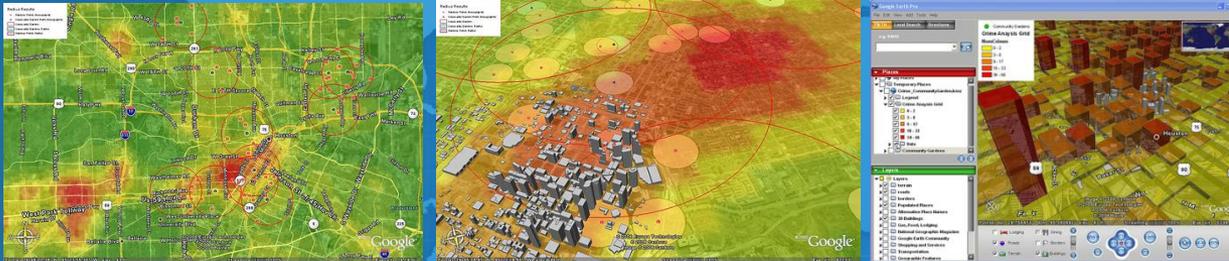# Geographic Information Systems aid in Fighting Crime

GIS technology is becoming the fastest growing tool used on all scales of public safety programs and organizations. From the CIA, to state police, down to maybe even mall security, geospatial information is being used to assist in countering criminal activities. GIS is more than maps, it is loaded with data that can be used spatially as a visual rather than say a spreadsheet to help make better decisions. Visuals are also much easier to explain when sharing with others.

A project in Houston Texas combined the crime reports by address from the HPD with ArcInfo with the Spatial Analyst Extension, Arc2Earth, and Google Earth to generate multiple maps of crime based 1/4 mile raster "heat-maps" to visualize the effect of community gardens on crime. A community garden is often times just a public garden that multiple people manage and is open for anyone willing to participate to help provide a sense of community within it's surroundings. The community gardens are indicated with a 2 mile radius red circle. This map may suggest a positive relationship between the gardens and the absence of crime. Most of the crime appears to happen on the outskirts of gardens or in areas with no gardens at all. Very few gardens fall in the worst areas, but it is bound to happen.(GeoChalkboard)

Images from geochalkboard.wordpress.com

This same project was also taken to another level by using the crime "heat-map" to generate a 3D map of the 1/4 mile crime rate data. These new maps can provide a clearer visual on actual rates than colors can alone. The combination of colors and proportional cell heights can effetely show points of interest concerning crime rate in an area of a 1/4 mile. This can then be used to plan police patrol routes as well, further increasing the efficiency of the out numbered task force. It is also possible to determine crime patterns based off of these visuals when compared with time . (GISlounge)

So with just a few examples it is obvious how effective GIS is in aiding with our public security. It's also not restricted to Police force use either; the USPS can use it to monitor lost or stolen packages or postage fraud for example. Another reason these projects are useful are that they may be the finished project for one purpose but can be the foundation for a new project to meet all sorts of needs. GIS funding and advancement has been on the rise and will continue to grow as new uses and technologies are constantly forming in our ever evolving society.

The image below from ShotSpotter.com shows the accuracy of the system for this particular incident.

ShotSpotter is an interesting GIS implemented security measure that many people may have never thought existed. Shotspotter uses microphones to triangulate the sound of a gunshot to pin point its origin. This is being used in both urban neighborhoods as well as in the military combat field. "It is now possible to hear what you cannot see." Using this Gunshot Location System (GLS), it is possible to know when and where a gun has been fired minutes before a panicked civilian makes the call. ShotSpotter has effectively aided in reducing crime, discouraging random gunfire, making arrests, conducting investigations, prosecuting criminals, and has helped maximize police resources. (ShotSpotter)

GeoChalkboard - http://geochalkboard.wordpress.com/2007/08/27/integrating-arcgis-and-google-earth-for-crime-analysis/ - (1-21-2011)
GISlounge - http://gislounge.com/crime-mapping-gis-goes-mainstream/ - (1-21-2011)
ShotSpotter - http://www.shotspotter.com/solutions/index.html - (1-26-2011)

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