GIS as Business Intelligence Tool to Improve Emergency Operations and Communication

Sarel Jansen van Rensburg

Aurecon (South Africa)

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Aurecon

Market Sector and Footprint

- **Advisory and Management Consulting**
- **Buildings and Property**
- **Community Infrastructure**
- **Defence**
- **Education and Training**
- **Energy**
- **Environment**
- **Health**
- **Integrated Communications Technology**
- **Industrial**
- **International Development Assistance**

- **Local Government**
- **Mining and Metals**
- **Oil and Gas**
- **Telecommunication**
- **Transportation**
- **Water**

Introduction
The Environment and Ambulance Service Objective

- Ambulance Services Implemented a Call Taking and Dispatch System

- Five years of data available for analysis

- Continuous improvement to achieve Key Performance Indicators

- Response Times is a key objective

Introduction
A need identified as part of our Continuous Service Improvement

- Ambulance service has limited resources available

- Not able to achieve desired response times

- Requirements for improvement
  - More accurate and up to date incident status
  - Vehicle location information
  - Deploy resources more appropriately
  - Plan routes more effectively

- Improvement initiative identified to investigate further

Introduction

The Analysis Approach

- More accurate and up to date incident status
  - Analyse the communication gaps

- Vehicle location information
  - Vehicle movement analysis

- Deploy resources more appropriately
  - Incident Hotspot Analysis

- Plan routes more effectively
  - Preferred routes analysis

- Need to implement GIS as a Business Intelligence Tool
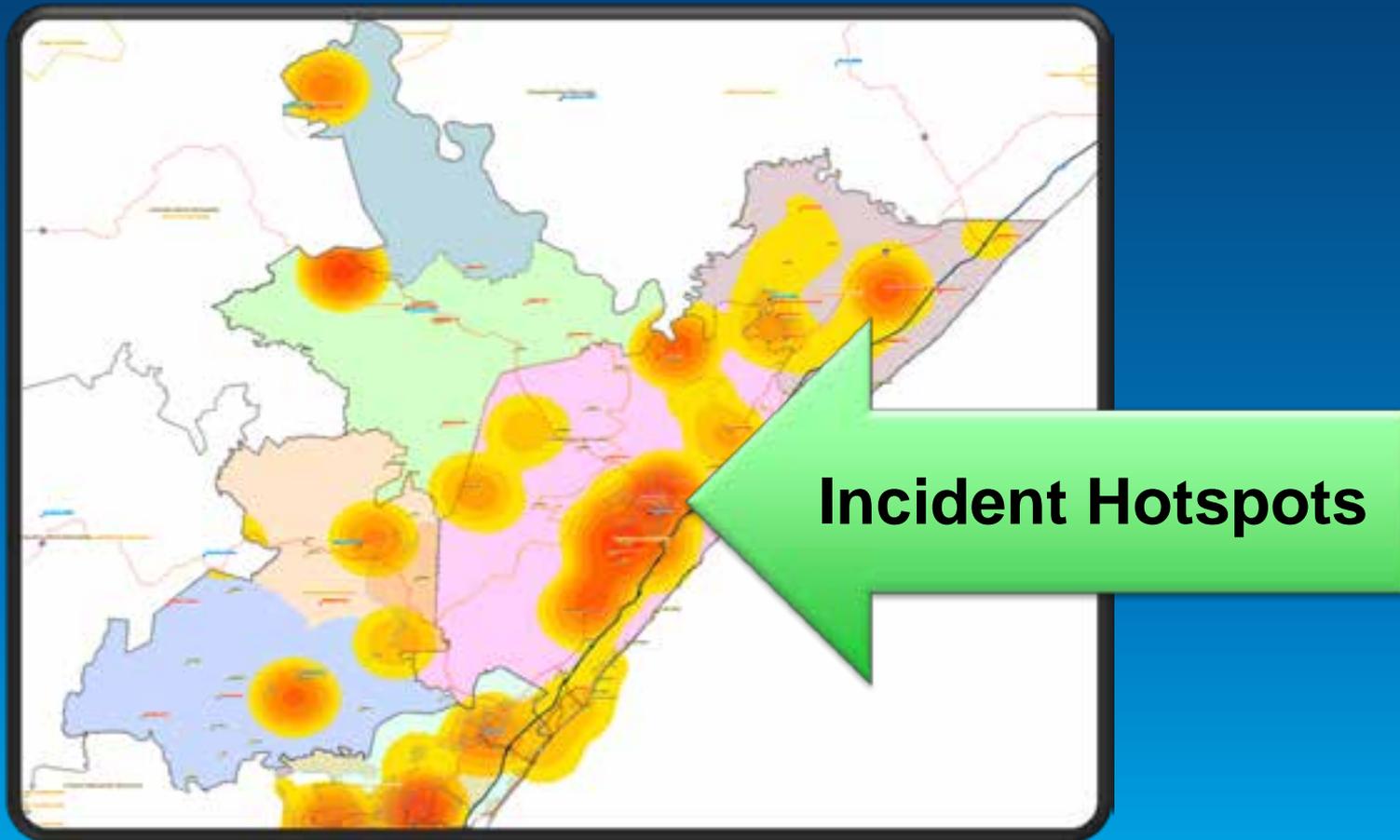
GIS as a Business Intelligence Tool

Area Classification : Urban areas require faster response times
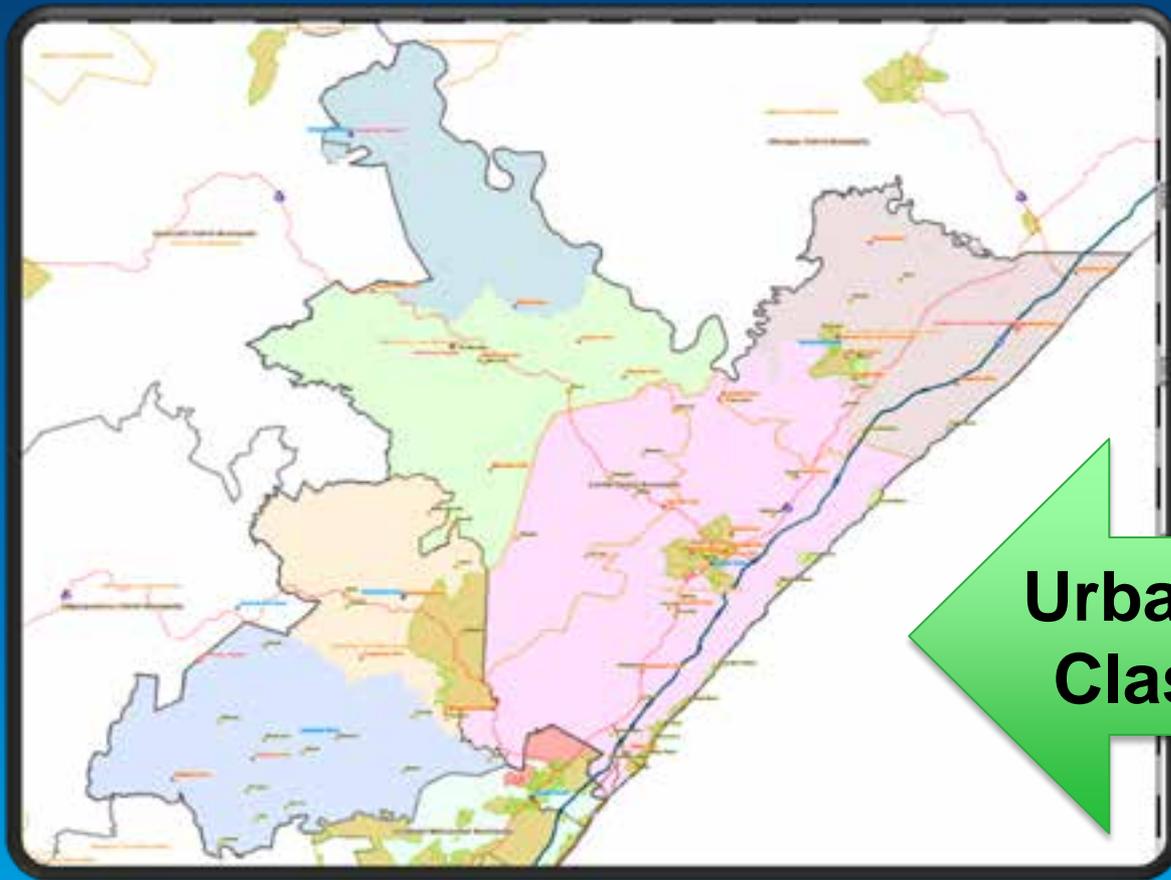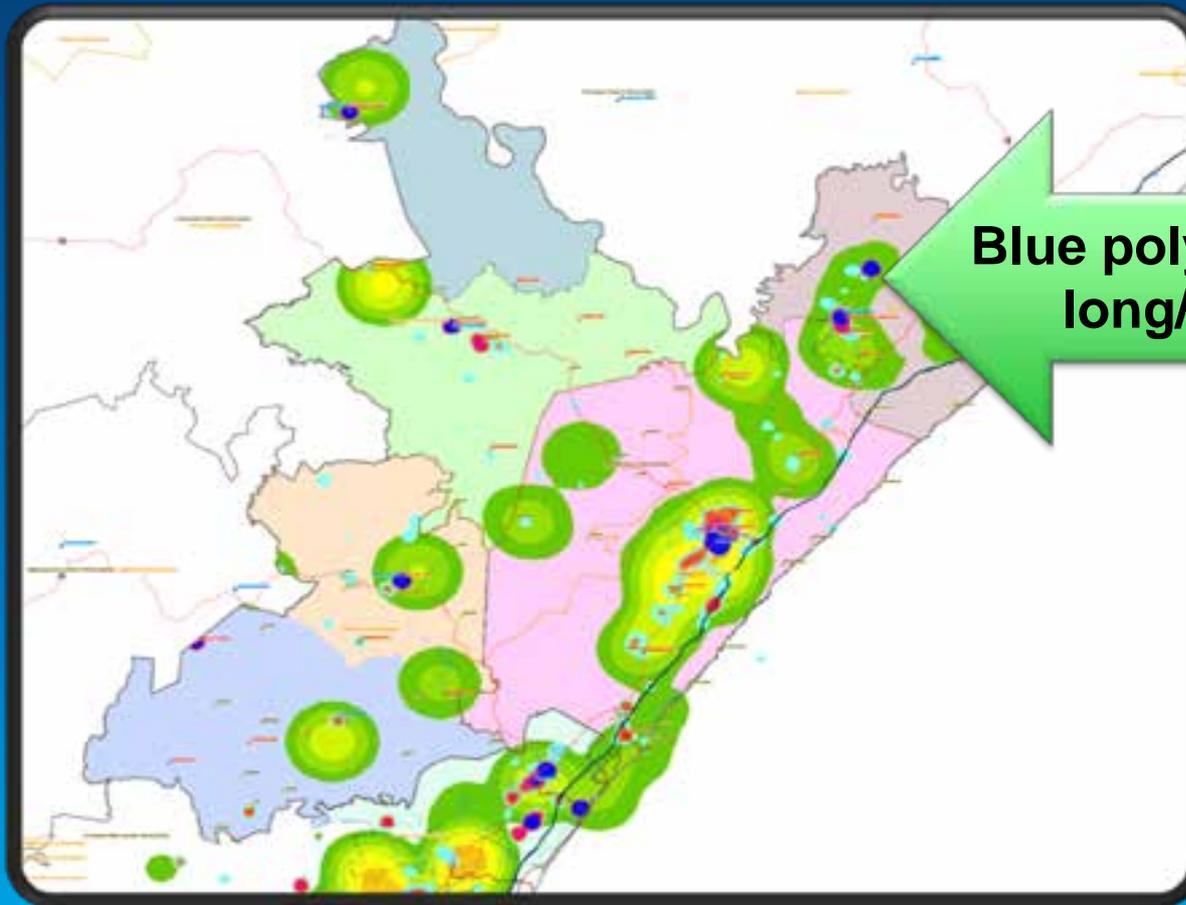

Urban vs Rural Classification

GIS as a Business Intelligence Tool
Incident Hotspot Identification using Kernel Density

Incident Hotspots
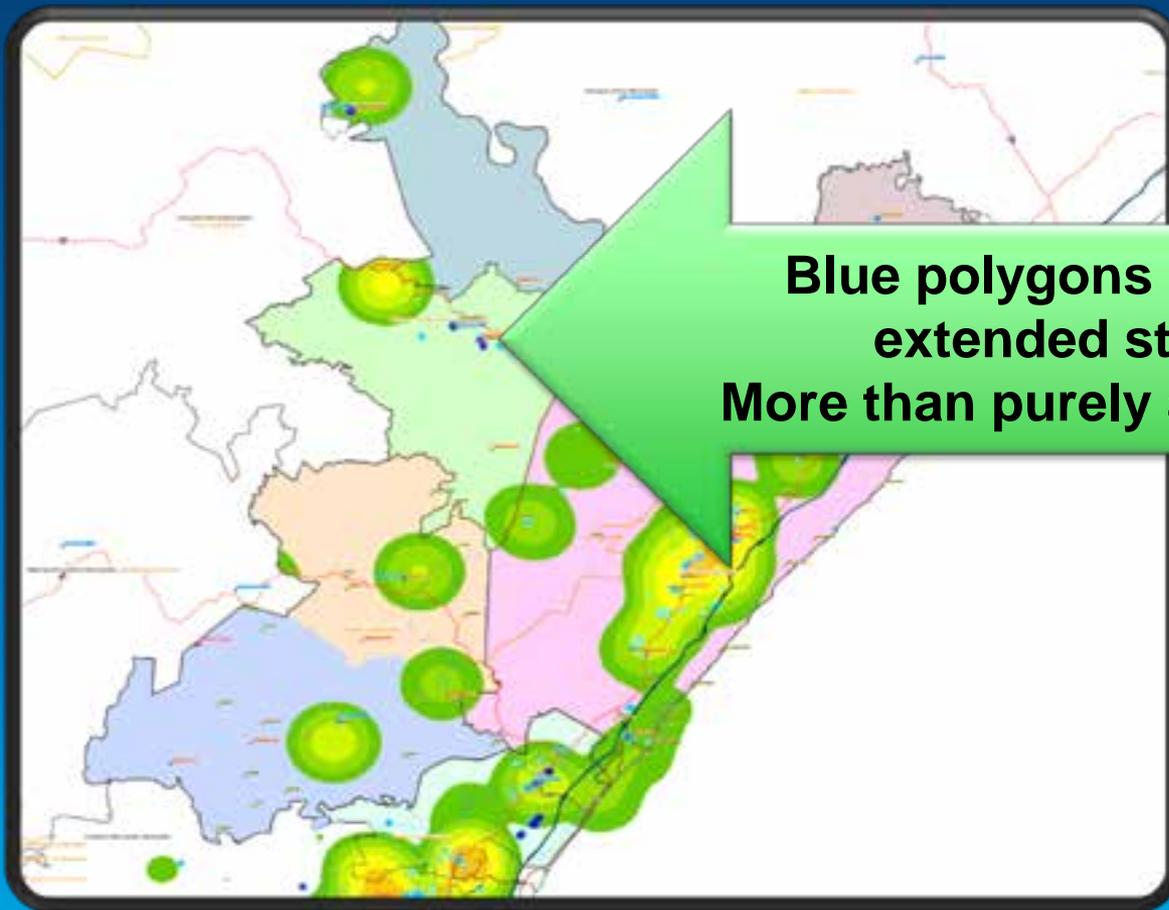
GIS as a Business Intelligence Tool

Vehicle Movement Analysis : Parked for >5min

Blue polygons indicate long/often stops
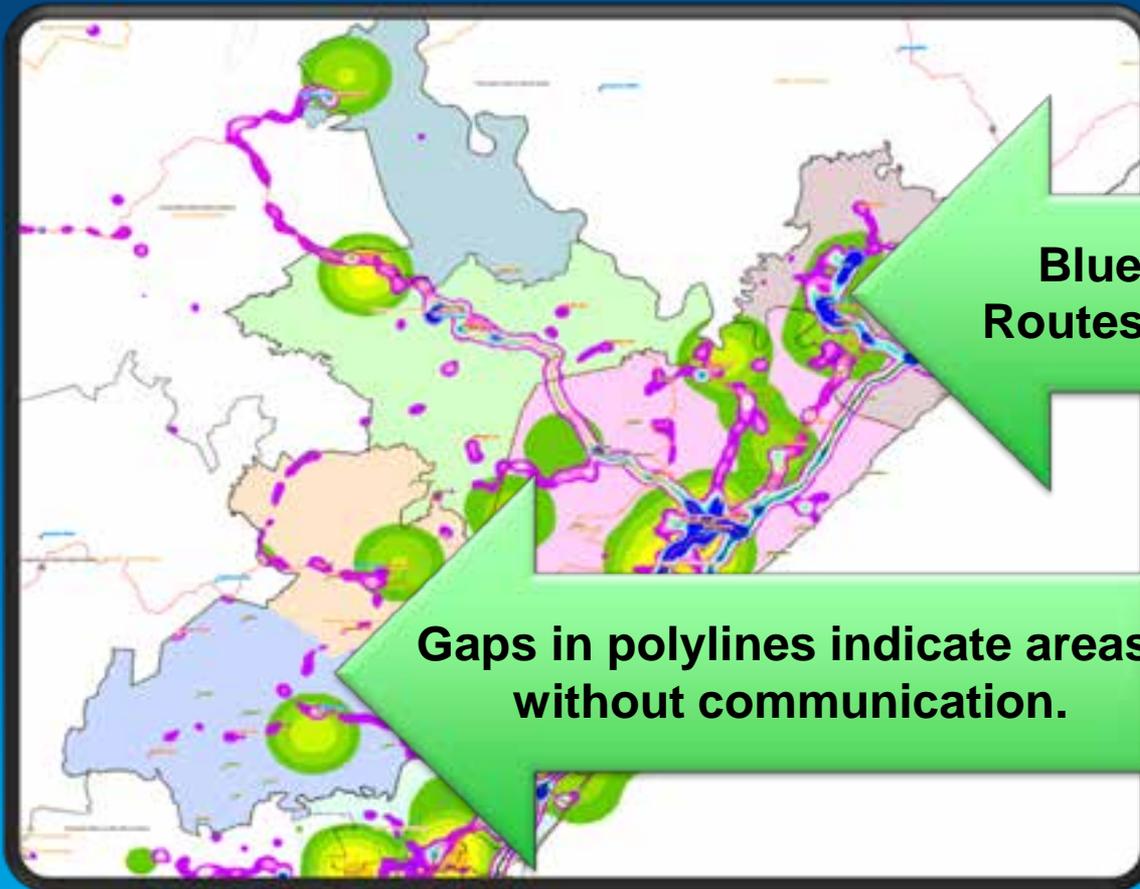
GIS as a Business Intelligence Tool
Vehicle Movement Analysis : Parked for >30min

**Blue polygons indicate extended stops.
More than purely a response**

GIS as a Business Intelligence Tool

Vehicle Movement Analysis : Preferred routes and Areas without communication

Blue polylines indicate Routes most often travelled.

Gaps in polylines indicate areas without communication.

Results and Findings
Benefits

- Overlaid data from multiple specialized systems
- GIS was used as Business Tool to:
  - Identify preferred routes to assist with future route planning
  - Identify hotpots to deploy additional resources
  - Identify possible areas where vehicle take extended breaks
  - Use analysis as the base for improving communication
- All to ultimately improve the ambulance services operations

Conclusion

- This can help any service to better plan the spatial deployment of their resources.

- You can monitor the routes most often travelled by your vehicles and areas where they idle or stand still for extended periods.

- GIS can assist as a Business Intelligence Tool to provide valuable management information

End

- Thank you for your time!

- Questions?