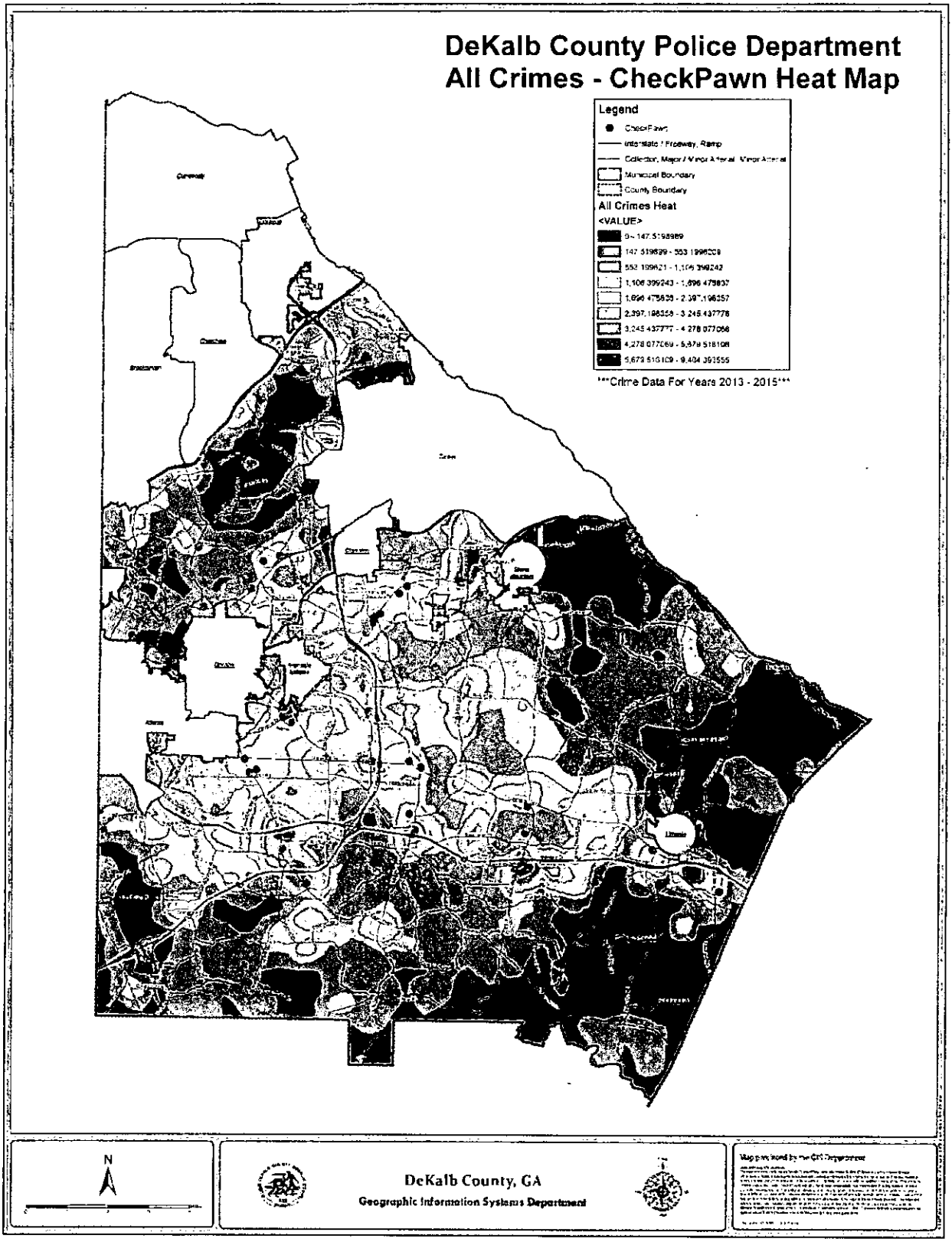
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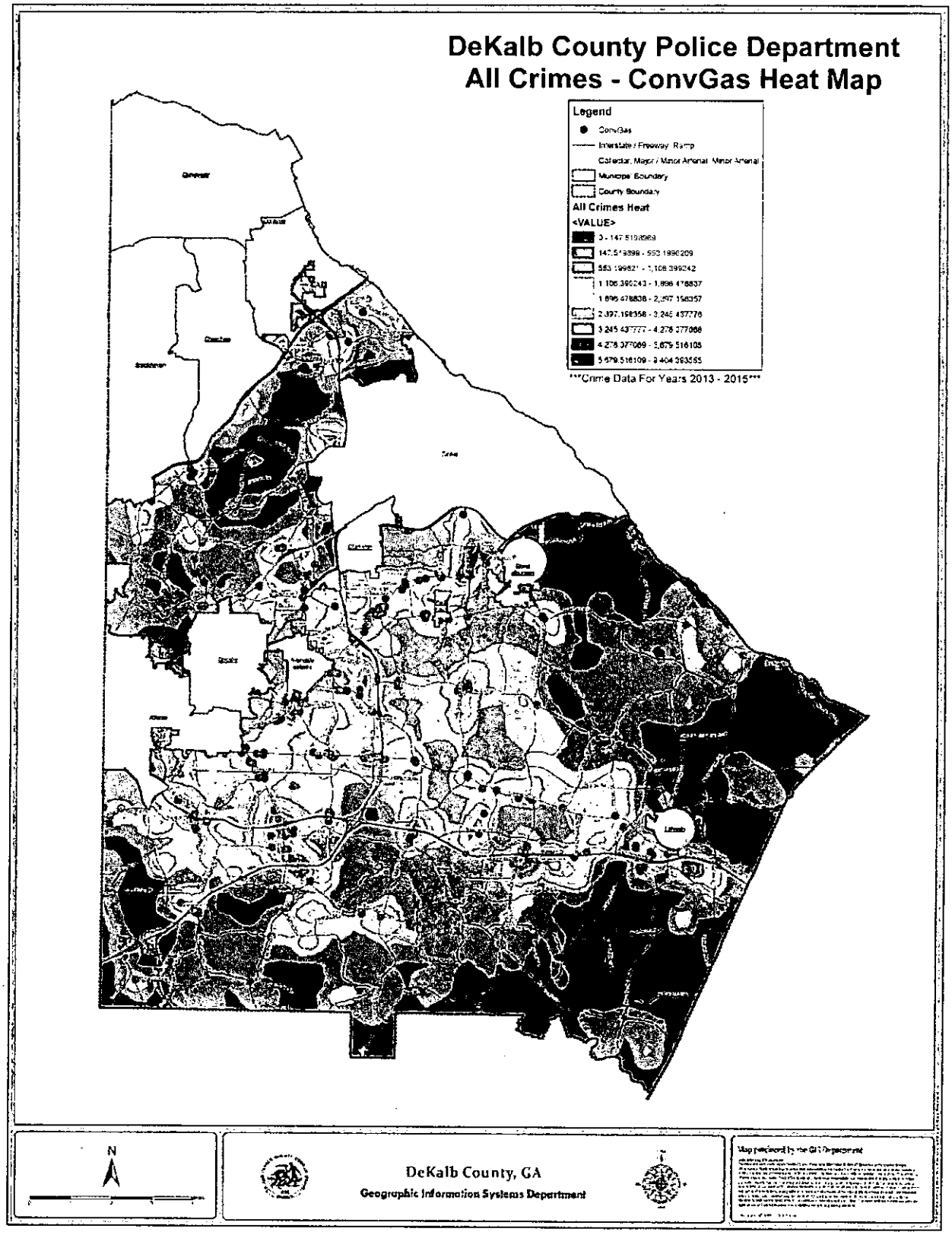
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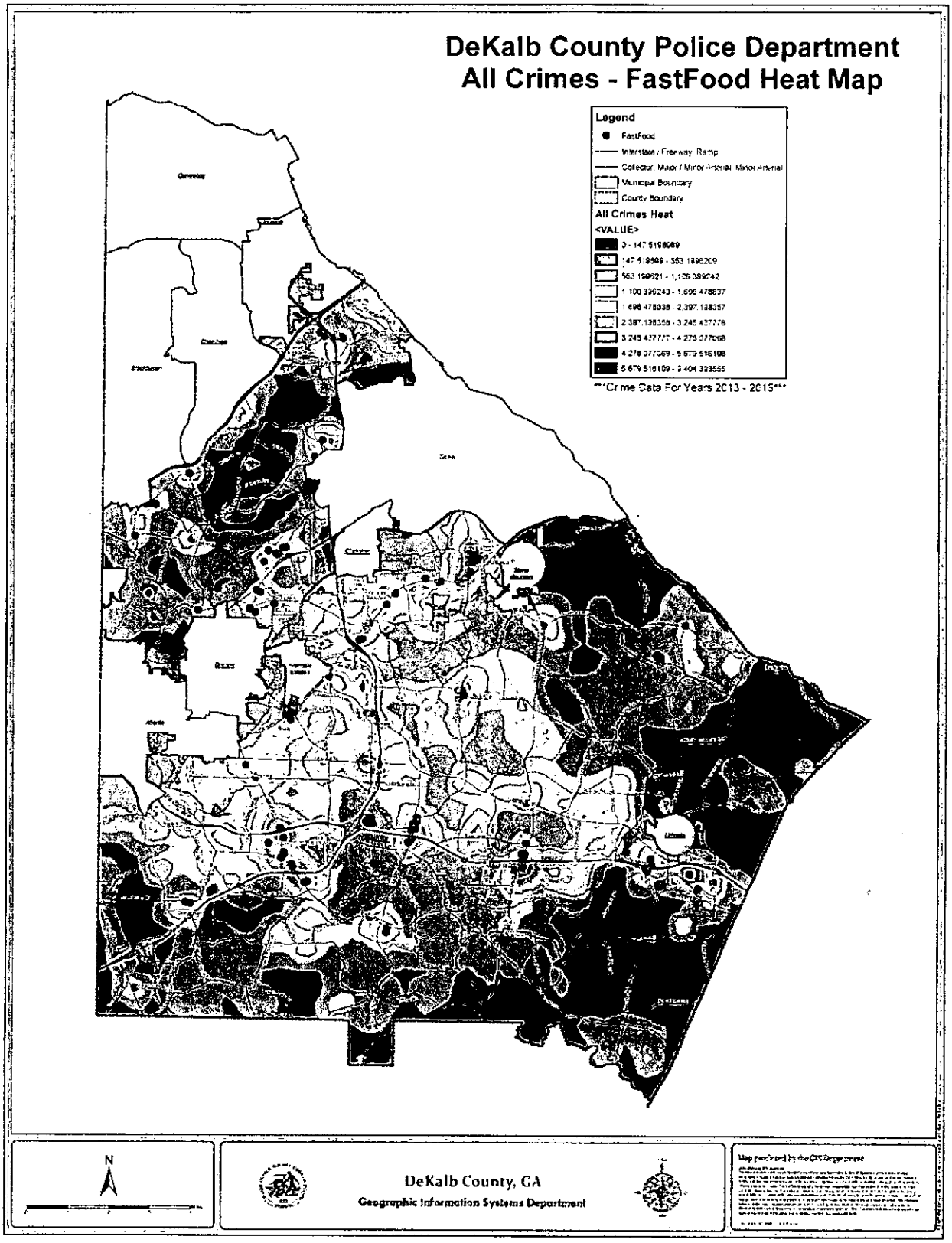
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Crime Data For Years 2013 - 2015
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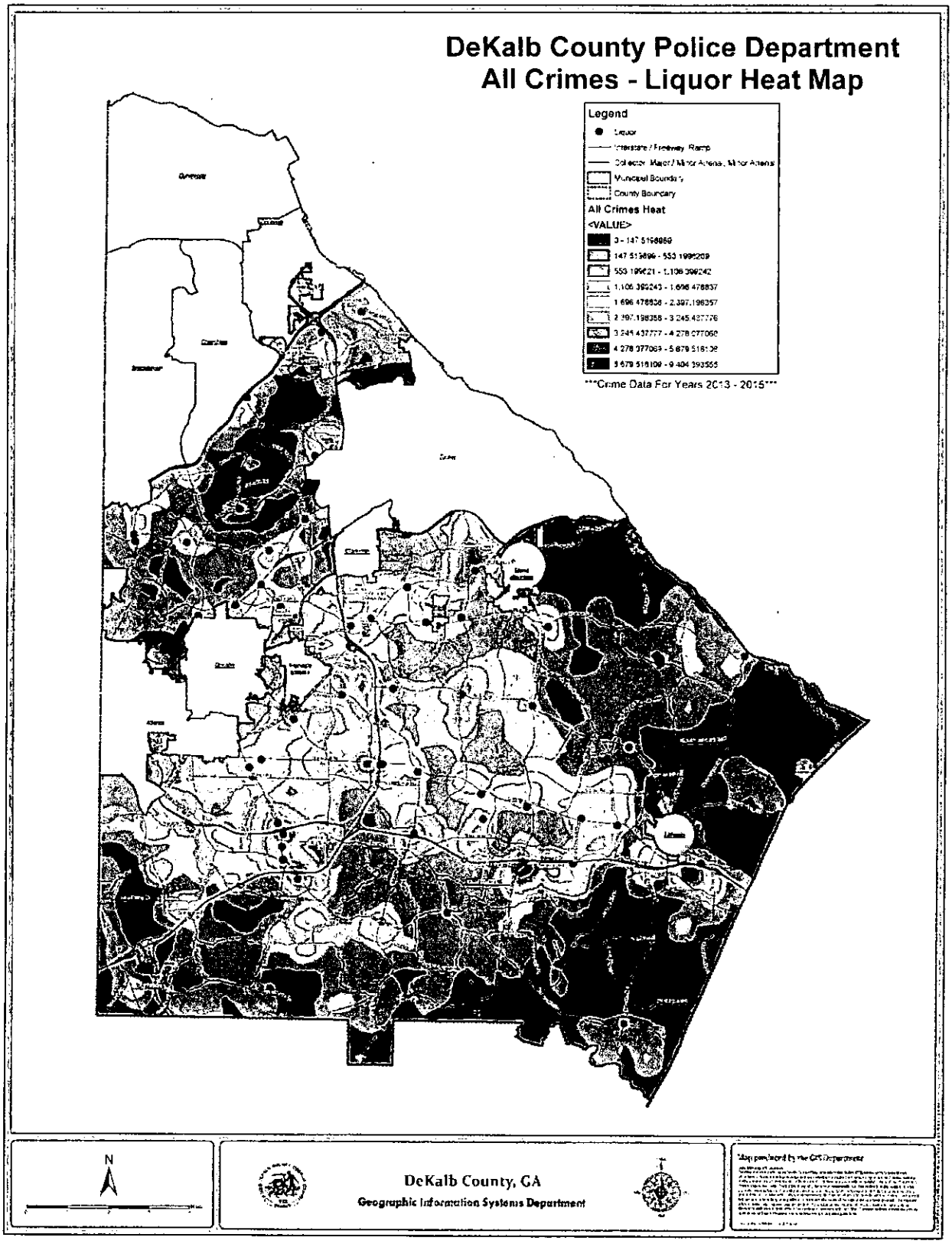
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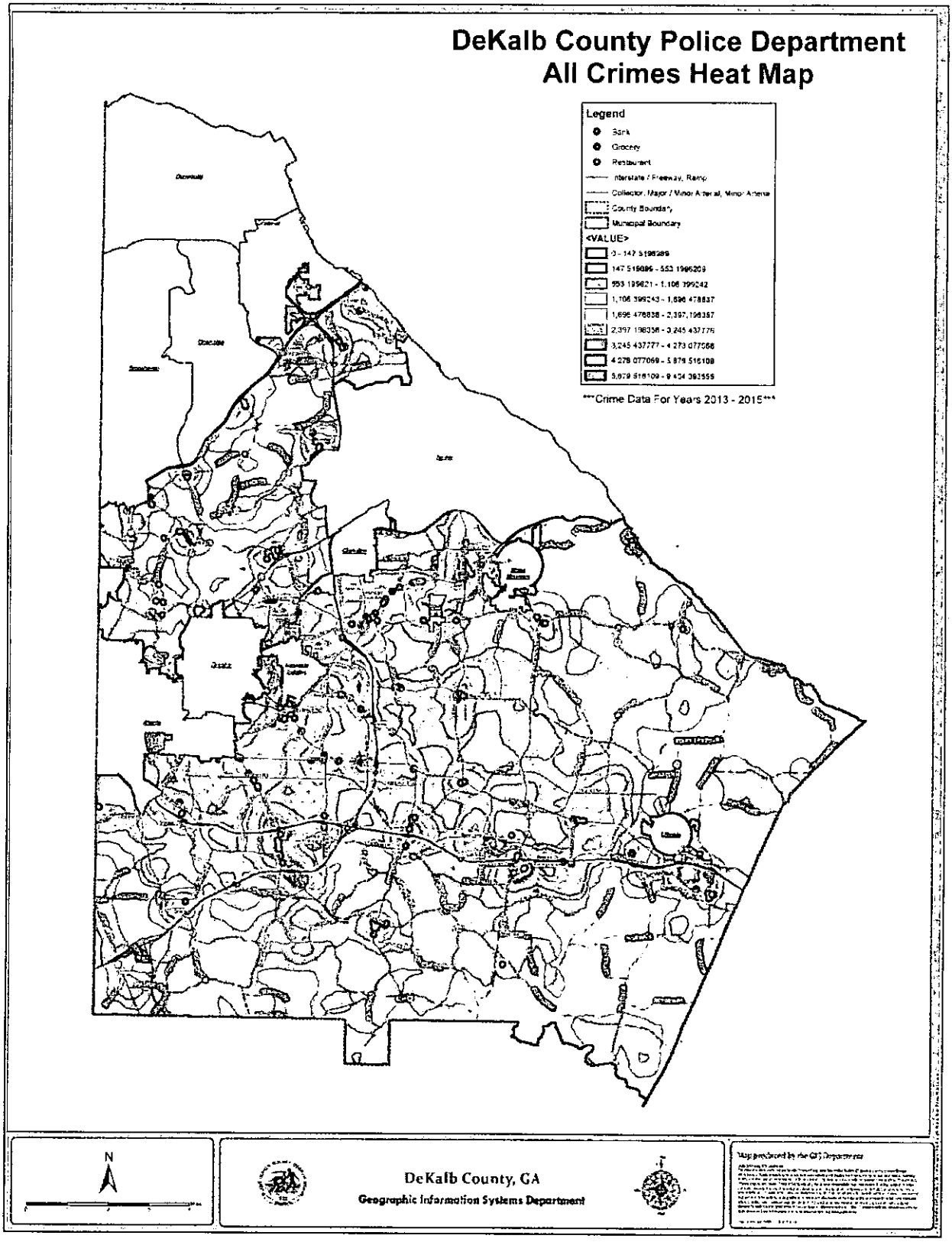
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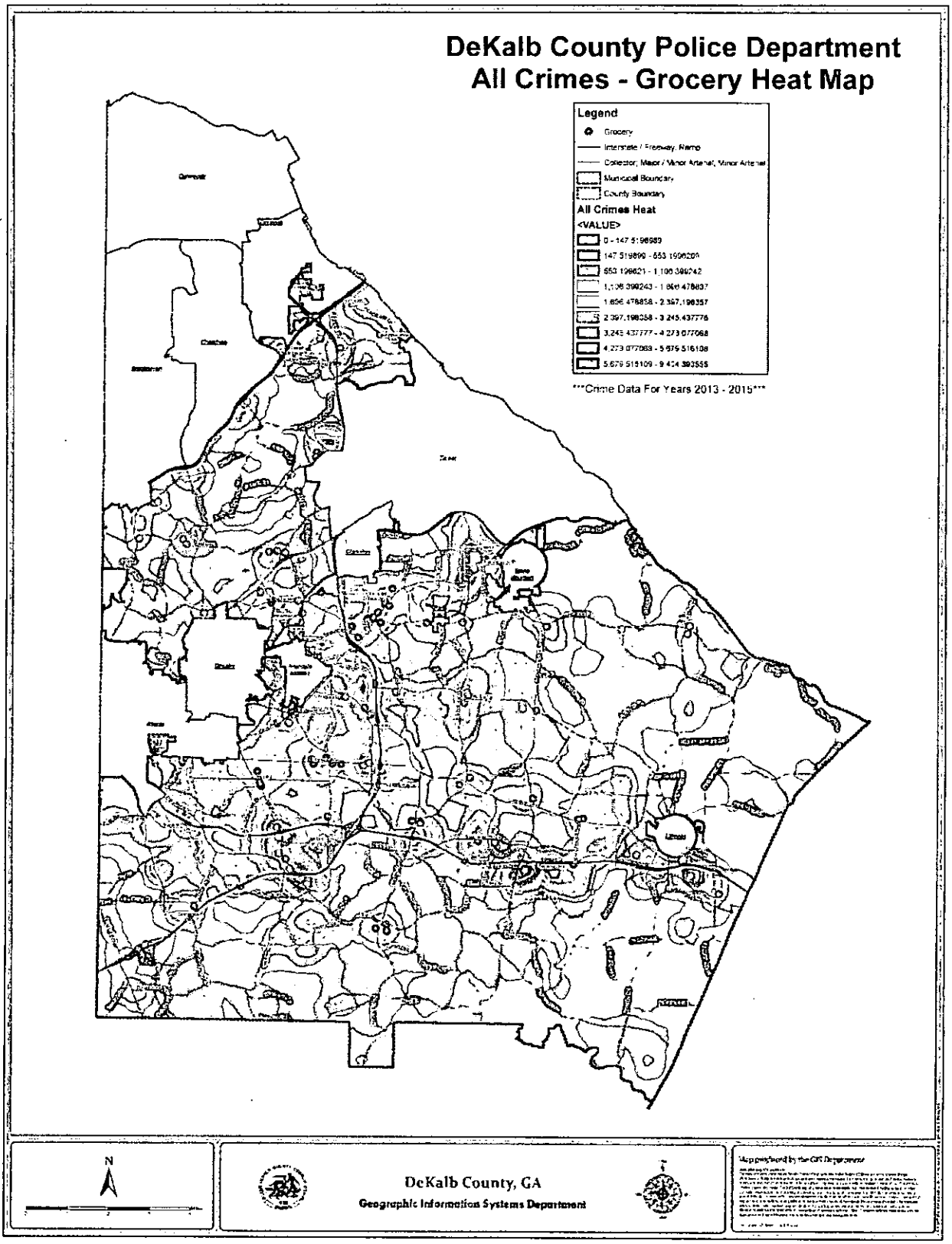
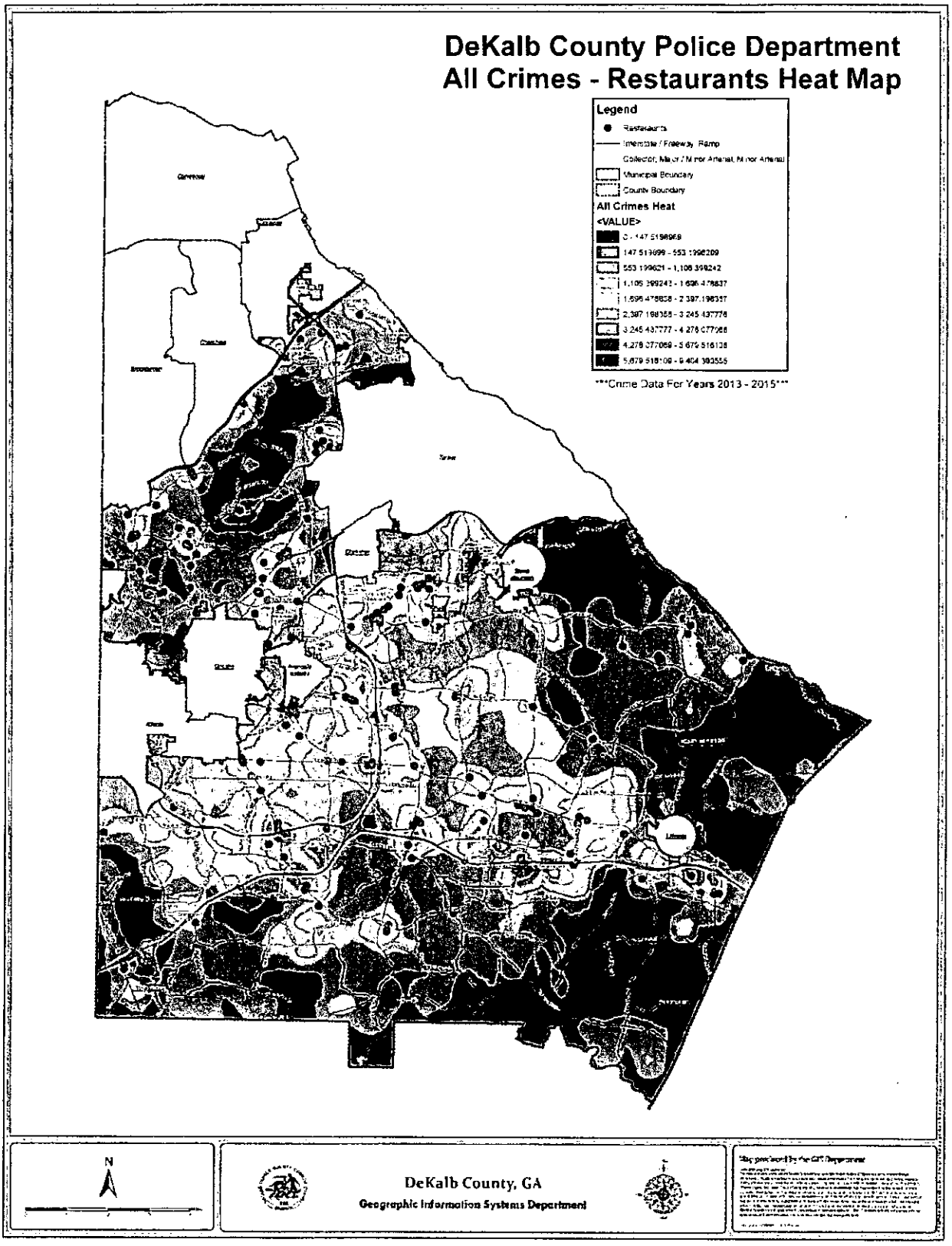
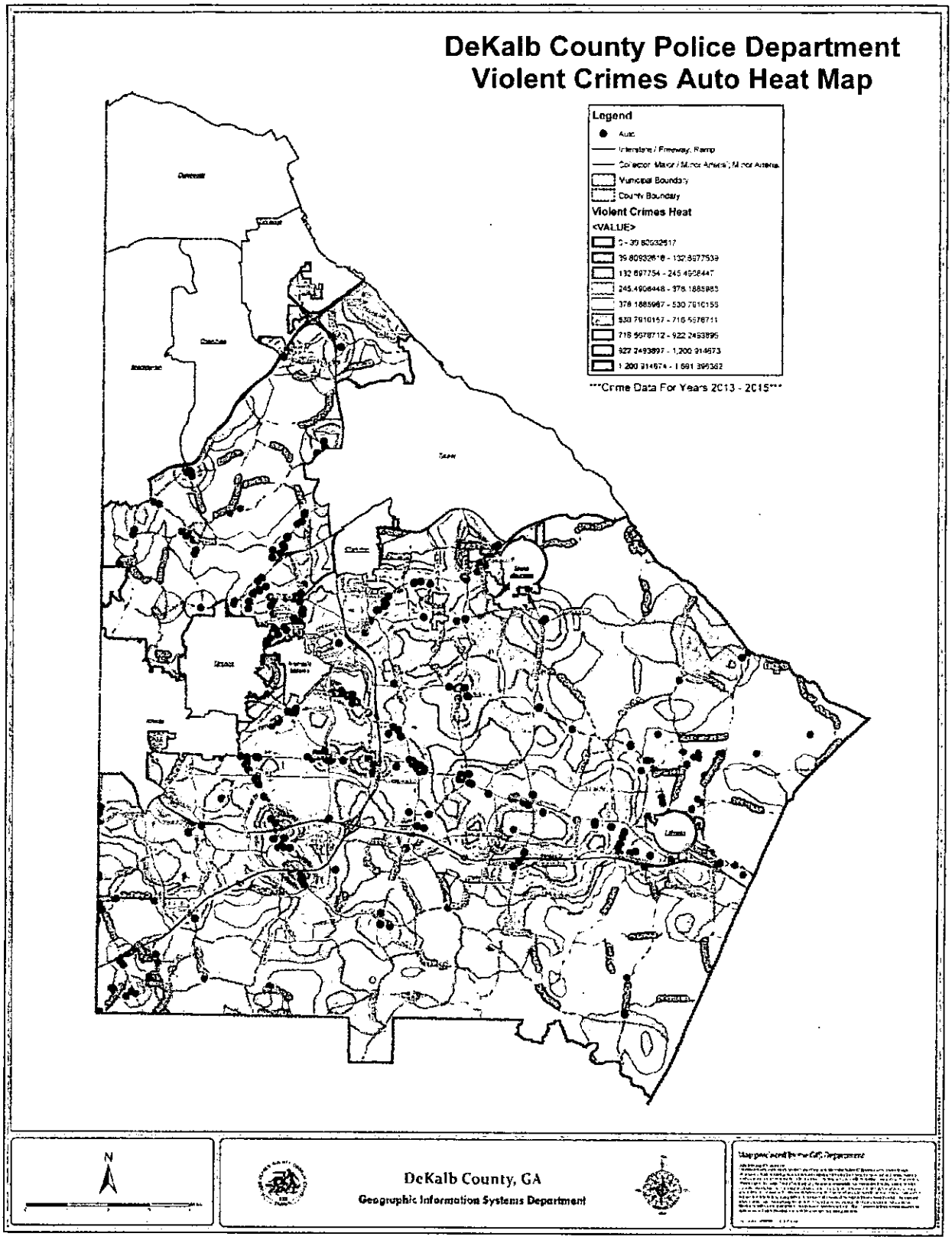
Crime Data For Years 2013 - 2015
N
DeKalb County, GA
Geographic Information Systems Department

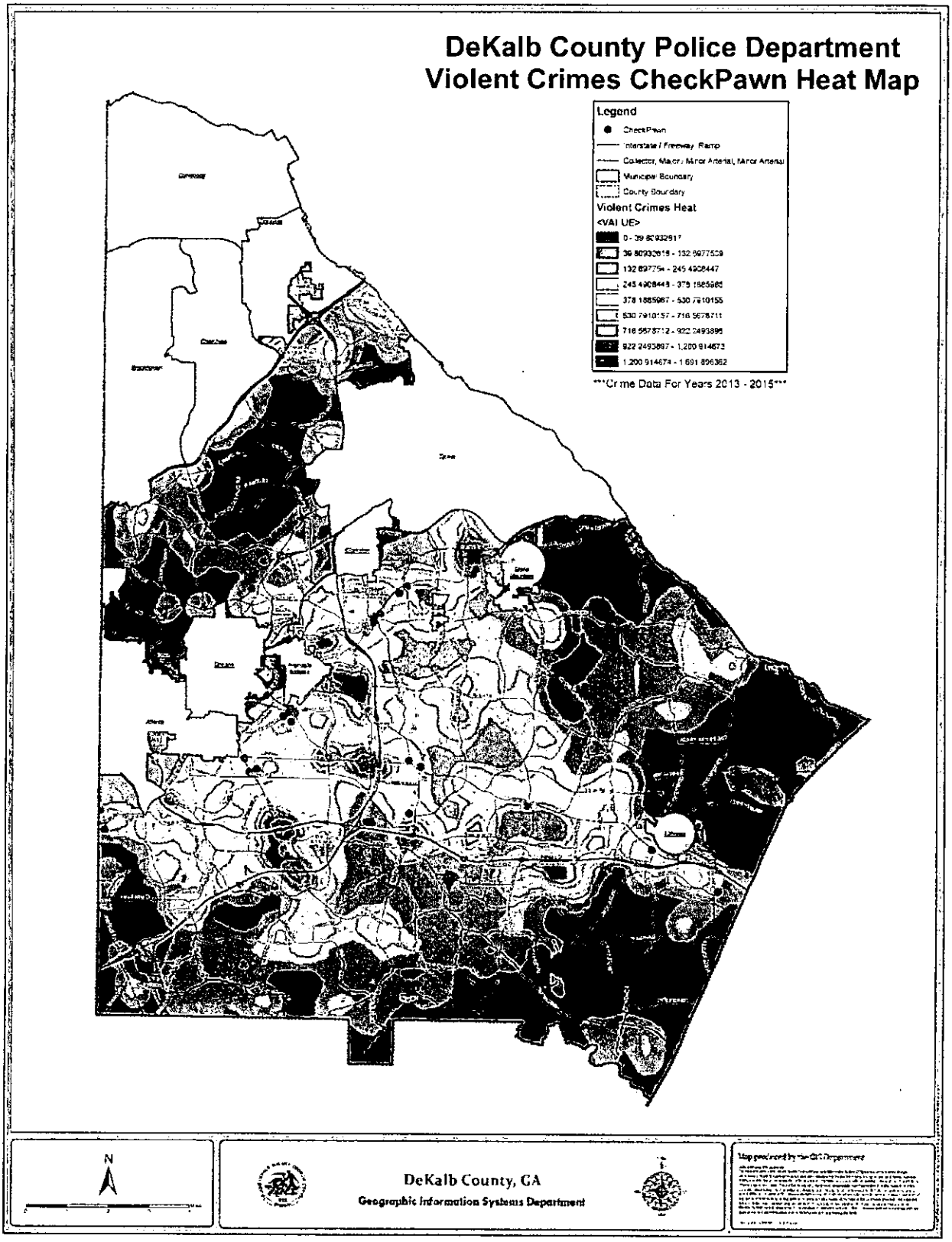
DeKalb County Police Department
All Crimes - Grocery Heat Map



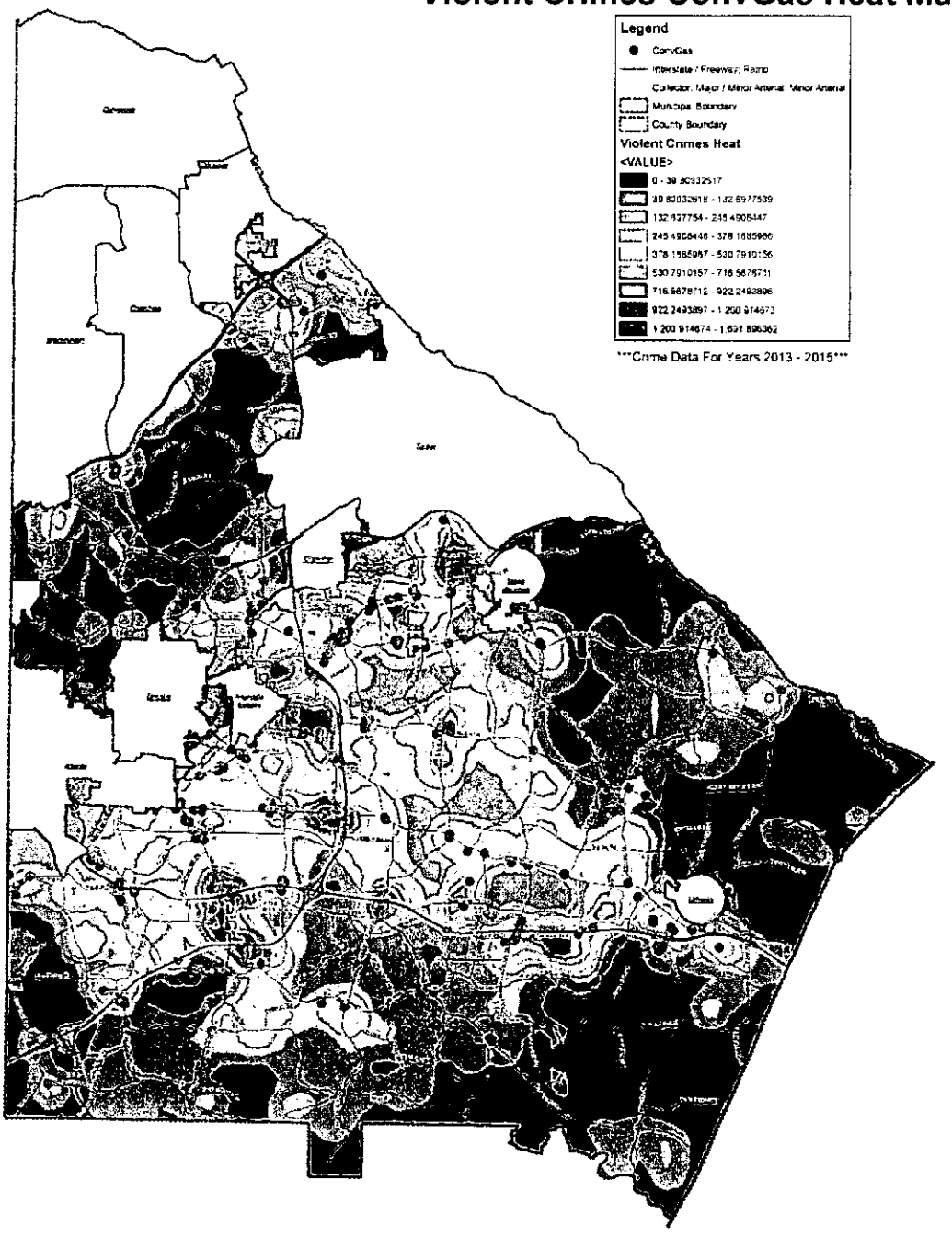
DeKalb County Police Department
All Crimes - Restaurants Heat Map



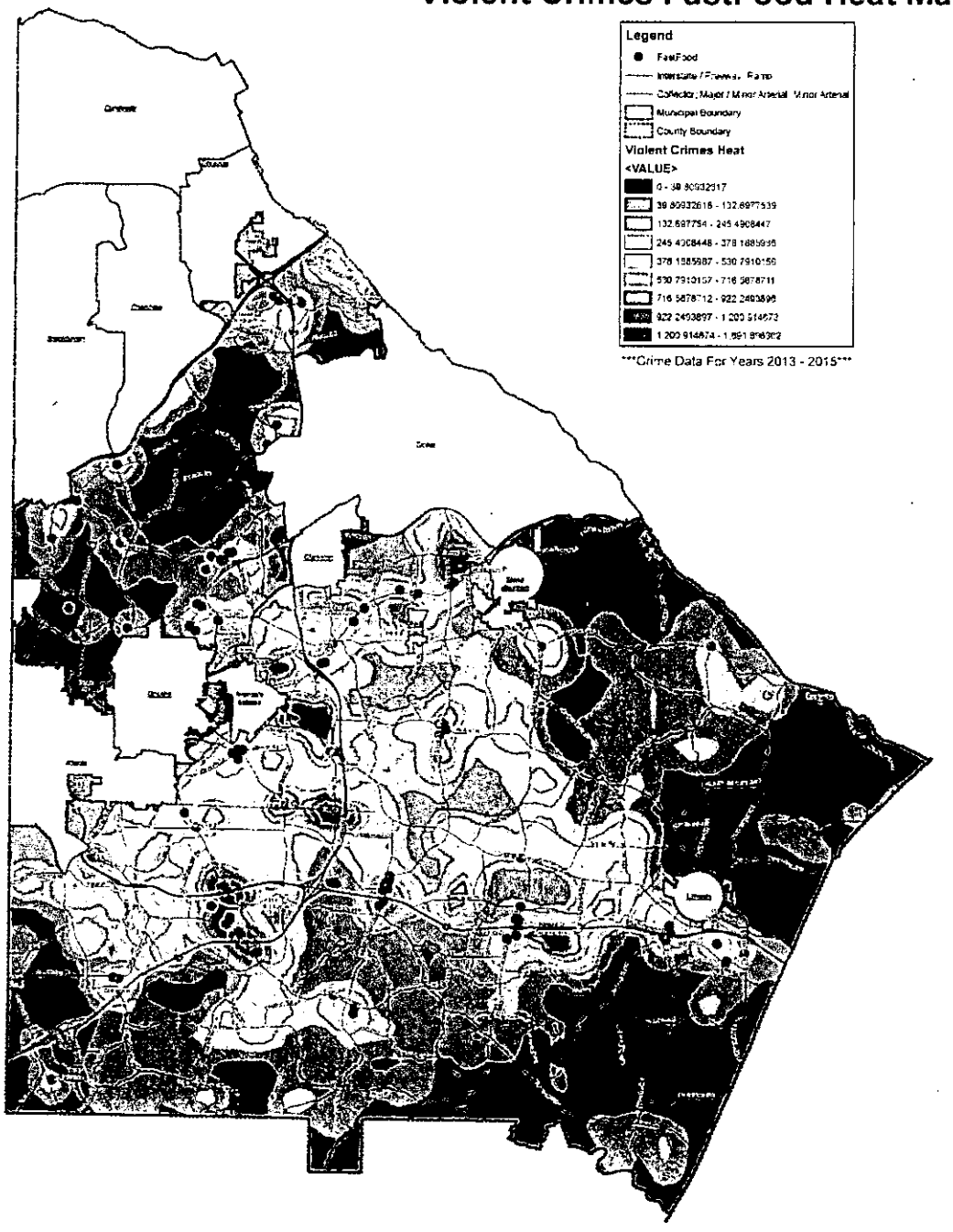

DeKalb County Police Department
Violent Crimes Auto Heat Map
Legend
Auto
Interstate / Freeway, Ramp
Collector, Major / Minor Arterial, Minor Arterial
Municipal Boundary
County Boundary
Violent Crimes Heat
<VALUE>
0 - 39.80932617
39.80932618 - 132.6977539
132.697754 - 245.4908447
245.4908448 - 378.1885985
378.1885987 - 530.7910155
530.7910157 - 716.5578711
716.5578712 - 922.2493895
922.2493897 - 1,200.914673
1,200.914674 - 1,591.396362
Crime Data For Years 2013 - 2015
N
DeKalb County, GA
Geographic Information Systems Department


DeKalb County Police Department
Violent Crimes CheckPawn Heat Map
Legend
CheckPawn
Interstate / Freeway, Ramp
Collector, Major, Minor Arterial, Minor Arterial
Municipal Boundary
County Boundary
Violent Crimes Heat
<VALUE>
0 - 39.80932617
39.80932618 - 132.8977539
132.8977539 - 245.4908447
245.4908448 - 378.1885986
378.1885987 - 530.7810155
530.7810157 - 716.5678711
716.5678712 - 922.2493896
922.2493897 - 1,200.914673
1,200.914674 - 1,691.896362
Crime Data For Years 2013 - 2015
N
DeKalb County, GA
Geographic Information Systems Department

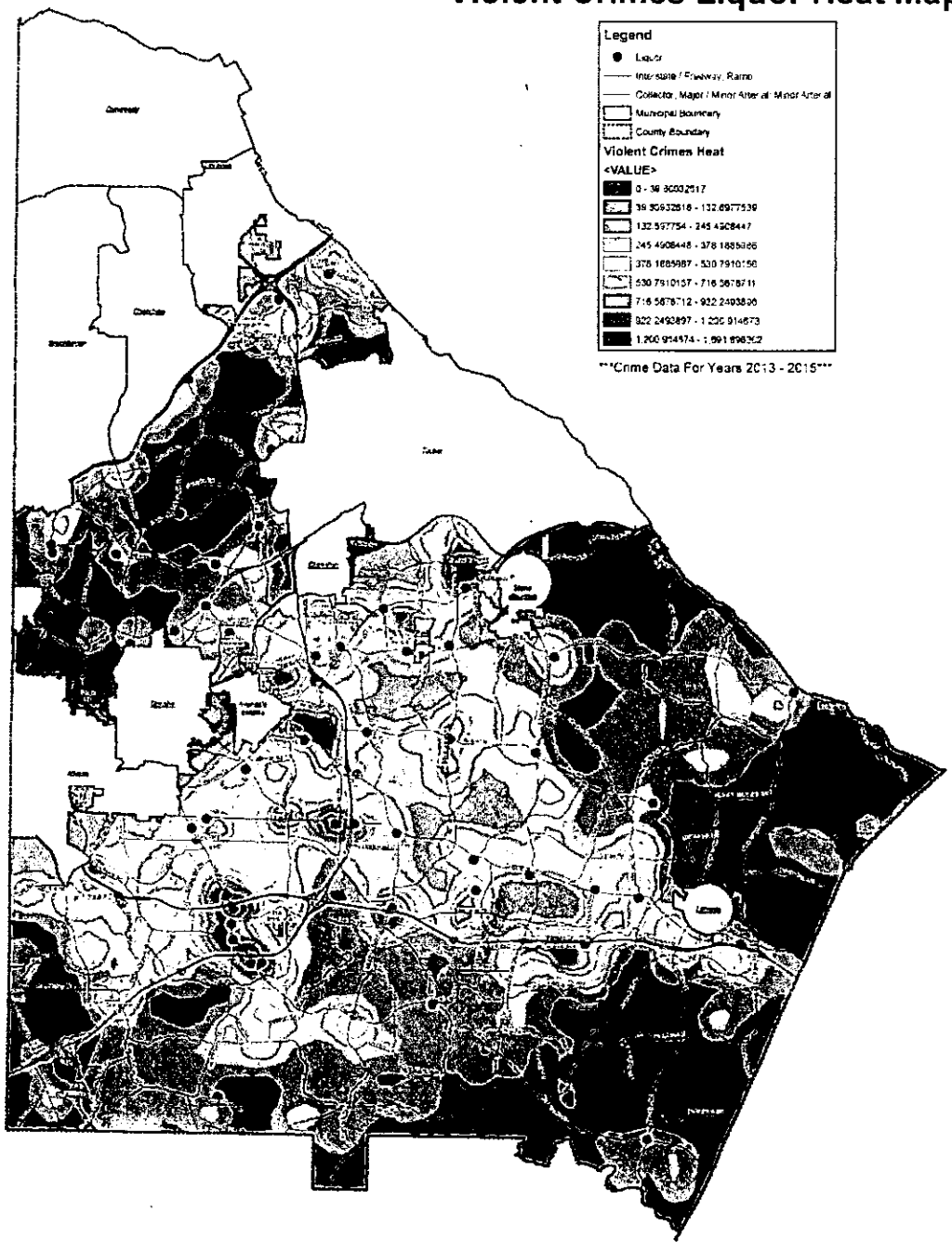
DeKalb County Police Department
Violent Crimes ConvGas Heat Map

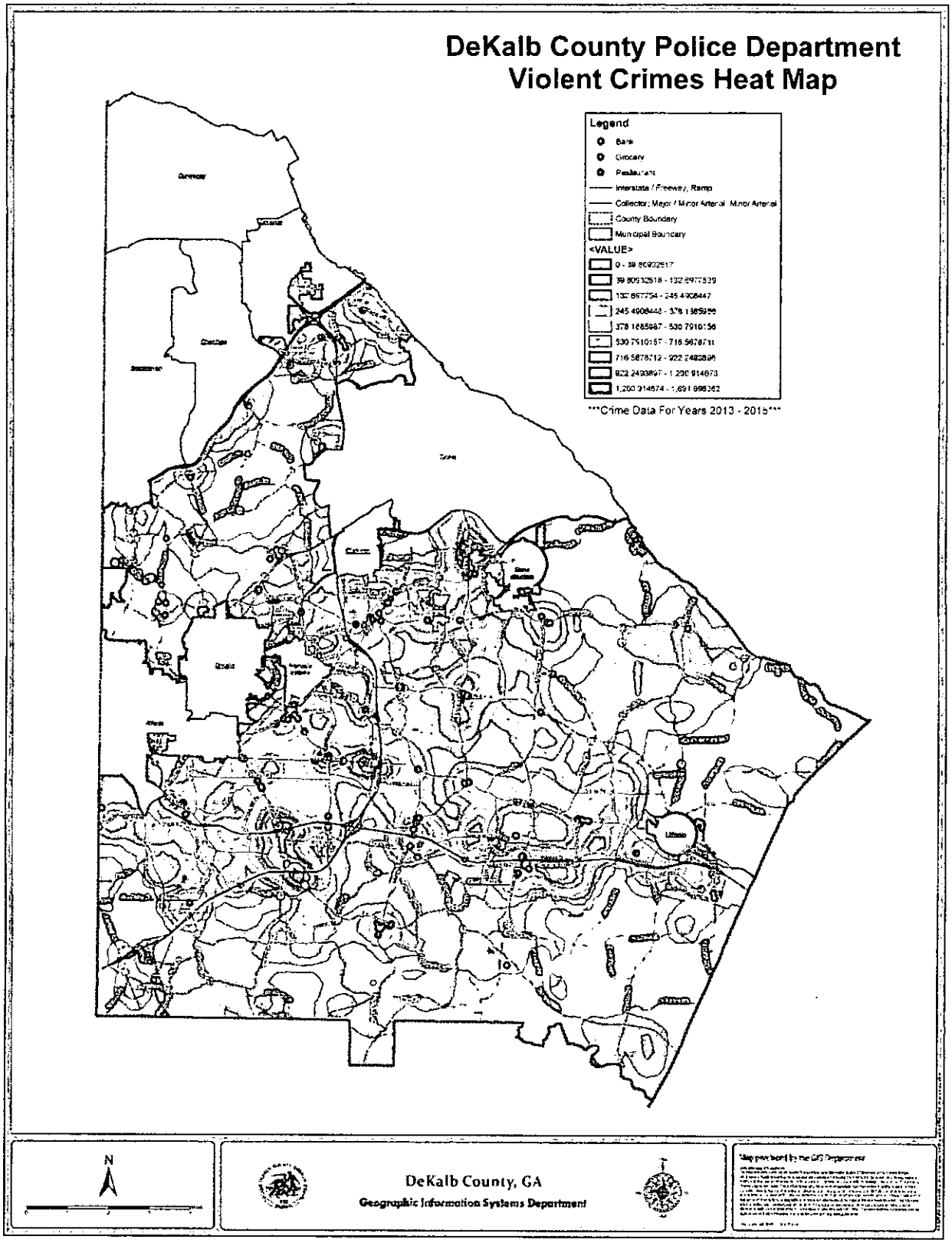


DeKalb County Police Department
Violent Crimes FastFood Heat Map

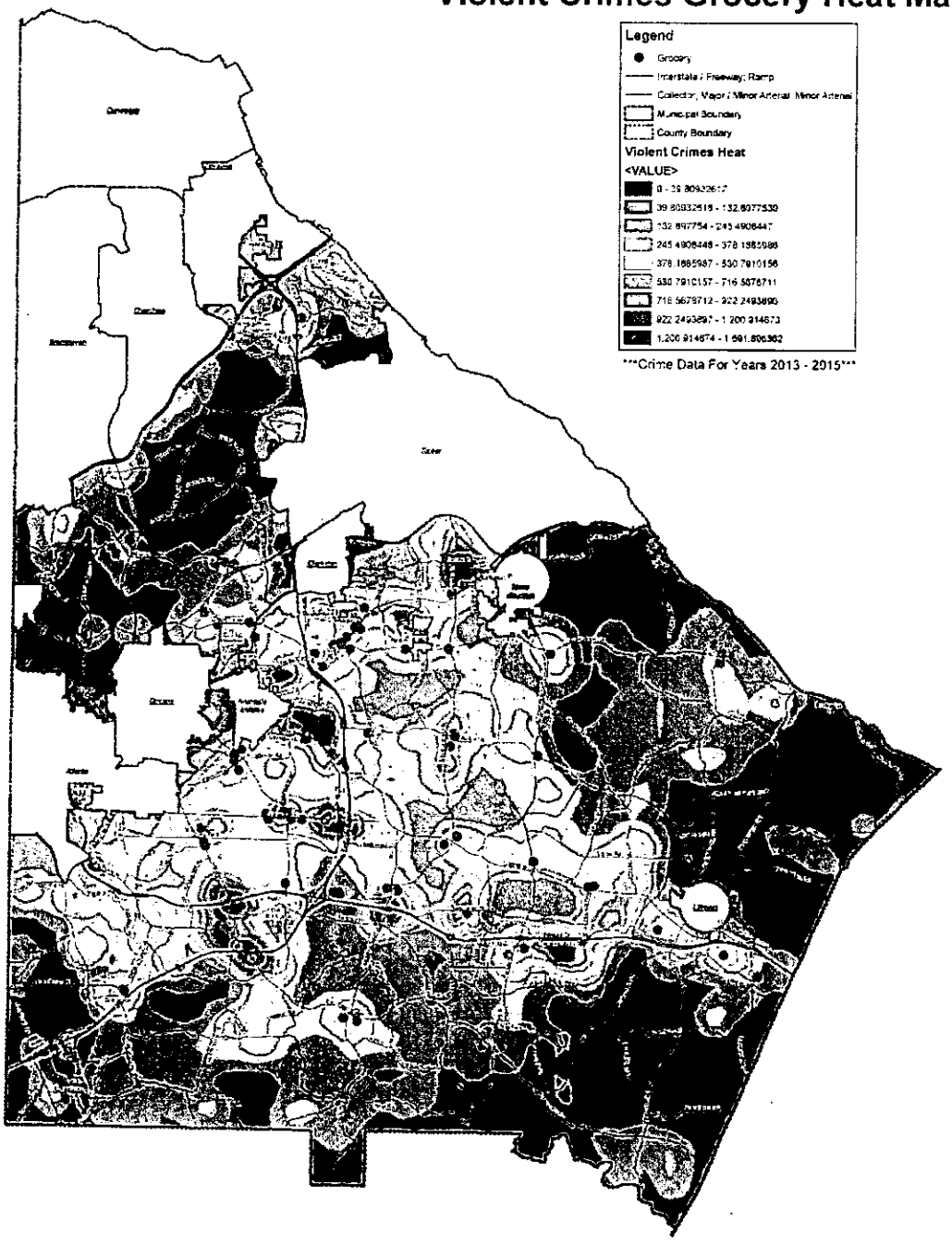


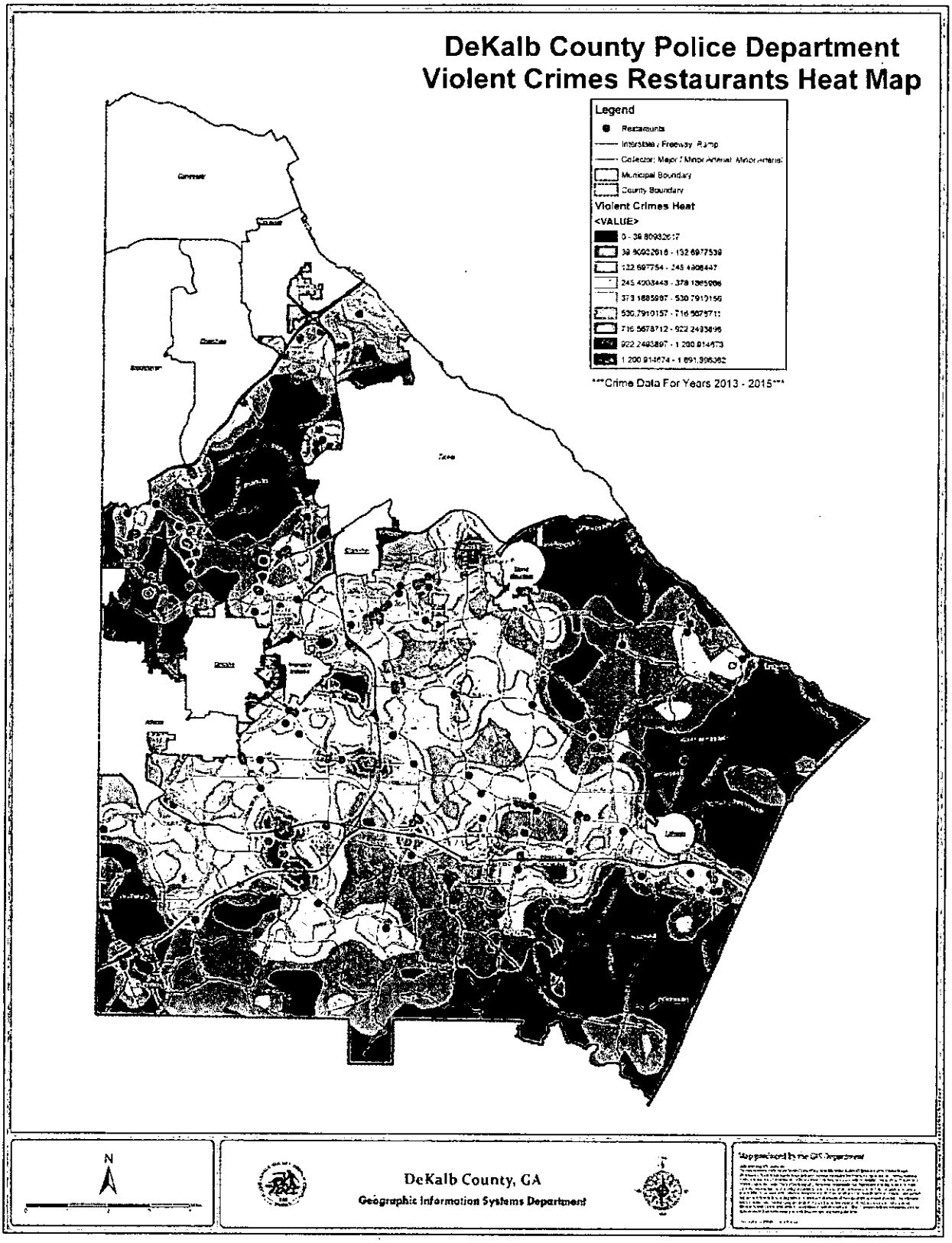
DeKalb County Police Department
Violent Crimes Liquor Heat Map

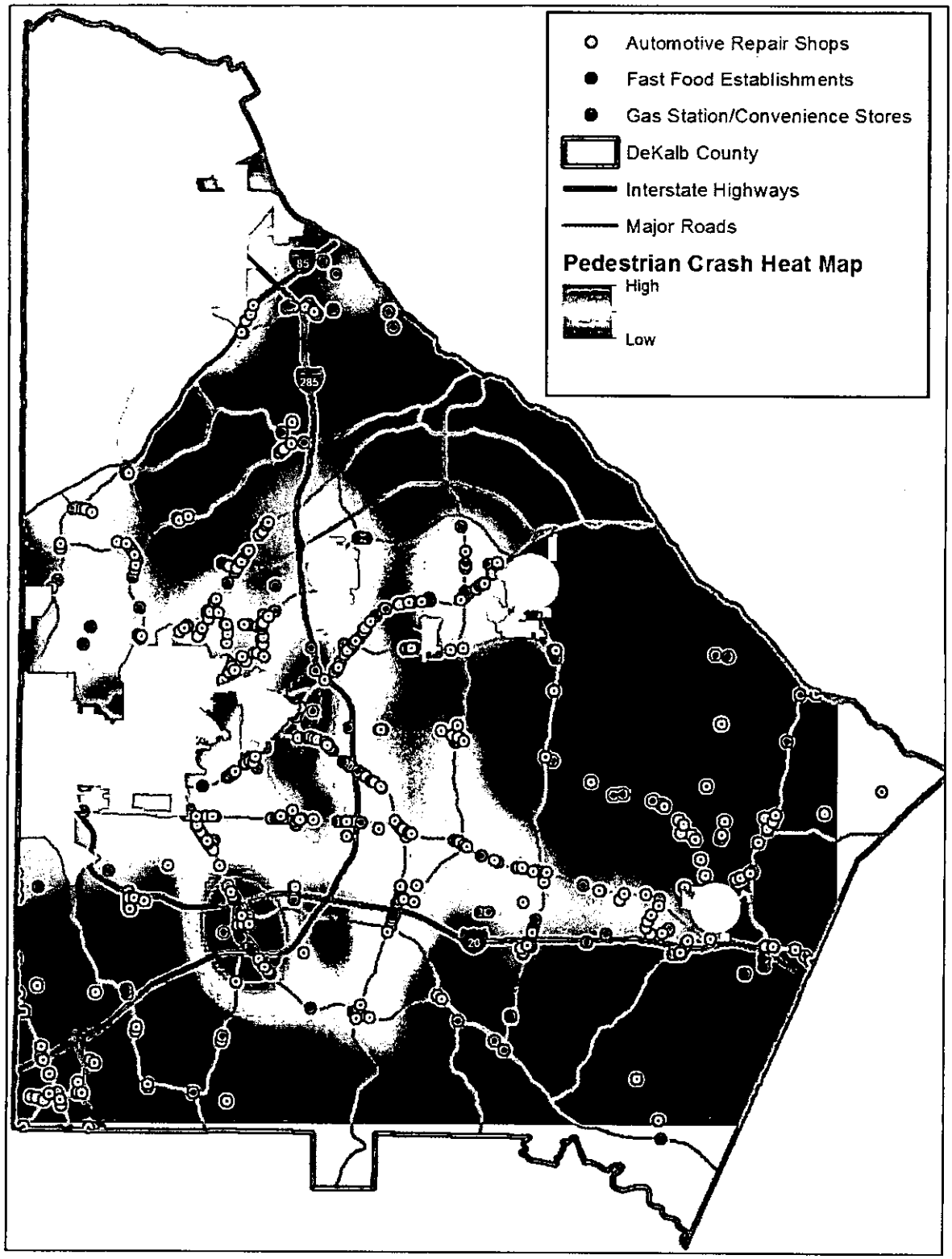


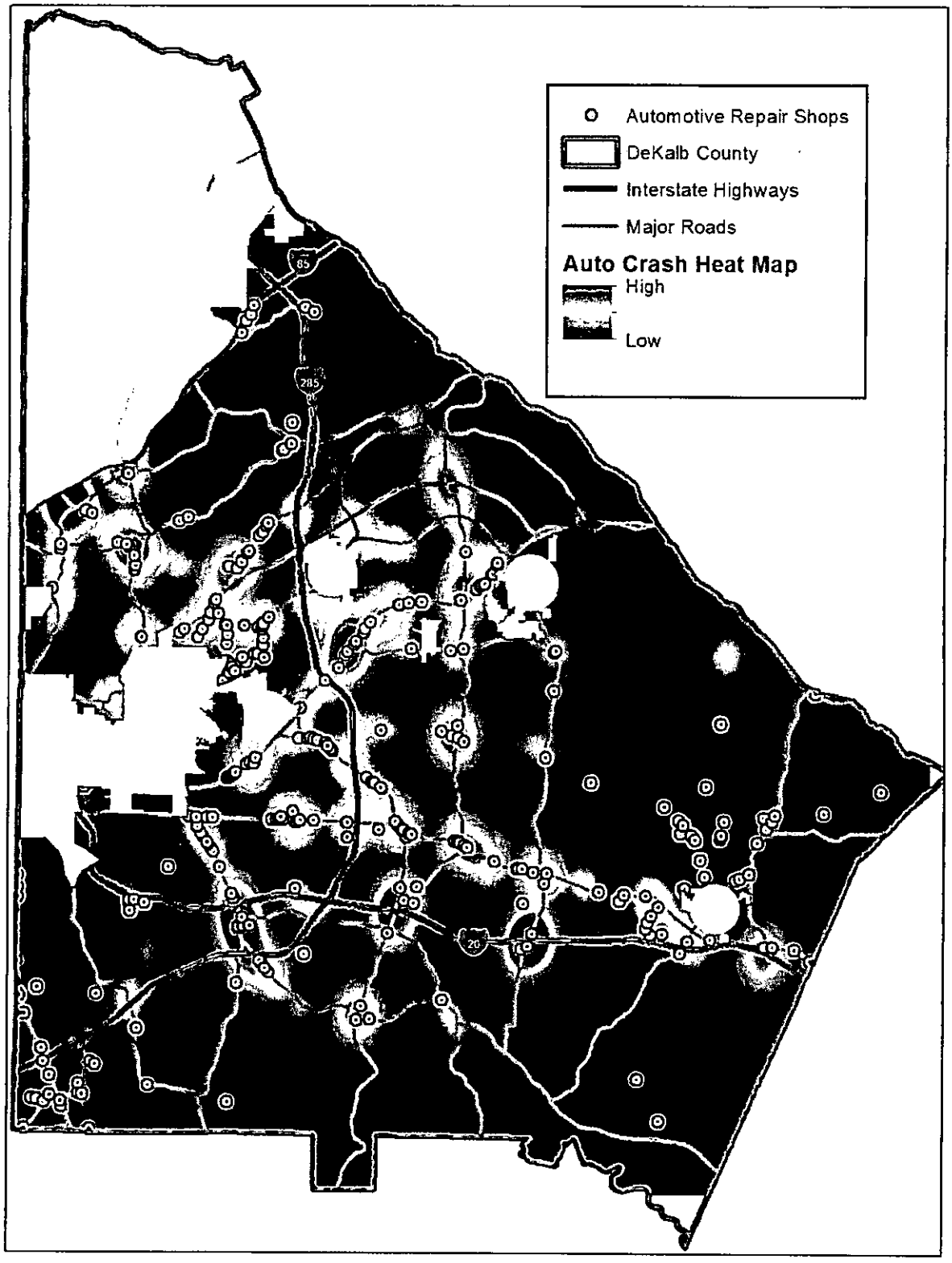

DeKalb County Police Department
Violent Crimes Heat Map
Legend
Bank
Grocery
Restaurant
Interstate / Freeway, Ramp
Collector, Major / Minor Arterial, Minor Arterial
County Boundary
Municipal Boundary
<VALUE>
0 - 39.80932517
39.80932518 - 132.6977529
132.6977754 - 245.4908447
245.4908448 - 378.1885956
378.1885987 - 530.7910156
530.7910157 - 716.5878731
716.5878712 - 922.2493896
922.2493897 - 1,200.914673
1,200.914674 - 1,691.996262
Crime Data For Years 2013 - 2015
N
DeKalb County, GA
Geographic Information Systems Department

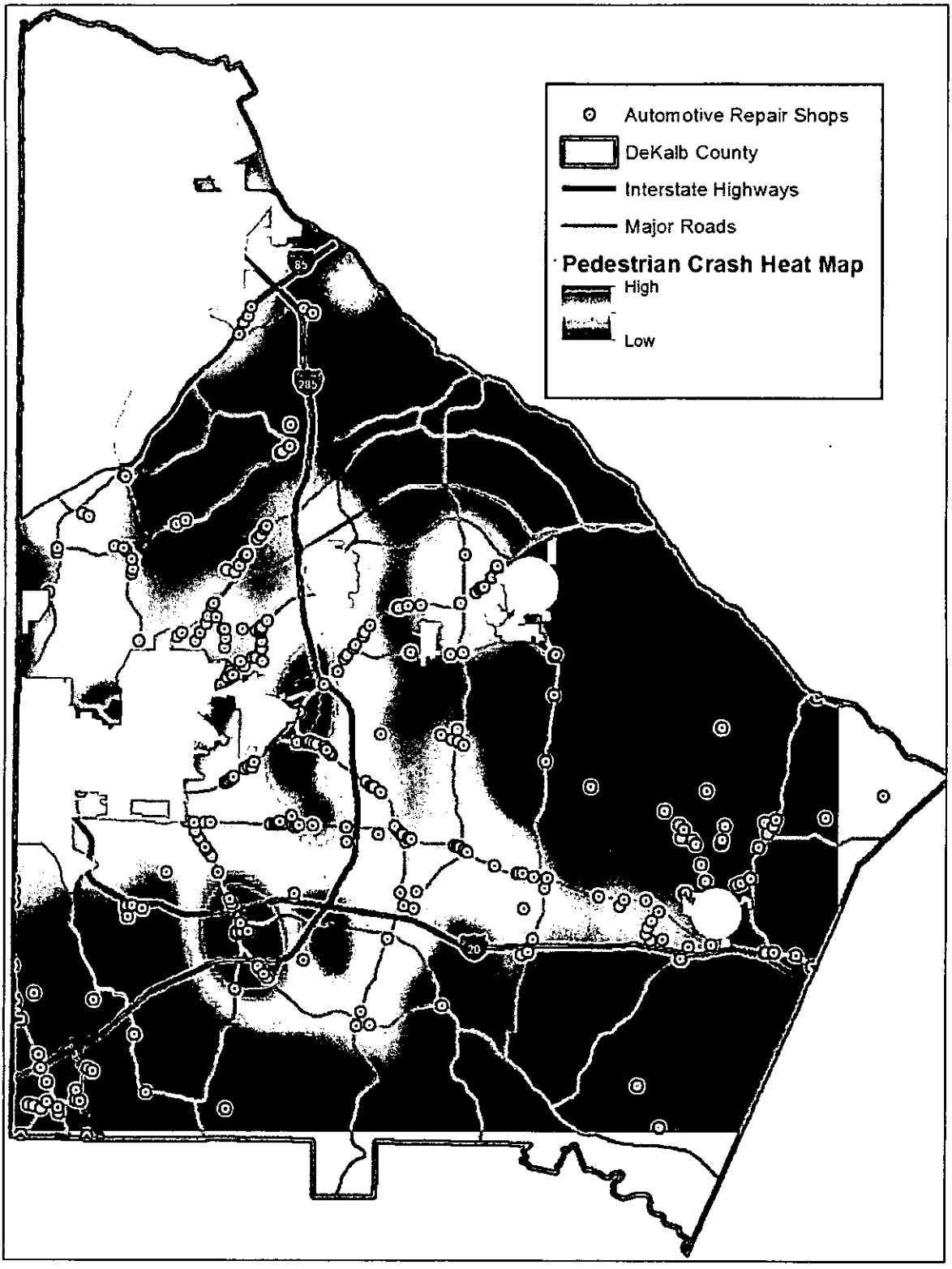
DeKalb County Police Department
Violent Crimes Grocery Heat Map

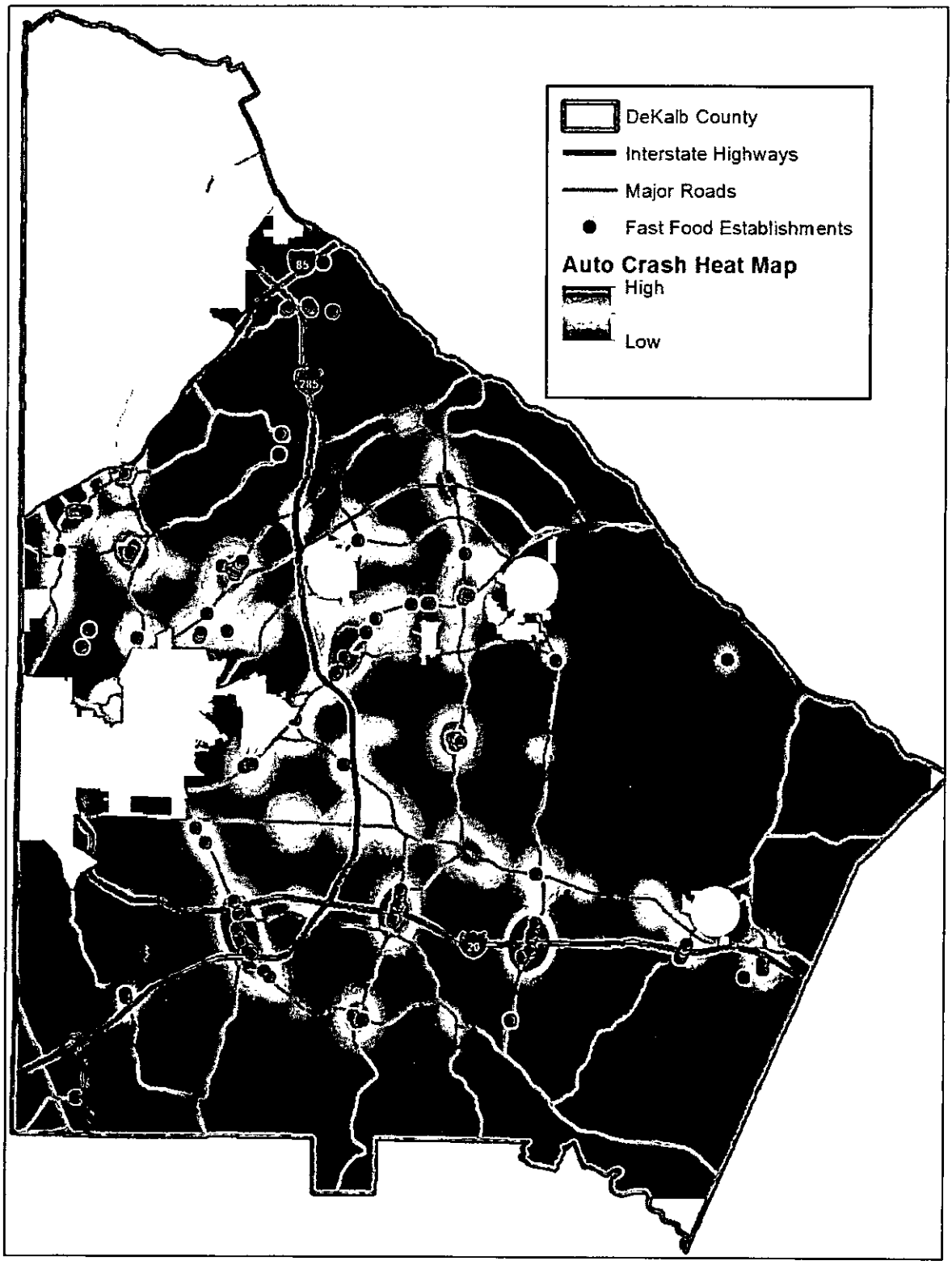


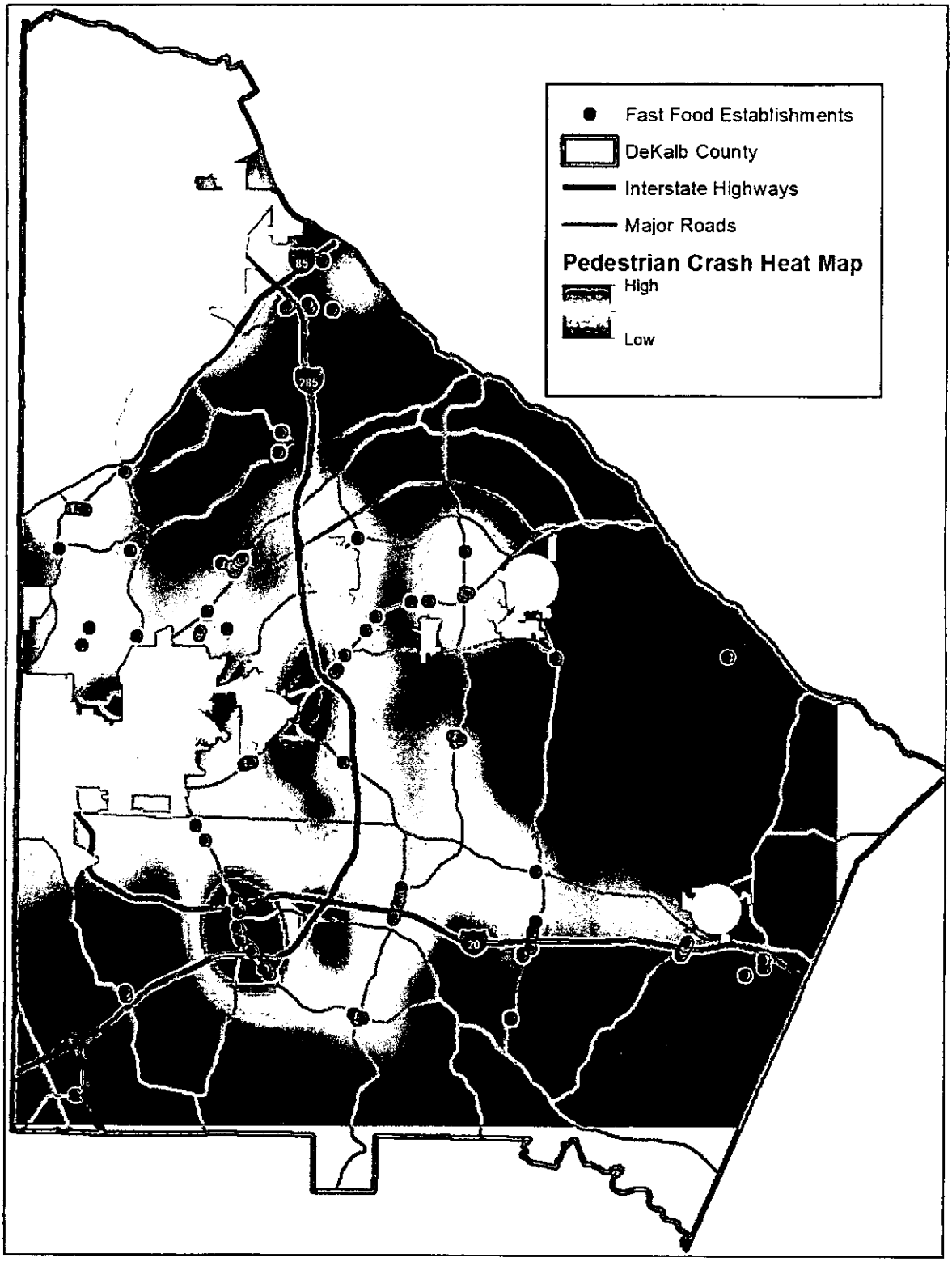

DeKalb County Police Department
Violent Crimes Restaurants Heat Map
Legend
Restaurants
Interstate / Freeway Ramp
Collector; Major / Minor Arterial; Minor Arterial
Municipal Boundary
County Boundary
Violent Crimes Heat
<VALUE>
0 - 38.8093267
38.8093268 - 132.6977538
132.697754 - 245.4903443
245.4903443 - 378.1885987
378.1885987 - 530.7910156
530.7910157 - 716.5678711
716.5678712 - 922.2493896
922.2493897 - 1,200.914673
1,200.914674 - 1,691.306362
Crime Data For Years 2013 - 2015
N
DeKalb County, GA
Geographic Information Systems Department

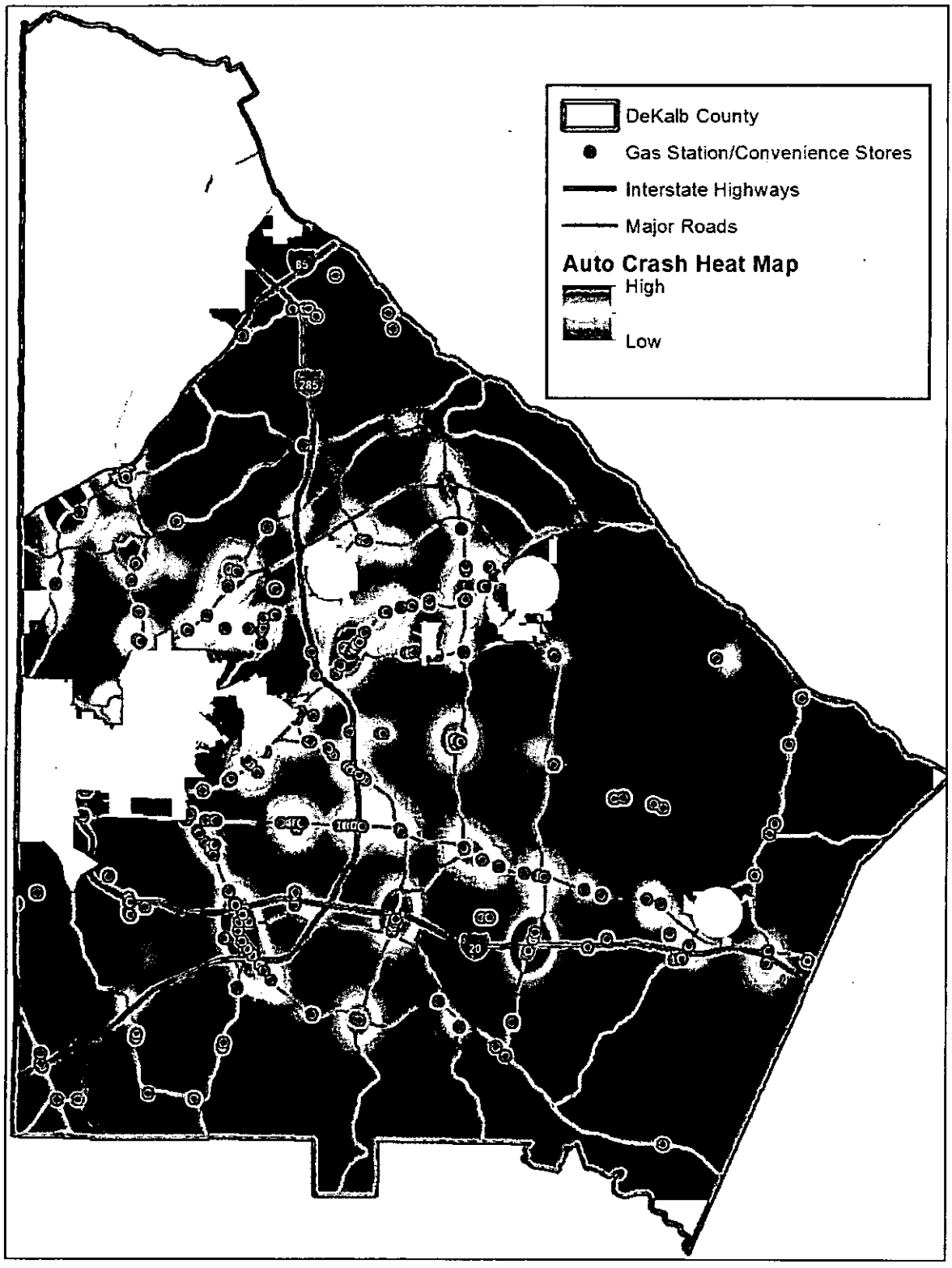

Automotive Repair Shops
Fast Food Establishments
Gas Station/Convenience Stores
DeKalb County
Interstate Highways
Major Roads
Pedestrian Crash Heat Map
High
Low
85
285
20

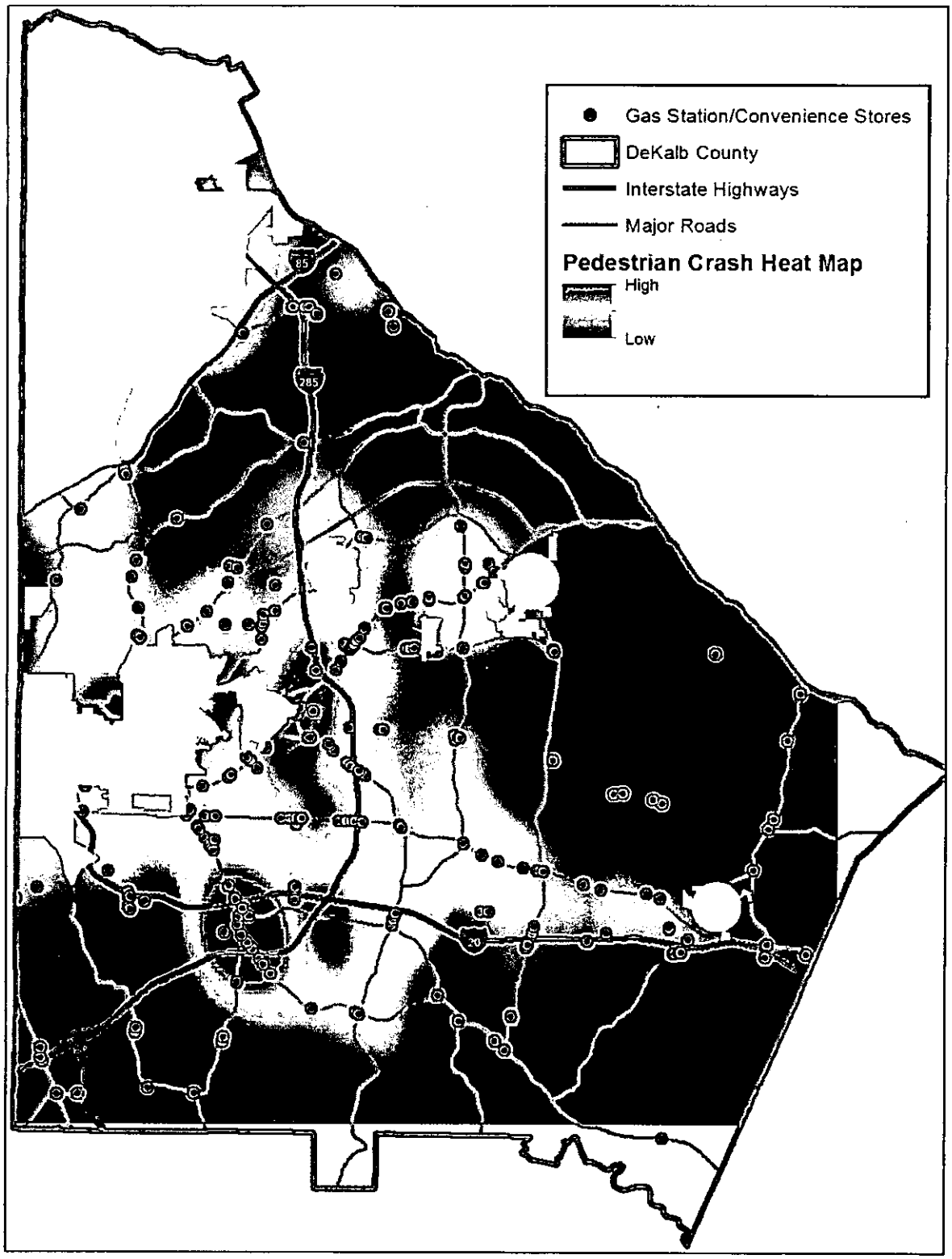

Automotive Repair Shops
DeKalb County
Interstate Highways
Major Roads
Auto Crash Heat Map
High
Low
85
285
20

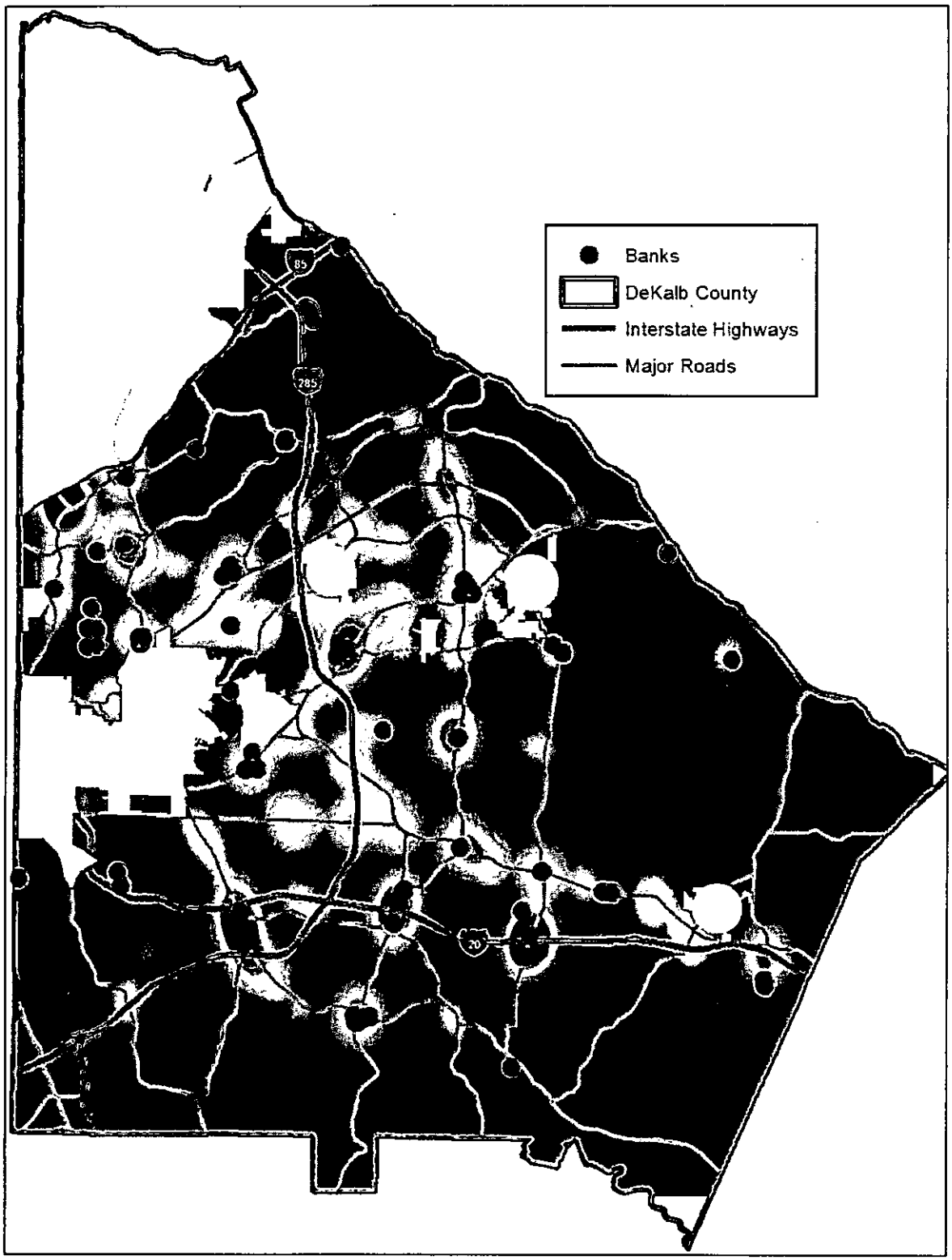

Automotive Repair Shops
DeKalb County
Interstate Highways
Major Roads
Pedestrian Crash Heat Map
High
Low
85
285
20

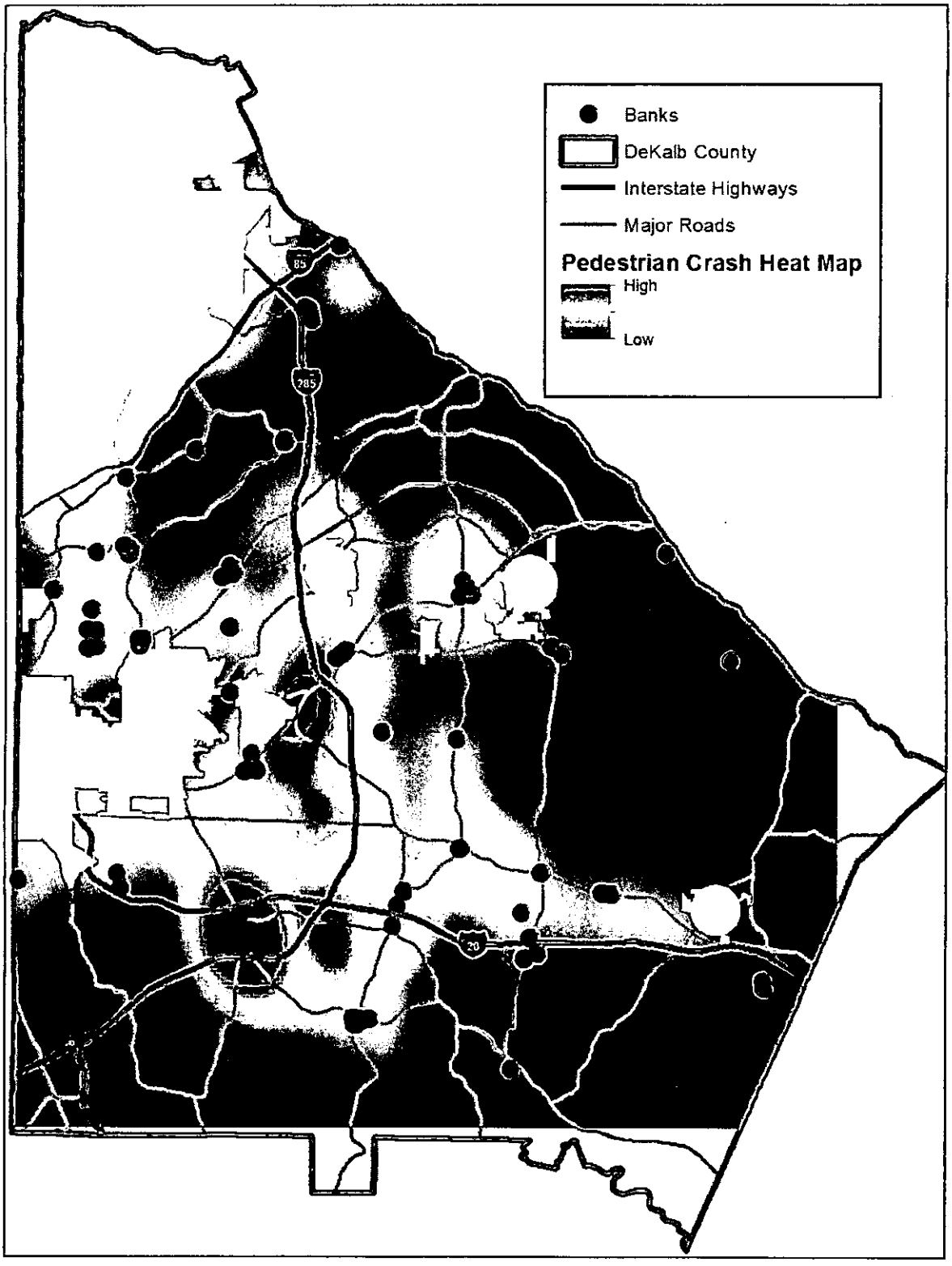

DeKalb County
Interstate Highways
Major Roads
Fast Food Establishments
Auto Crash Heat Map
High
Low
85
285
20

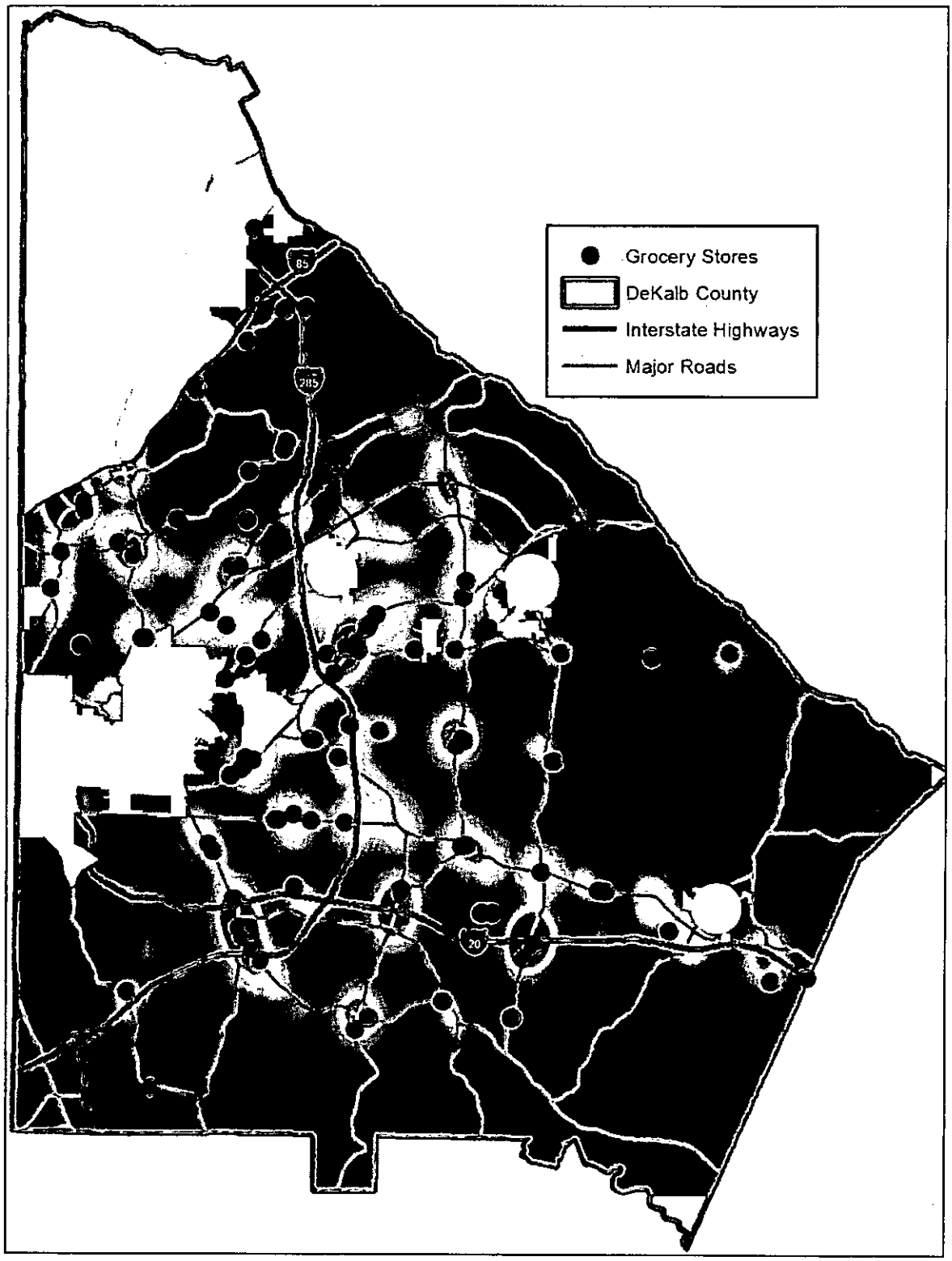

Fast Food Establishments
DeKalb County
Interstate Highways
Major Roads
Pedestrian Crash Heat Map
High
Low
85
285
20

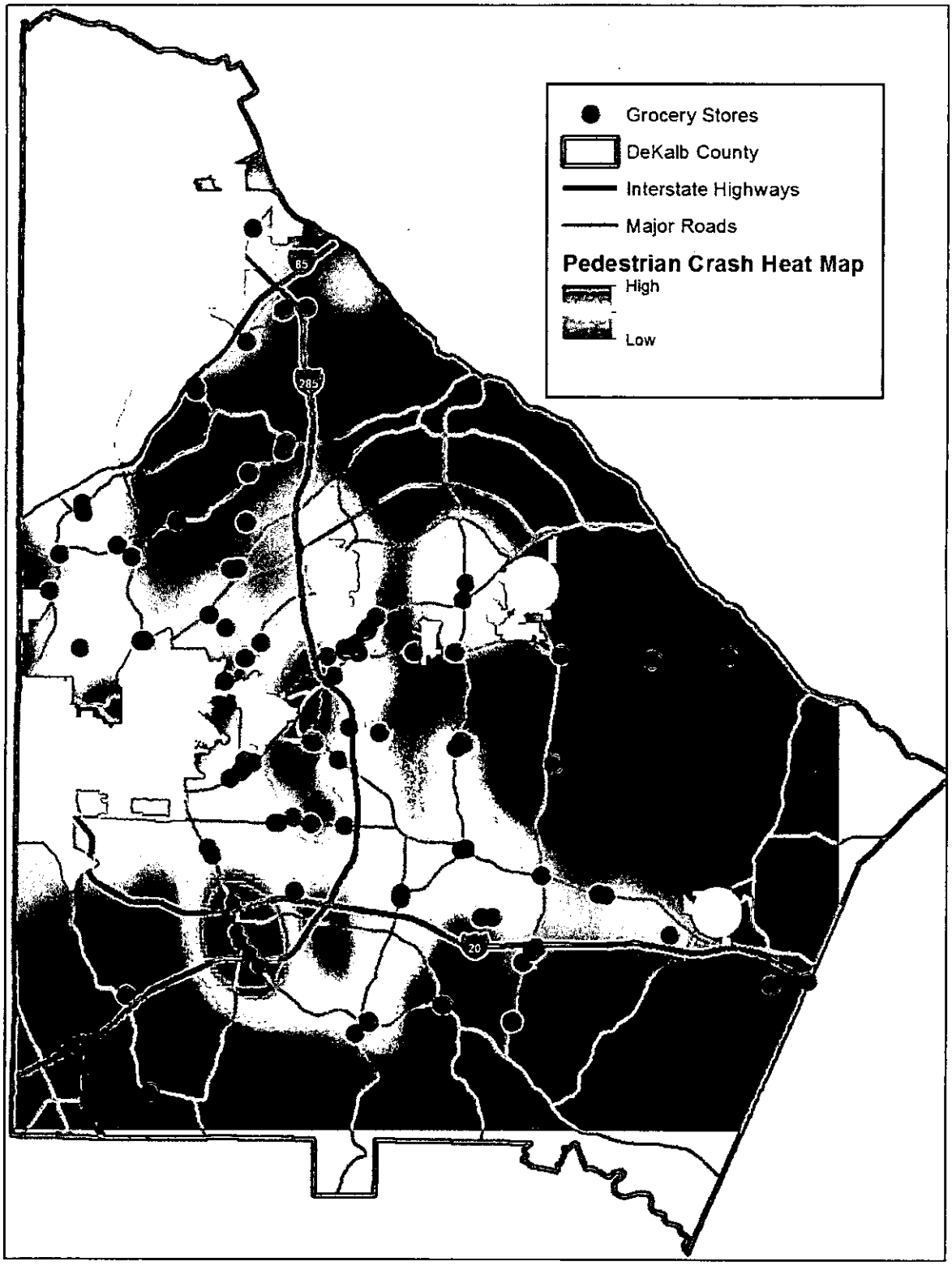

DeKalb County
Gas Station/Convenience Stores
Interstate Highways
Major Roads
Auto Crash Heat Map
High
Low
85
285
20


Gas Station/Convenience Stores
DeKalb County
Interstate Highways
Major Roads
Pedestrian Crash Heat Map
High
Low
85
285
20


Banks
DeKalb County
Interstate Highways
Major Roads
85
285
20


Banks
DeKalb County
Interstate Highways
Major Roads
Pedestrian Crash Heat Map
High
Low
85
285
20


Grocery Stores
DeKalb County
Interstate Highways
Major Roads
85
285
20


Grocery Stores
DeKalb County
Interstate Highways
Major Roads
Pedestrian Crash Heat Map
High
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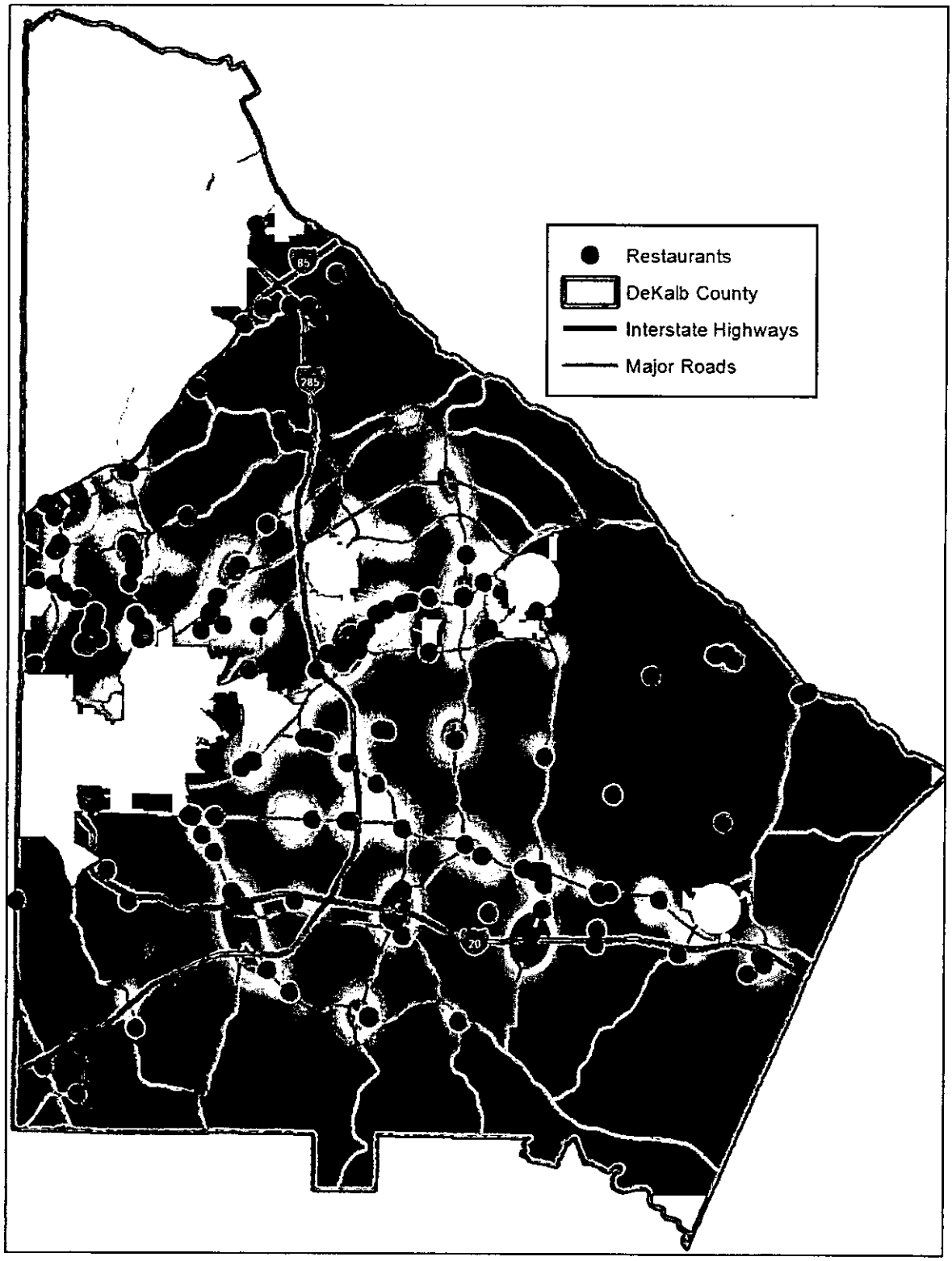
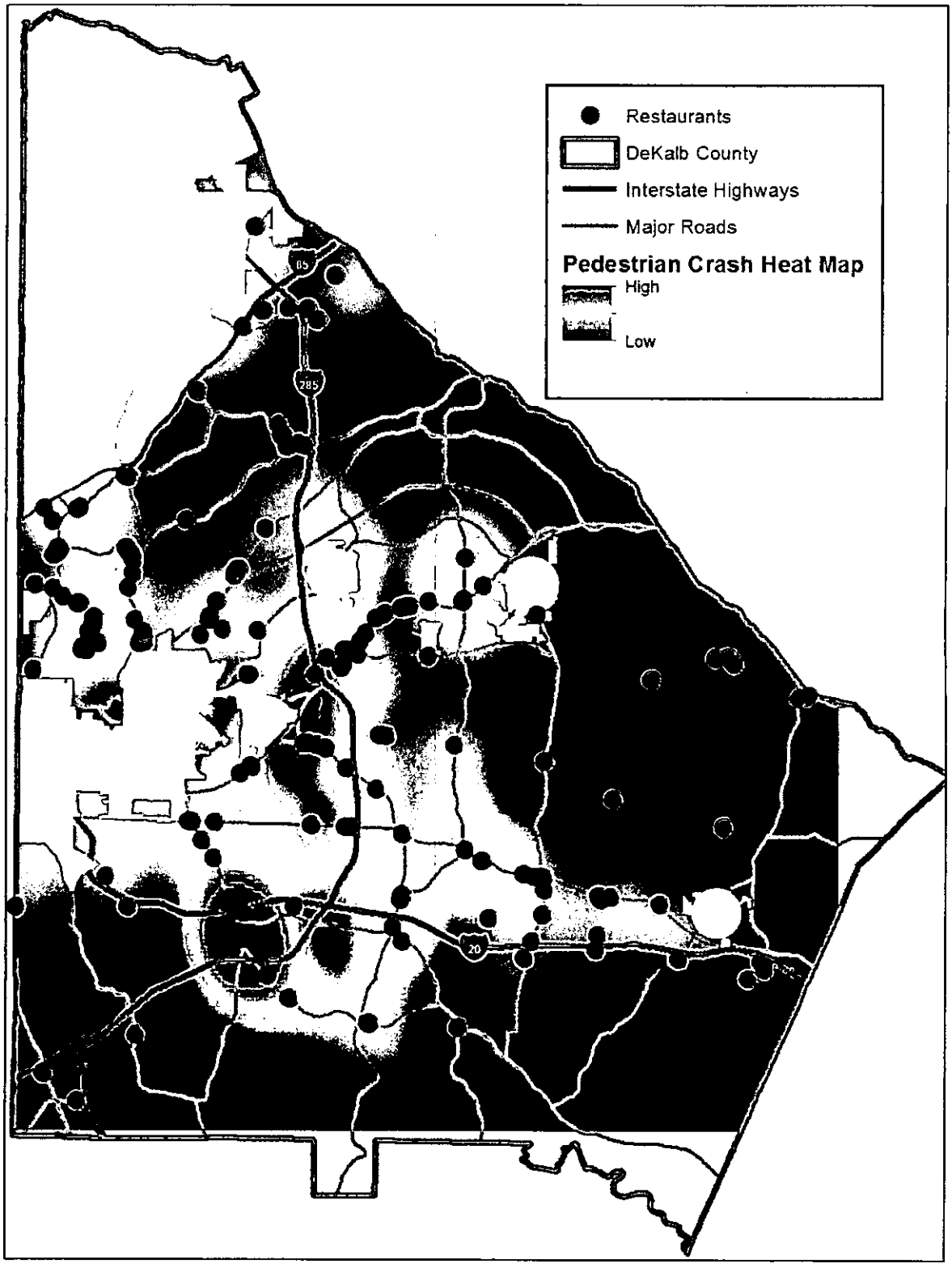

Restaurants
DeKalb County
Interstate Highways
Major Roads
85
285
20


Restaurants
DeKalb County
Interstate Highways
Major Roads
Pedestrian Crash Heat Map
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