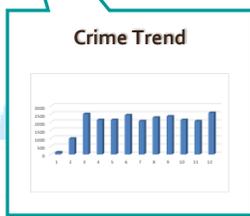


Crime Record

Date:17/8/2017 Time:23h00

A burglary took place to an unoccupied residence. Value of goods stolen was R65000



NEIGHBOURHOOD SAFETY BY GIS MAPPING

INTRODUCING "GEO-WATCH"

Monitoring crimes, increasing intelligence value and predicting trends towards living safely.

This document is also available on our website

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A GIS LAYERED SYSTEM TO FIGHT CRIME IN SOUTH AFRICA

STRATEGIC AND TACTICAL CRIME ANALYSIS USING CLEVER MAPS

A GEOSPATIAL SOLUTION FOR IMPROVED PUBLIC SAFETY

A CLOUD BASED SECURITY SERVICES TOOL FOR NEIGHBOURHOOD PROTECTION

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“Peace and safety in South Africa

The Global Peace Index measures peacefulness according to three broad categories (militarisation, safety and security, and domestic and international conflict), sub-divided into smaller indicators.

Also factored in is the cost of violence, expressed as a percentage of GDP. Globally, the IEP measured this at 12.6% of GDP, meaning global violence costs \$14.3 trillion in purchasing power parity (PPP) terms.

According to the report, South Africa ranks as the 123rd most peaceful country in the world, out of 163 countries and districts measured. This puts us on the lower-end of the scale (in the lowest quartile), but still far from war-torn regions like Iraq and Syria.

While South Africa has improved its placement on the index (126th in 2016), the country still remains one of the most dangerous and unsafe countries in the world.

Across all indicators, the country performs very poorly in six, with a perception of high levels of criminality; easy access to weapons; relatively high levels of political terror and high levels of violent demonstrations.”

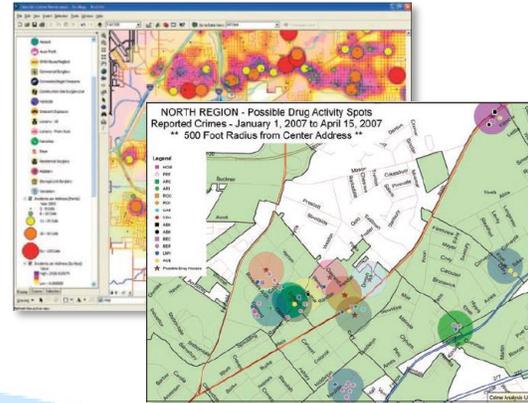
Extract from **South Africa ranks among the most dangerous countries in the world – and it’s costing us.** Staff Writer 21 September 2017. <https://businesstech.co.za/news/lifestyle/200044>.

A geospatial solution for public safety

Stretched by resources and the volume of crimes, South African authorities may find it difficult to extract maximum benefit from crime information without the availability of effective visualisation tools.

To better understand any problem requires access to reliable and current data, analysis of the information and effective tools to visualise, mitigate and even combat the problem.

Although not appreciated, often the requirement may be simple visualization tools backed up by good data.



This figure shows an example of the mapping of crime hotspots and trends on a neighbourhood scale. Ref: Crime Analysis, www.esri.com/publicsafety

A common mapping technology for communities, police services and private security companies

While Police Stations in South Africa are mandated to record crimes, Neighborhood Watch Groups record potential incidents and Private Security companies monitor crime occurrences in their local areas of contract. Combining these data sets into a common easy to use map on the Cloud can significantly contribute towards safer societies.

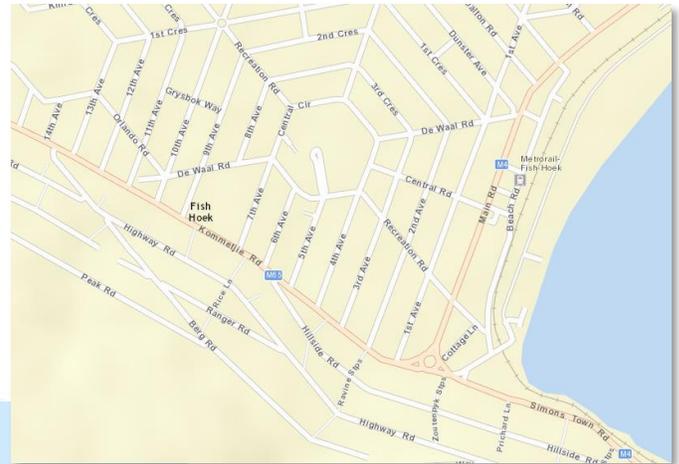
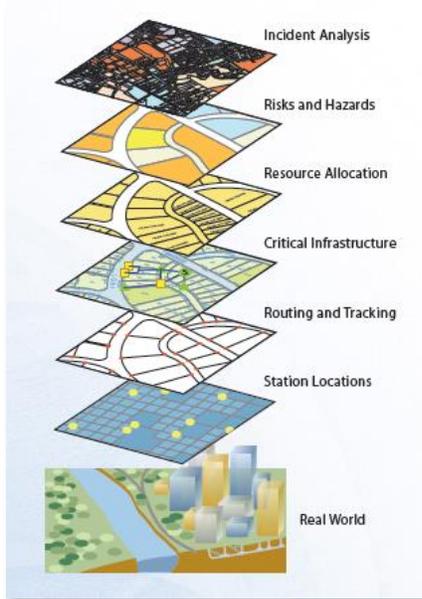
Strategic crime analysis through layered mapping

By mapping crimes on a common visual platform, a suite of analysis options become available. These include:

- Identification of crime patterns, trends and hotspots
- Combining common data to improve investigations
- Forecasting through spatial and temporal signals
- Support to community efforts and patrols

The figure below shows that by overlaying spatial layers of information relating to the surrounding areas, together with the crime datasets, one is able to recreate the real world in the context of safety and security.

Ref: Crime Analysis, www.esri.com/publicsafety

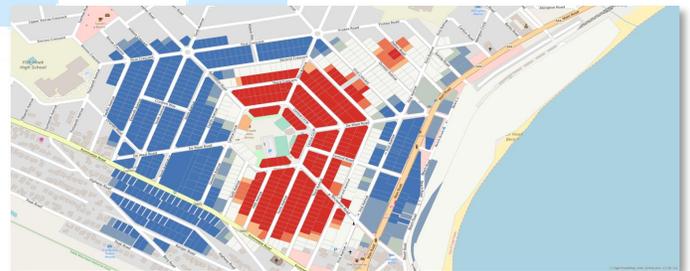


However even this map is of limited use, until other layers of information are shown. For a crime analysis of the same area, the grouping of individual properties can be mapped to visualize a detailed neighbourhood trend. In this example below, fictitious data was applied to sperate erven to show an example of the history of the incidents in the Fish Hoek Valley.

Living safer, responding quicker and being better informed

With security companies and neighbourhood watch groups having common and instant access to cloud-based maps of their area allows them to react to events in an informed manner. Browsing through a time-spatial history of events with online analysis tools improves planning of where and when to place security personnel and monitoring devices.

Becoming information-empowered means becoming better informed, resulting in a safer communities.



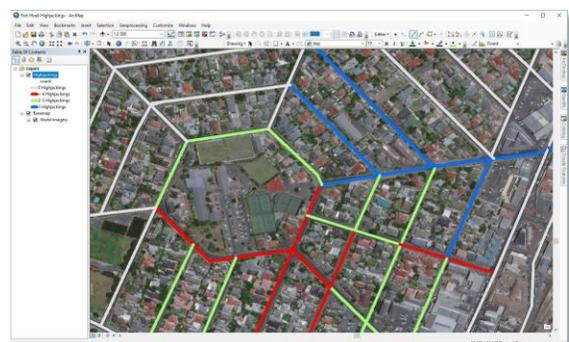
From regional to local to neighbourhood scale, a local example



Another visualisation example that has practical application is to represent individual roads according to its history of crime risk. Once again, fictitious data was used in the figure below which shows the same area with various roads in red, blue, green and white according to their crime risk rating.

Although any part of South Africa can be viewed on the online map, the value of localized GIS mapping for neighbourhood safety is that local data can be added as shown in the examples below.

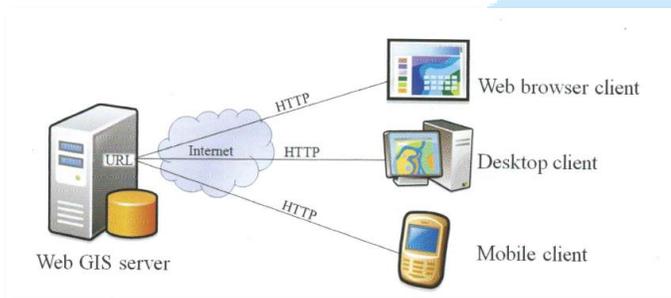
A simple local interactive GIS map showing the Fish Hoek Valley, without additional layers. As one zooms in, the display the detailed information is shown such as erven, street addresses and road names etc. as shown below.



Cloud-Based Web GIS for Community Security

As a community service, historic crime statistics at a neighbourhood level, combined with information such as roads, addresses and potential targeted public places amongst others are published to an internet server. System confidentiality is maintained through stringent security measures using restricted online access. This web-based technology to communicate between components is shown in the figure below.

Users typically can consist of private security companies, neighbourhood watch groups and the Police.



Ref: *Web GIS, P Fu and J Sun, ESRI Press, 2010*

Such a leading-edge solution has many benefits including:

- Regional and local reach with neighbourhood application
- Large potential user base
- Better cross-platform capability, that can also be viewed on a smart mobile phone
- Low cost per user
- Easy to use (for end users)
- Unified update
- Diversity of applications

One of the greatest advantages of using a Web server in the context of the information that is collected, processed, analysed and displayed by a contracted GIS service provider such as Cape Point GIS. In this way, the users acquire the output value without concerning themselves with the technical content or deliverable. This also means that the end-user need not have any prior GIS experience or training.

Conclusion

Although GIS as a technology has been around for many years as a town planning facility amongst others, neighbourhood safety by GIS Mapping is a relatively new topic to local communities, especially in South Africa.

Traditional paper recording methods and spreadsheets remain well entrenched whereby maps, high value utilities
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and assets, together with risk mitigation, governance and safety are vastly distributed. So, although much of the information to improve local security exists, it is too diverse to be used effectively by those that need it the most.

Given the on-going (and sometimes increasing) crime situation in many South African neighbourhoods, the timing is now more critical than ever before to 'upgrade' the way we approach this important aspect of our lives.

If "to-measure-is-to-know" then to measure, monitor and map crime and safety is to truly understand. When smart layered visualization tools are added then significant strategic and tactical advantage is gained.

About "GEO-WATCH"

GEO-WATCH is a recently branded South African name for the software and service that provides all of the above. Neighbourhood Watch groups and security companies capture their incident information via a map to the Cloud, 'on-the-fly' using a smart phone, tablet or PC.

An important component is the security of own information provided, yet also having access to analysis and trends of other security practitioners' data in the same or surrounding neighbourhoods.

Acronyms

GIS=Geographic Information Systems

ESRI= Environmental Systems Research Institute (Cape Point GIS is a software licensed service provider of their GIS software)

HTTP= HyperText Transfer Protocol

URL=Uniform Resource Locator (An internet web site address)

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