

## **Reducing Crime with GIS, Lee County, Florida (Youth Crime, Restorative Justice, and GIS – Part II)**

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### **Abstract**

Lee County, Florida uses GIS to maximize the effectiveness of programs addressing crime. GIS maps and graphics coordinate the actions of the multiple police departments and public safety agencies responding to youth crime in the county. GIS analysis shapes the design and evaluates the efficiency of crime prevention and restorative justice initiatives. GIS projects presented with the paper show trend data on the effectiveness of programs responding to youth crime, the relationship between crime locations in residential zones and the offender home addresses, and geographic coordination of agency jurisdictions. The paper documents the second phase of GIS utilization to support a major study of youth crime in Lee County.

### **GIS Preface**

The data and analysis for this paper was done with the help of ArcView and the Spatial Analyst Extension. Home addresses and crime addresses for over 800 juveniles were geocoded. The geocoded points were used by Spatial Analyst tools to determine juvenile crime density for the county. The points were also used to measure the distance from the juvenile's home to where the crime was committed.

The Lee County GIS system operates under licenses for ESRI ArcGIS, ArcIMS, and numerous extensions. County staffs access a well-established GIS system with over 350 active feature layers. DHS presentations at ESRI conferences to date include a GIS and *human services delivery*, GIS and *youth crime reduction*, and GIS and *disaster planning*.

### **Introduction: Map 1 Juvenile Crime Density, Lee County**



## **Background: Youth Crime and Restorative Justice**

DHS is collaborating in a multi-year study of youth crime and responses with a local consortium, The Juvenile Assessment Council. The council includes the Lee County Sheriff, local police departments, the Fort Myers Juvenile Assessment Center, the Florida Department of Juvenile Justice as well as Southwest Florida Addiction Services Inc.

DHS administers *Restorative Justice* programs in multiple counties. These programs focus on assigning responsibility for the repair to the (youth) offender. Accountability Boards bring together the victims and neighborhood stakeholders, and the juvenile offenders with parents to develop a Case Plan to repair the harm through community service and/or financial restitution.

GIS tools were used to prepare a 2006 Paper -*Youth Crime, Restorative Justice and GIS- Lee County*. The paper described and illustrated several *initial findings*. 2006 Study findings included:

1. The relationship of offender residence with geographic concentrations of poverty is not as direct as expected. A possible hypothesis is that working poor have a relatively greater risk of children slipping into crime.
2. The relationship between youth *offender residence* locations and the *locations of the crimes* is complex. Mall arrests record a wide spread of offender residence locations.

## **Youth Crime and Restorative Justice Part II**

This paper presents further analysis of youth crime and youth crime responses by the Department of Human Services and its partners from the Juvenile Assessment Council. The 2007 Phase studied trend data on the effectiveness of programs responding to youth crime, the relationship between crime locations in residential zones and the offender home addresses, and geographic coordination of agency jurisdictions

## Youth Crime and Restorative Justice Part II

### Analysis 2007.1: Trend data

#### Analysis 2007.1: Chart 1

#### Arrests 2001 to 2007 consolidated to early middle and late groupings.

1st Third		2nd Third		3rd Third	
<b>Total</b>		<b>Total</b>		<b>Total</b>	
Arrests	127	Arrests	264	Arrests	416
Females	52	Females	117	Females	62
Males	75	Males	147	Males	354
Ave Age	14.57	Ave Age	14.83	Ave Age	16
misdemeanor	119	misdemeanor	195	misdemeanor	200
Felonies	8	Felonies	69	Felonies	216
ave dist	4.25	ave dist	4.23	ave dist	4.58
Females	52	<b>Females</b>	117	<b>Females</b>	62
Ave Age	14.7	Ave Age	14.85	Ave Age	15.60
misdemeanor	51	misdemeanor	106	misdemeanor	40
Felonies	1	Felonies	11	Felonies	22
ave dist	4.64	ave dist	5.26	ave dist	6.53
Males	75	<b>Males</b>	147	<b>Males</b>	354
Ave Age Males	14.52	Ave Age Males	14.82	Ave Age Males	15.52
misdemeanor	68	misdemeanor	90	misdemeanor	160
Felonies	7	Felonies	58	Felonies	194
ave dist	3.98	ave dist	3.39	ave dist	4.24
misdemeanors	119	<b>misdemeanors</b>	196	<b>misdemeanors</b>	200
ave age	14.51	ave age	15.10	ave age	15.78
Females	51	Females	106	Females	40
Males	68	Males	90	Males	160
ave dist	4.28	ave dist	4.47	ave dist	4.10
Felonies	8	<b>Felonies</b>	68	<b>Felonies</b>	216
ave age	15.50	ave age	14.29	ave age	15.27
Females	1	Females	11	Females	22
Males	7	Males	57	Males	194
ave dist	3.75	ave dist	3.55	ave dist	4.97

### Analysis 2007.1: Trend data

The 2007 Phase studied trend data on the effectiveness of programs responding to youth crime. There were numerous initial findings in the data analysis segment of the project. These; however, revealed new data about the nature of youth crime rather than chronological trends. Trend analysis is ongoing but at this point no geographic relationship or geographic display has been developed

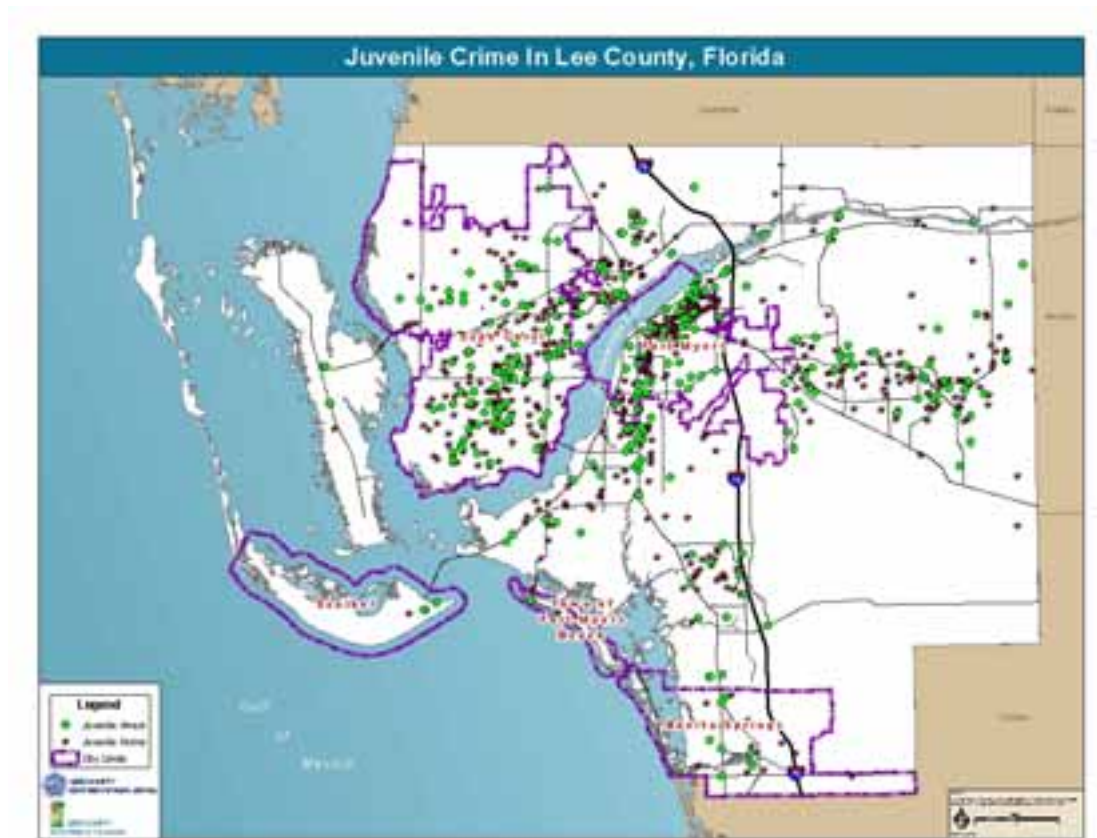
## Youth Crime and Restorative Justice Part II

### Analysis 2007.2:

#### Proximity of Offender Residence to Neighborhood Crime Location

One of the areas of particular interest to the researchers is the potential relationship between youth *offender residence* locations and the *locations of the crimes*. The following map begins this investigation and shows the array of offender residence locales and crime locales.

### Analysis 2007.2: Map 2

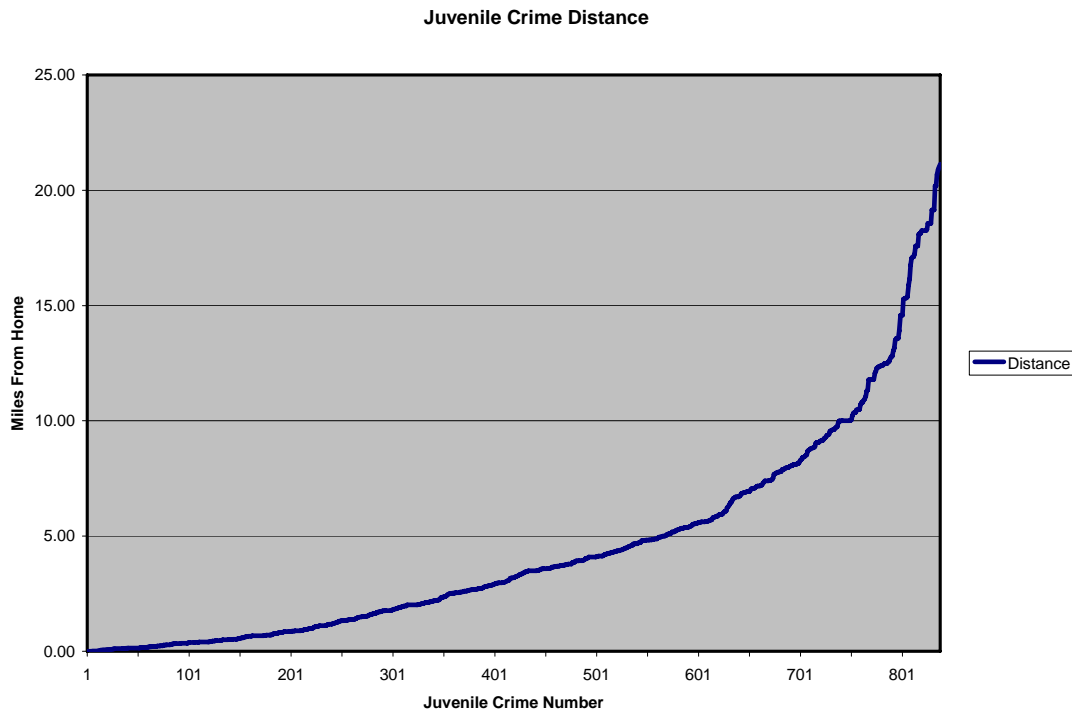


**Youth Crime Locations and Neighborhood of Offender**

## Youth Crime and Restorative Justice Part II

### Analysis 2007.2 Continued: Proximity of Offender Residence to Neighborhood Crime Location

#### Analysis 2007.2: Table 1



### Youth Crime Locations and Distance from Residence of Offender

#### Analysis 2007.2:

#### Youth Crime Locations and Neighborhood of Offender

The 2007 Phase again studied potential relationship between youth *offender residence* locations and the *locations of the crimes*. Part of the data analysis is displayed in the graph above. It can be seen that a large portion of offenses are committed relatively close to the offender's residence; however, a significant number of crimes occur at substantial distance. The latter effect was shown in the mapping for the Mall crimes in the 2006 Lee County paper. Further work is underway to bring the data and graphic analysis to a finer grain with census blocks and block groups as boundaries.

**Analysis 2007.3:  
Boundary Geographies of Participating Agencies**

**Analysis 2007.3: Map 3**



**Analysis 2007.3:  
Boundary Geographies of Participating Agencies**

The map above illustrates only 3 of the 11 Public Safety agencies with responsibilities and often overlapping jurisdictions for youth crime. With the wide geographic spread of offense locations shown in Maps 1, and 2 herewith and a multiplicity of overlapping jurisdictions, the critical importance of coordination between concerned agencies. GIS presentations are valuable tool in obtaining this collaboration and in implementing coordinated action.

## **Acknowledgements and References**

The Lee County Board of Commissioners, County Administration, and Karen Hawes, Human Services Director, have given unqualified support for research and planning in GIS for human services delivery. Amy Hoyt and Hunter Wynne serve Lee County as GIS Administrators and their ongoing assistance is acknowledged and appreciated. Data for the initial map projects illustrated comes primarily from case records maintained by the Department and demographic layers previously developed from Census data.

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*<sup>1</sup>(The maps of this paper are generated from the actual Map Projects in use. Offender residence privacy is not required in most cases; however, the map illustrations of this paper mask specific residence location.)*