



Adding real-time mapping to WebEOC to better inform emergency response planning

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Real time mapping informing SASES response

- Brief introduction to SA State Emergency Service (SASES)
- Overview of SESIIMS – incident management solution
- Building and integrating spatial capability to inform and improve response planning and operational decisions
- Future plans

SA State Emergency Service

- Volunteer based organisation (originally known as Civil Defence) supporting community since the early 1960s
- Responding 24/7/365 to around 10,000 calls per year
- Control agency for Extreme Weather (including storm, flood and heatwave)
- Urban Search & Rescue (with MFS)
- Marine Rescue, through Volunteer Marine Rescue
- Support/surge capacity (CFS: basecamps, logistics, staging, SAPOL: evidence search)
- SES: 2 Regions, 10 Districts, 67 Units
- 50 staff and 1700 Volunteers
- VMR: 14 flotillas and 550 volunteers



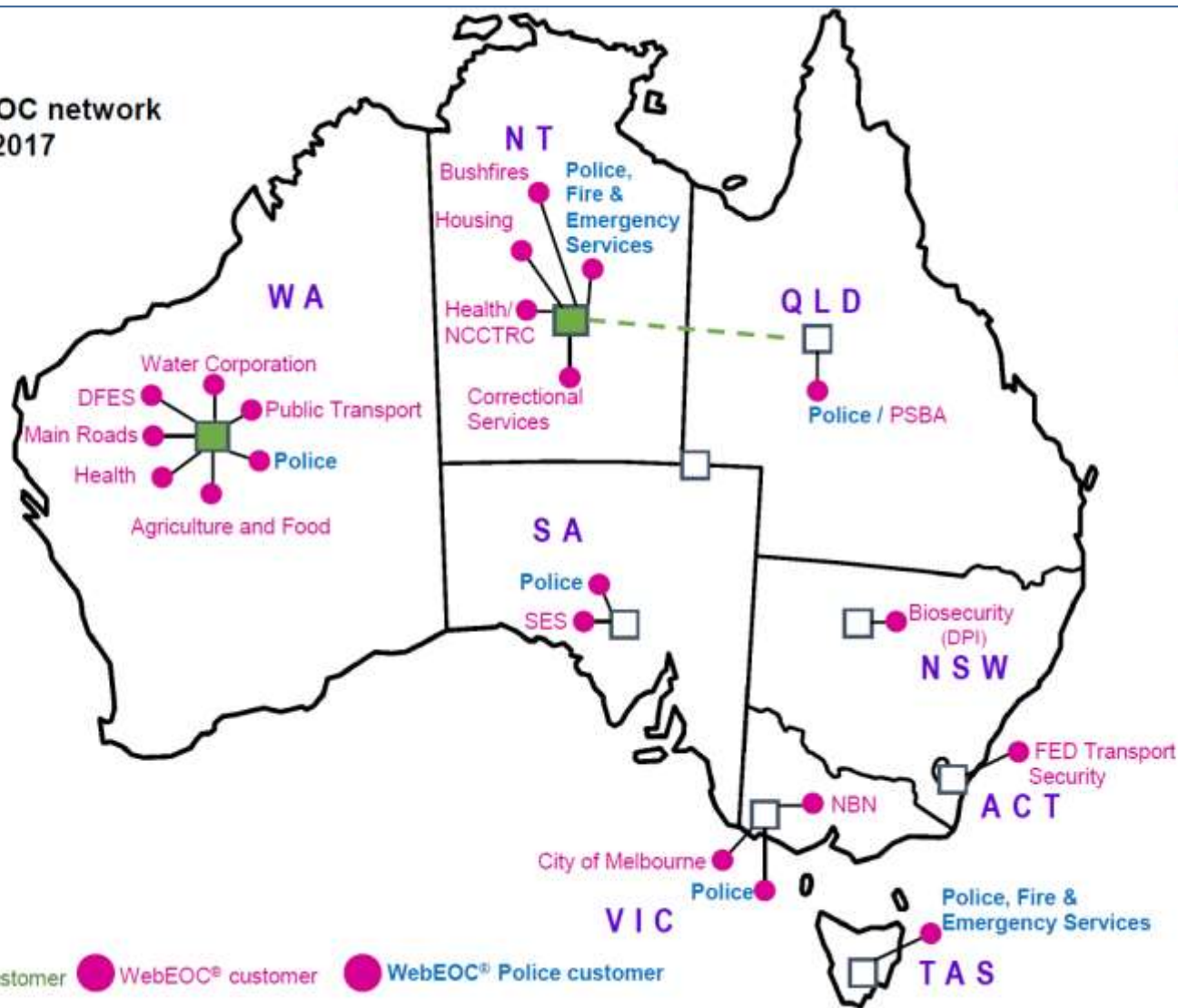
SESIIMS – The SES Incident and Information Management System

- In 2012 SASES began a project to find a single replacement for a number of separate incident management and reporting systems
- Comprehensive RFI/Q process 2012/13
- Review of options -> WebEOC
- Purchased WebEOC licence June 2013
- Phase 1 (internal boards) live on 1st July 2014
- Phase 2 - live to volunteers 1st July 2015



Why WebEOC?

Australian WebEOC network
As at 31 August 2017



Airline Customers
Air New Zealand
Qantas

NZ Customers
Fonterra
Maritime NZ

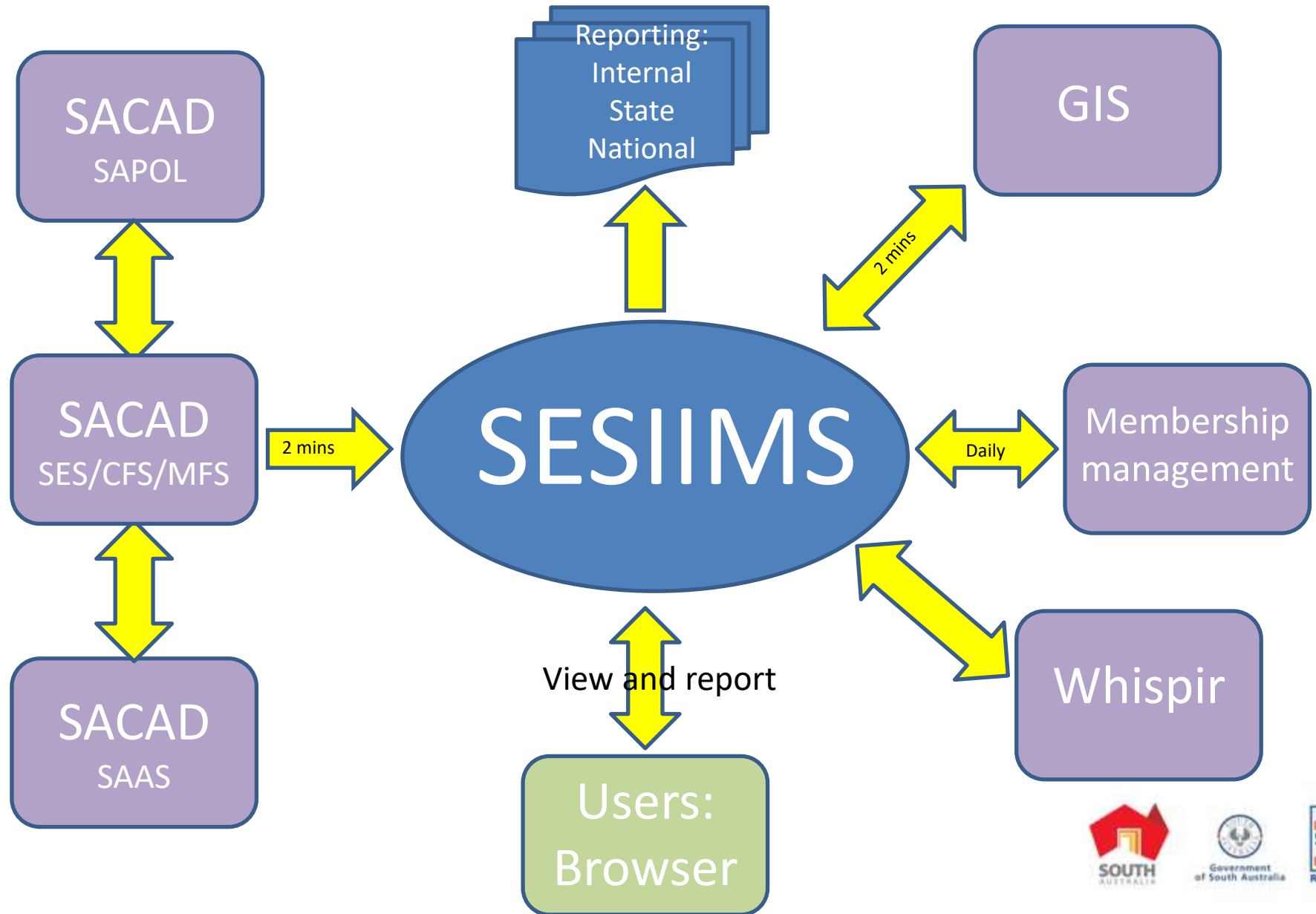
WebEOC FUSION™ customer WebEOC® customer WebEOC® Police customer

SESIIMS – in summary

- A system to share and manage information and provide incident intelligence – all in near real time
- Browser based: no client installation required
- Login via portal: SSO credentials for all SASES systems
- Designed to scale from BAU to significant event/incidents
- Integrated with a number of systems including SACAD, Whispir, TAS, AlertSA and GIS
- Supported by online (Moodle) training
- External agency access as needed – e.g. Extreme Heat, Major Event



Information flow



Daily Incidents – landing page

Incident: Incident Log 2016-17												
View: Daily Incident Log - Today's Incidents												
4 July 2016 8:52:53												
For support or assistance please click here to email SES/IMS Administration or if urgent phone the State Duty Officer on 08 8470 6695												
Refresh Rate: 2 Minutes												
Agency SES: 5 CFS: 5 MFS: 5 Going: 6 Awaiting Report: 2 Completed: 6 No Timeout Required: 0												
Agency: All District: All Unit: All My Unit Only Status: All Incident type: All												
SESIMS No.	DIN	PL	Date/Time of call	Incident type	Location	Status	District	Agency	Primary Unit	Last info update	# Manual Entries	
108485	4	1	04/07/16 0840hrs	TREE DOWN	HOUGHTON	Going	Northern Adelaide	SES	Tas Tree Gully	04/07/16 0850hrs	0	
108486	21	1	04/07/16 0848hrs	TREE DOWN	HOUGHTON	Going	CFS R2	CFS	Paracombe	04/07/16 0850hrs	0	
108484	3	2	04/07/16 0834hrs	TREE DOWN	PROSPECT	Going	Southern Adelaide	SES	Prospect	04/07/16 0850hrs	0	
108481	18	2	04/07/16 0824hrs	FIRE ALARM	PASADENA	Going	MFS	MFS	St Marys	04/07/16 0842hrs	0	
108479	16	1	04/07/16 0820hrs	PRIVATE ALARM	DUDLEY PARK	Completed	MFS	MFS	Prospect	04/07/16 0834hrs	0	
108478	15	2	04/07/16 0808hrs	RUBBISH OR WASTE	NEWTON	Completed	MFS	MFS	Paradise	04/07/16 0830hrs	0	
108473	11	1	04/07/16 0730hrs	FLOODING SALVAGE	PARALOWIE	Going	MFS	MFS	Sainsbury - MFS	04/07/16 0810hrs	0	
108474	2	1	04/07/16 0730hrs	FLOODING SALVAGE	PARALOWIE	Awaiting Report	Northern Adelaide	SES	Edinburgh	04/07/16 0810hrs	0	
108470	6	2	04/07/16 0655hrs	MINOR CLEANUP	COMPTON	Going	CFS R5	CFS	Compton	04/07/16 0840hrs	0	
108469	1	1	04/07/16 0605hrs	TREE DOWN	CADGEE	Awaiting Report	OGA	SES	South East (SES/OGA.03)	04/07/16 0648hrs	0	
108468	7	1	04/07/16 0603hrs	TREE DOWN	CADGEE	Completed	CFS R5	CFS	Lochaber	04/07/16 0648hrs	0	

Compendium Boards

Incident: Incident Log 2014-15 [SANDPIT]
View: Flood Compendium

27 May 2015
7:43:45

TRAINING
Government of South Australia
SES
RESCUE

For support or assistance please click [here](#) to email SESIIMS Administration or if urgent phone the State Duty Officer on 08 8410 6695

BOM Rain and Flood Websites

MET Eye

Adelaide Rain Radar

Rainfall and River Conditions

Latest River Heights

Water Storage

Forecast Rainfall

SA Water Websites

WaterConnect

Tides & Waves

River Murray

DPTI Websites

Australian Government
Bureau of Meteorology

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Place: **Australia** > Adelaide
Date: **27 May 2015**

Water Storage

Map

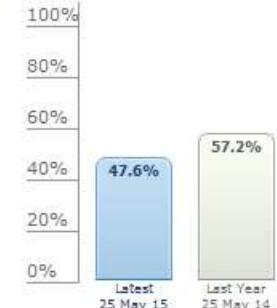


Snapshot

Summary

Changes

Adelaide



Category	Value
Latest (25 May 15)	47.6%
Last Year (25 May 14)	57.2%

Latest Volume: 94,019ML
Accessible Capacity: 197,405ML

About

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LINKS

Bureau of Meteorology - Water Information

Water Regulations

National Water Commission

Graph

Details

Adelaide by Water Storages

change for same time: ☒ Previous Year ☐ Previous Month ☐ Previous Week

<<<< << >> >>>>

☐ Disable Refresh

intermedix



SOUTH AUSTRALIA



Government of South Australia



SES RESCUE

Automated Reporting



Integrating spatial information

- Initial solution utilised WebEOC Mapper Pro
 - Licence and MATS in addition to WebEOC
 - Originally a third party plug-in solution
 - Adopted and integrated with WebEOC
 - Integration was via XML interface
- Successfully added mapping to a number of boards ...
 - ... but then we encountered problems

Challenges with Mapper

- Worked fine for around 6 months, then performance deteriorated, couldn't cope after 9 months
- Designed to work with WebEOC in more typical EOC usage scenario 100's of entries in an incident
 - our 'incident' is a financial year 'bucket': ~ 40000 entries
- Other issue for us is that almost all input is via API – symbology is based around lists (manual data entry) so we could not symbolise as we wanted.
- Geocoder configuration didn't match Location SA requirements
- Really liked some tools and functionality, but forced eventually to abandon this solution



4 options considered

1. Special/duplicate view to use with Mapper
 - Didn't address symbology issues
 - Dual commit doesn't work with API so would have had to load up SACAD feed to double insert everything – storage
2. Google maps
 - Used in NT very successfully
 - Google licencing challenges
 - No in house expertise
3. ArcGIS Java script API
 - Limited in house expertise
 - Limited developer expertise
 - Need to write into each view that needs a map

All of these only serviced SESIIMS, not the bigger picture



Fourth alternative adopted

Working with Esri Adelaide Office:

- Developed a Python service which interrogates WebEOC DB and adds new/changed entries to GDB on ArcGIS server
- Create map service(s) – internal and now on AGOL too
- Create WebMap ->WebApp and embed in boards or open in separate window as required

Why this option?

- In house expertise to create and publish map services and maps/apps so we can create/edit/maintain these ourselves
- Easy to use definition queries and ArcMap settings to fine tune visible content in each map service
- Full control of symbology
- Quickly produce maps/apps tailored to specific requirements
- Can add parameters to app call to set extent, centre point, additional markers etc., so can use same app for different requirements
- One change to app is propagated through all uses – no need to edit in several views
- All SESIIMS data is now available in GDB – spatial analysis on historical data without impact on SESIIMS DB performance
- Can use data to produce maps/apps outside of SESIIMS – SASES GIS Portal and AGOL



SES GIS Portal

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 [Sign In](#)



Gallery

SA State Emergency Service GIS Portal Featured Content

Sort By: Most Recent



Show

All

Maps

Layers

Scenes

Apps

Tools

Files



SEICCC Boundaries Map



SESIIMS Live Data All Agencies



SESIIMS Live Data SES



SASES SACAD Boundary Comparison



SA Fire (SES RCR) SACAD Boundary



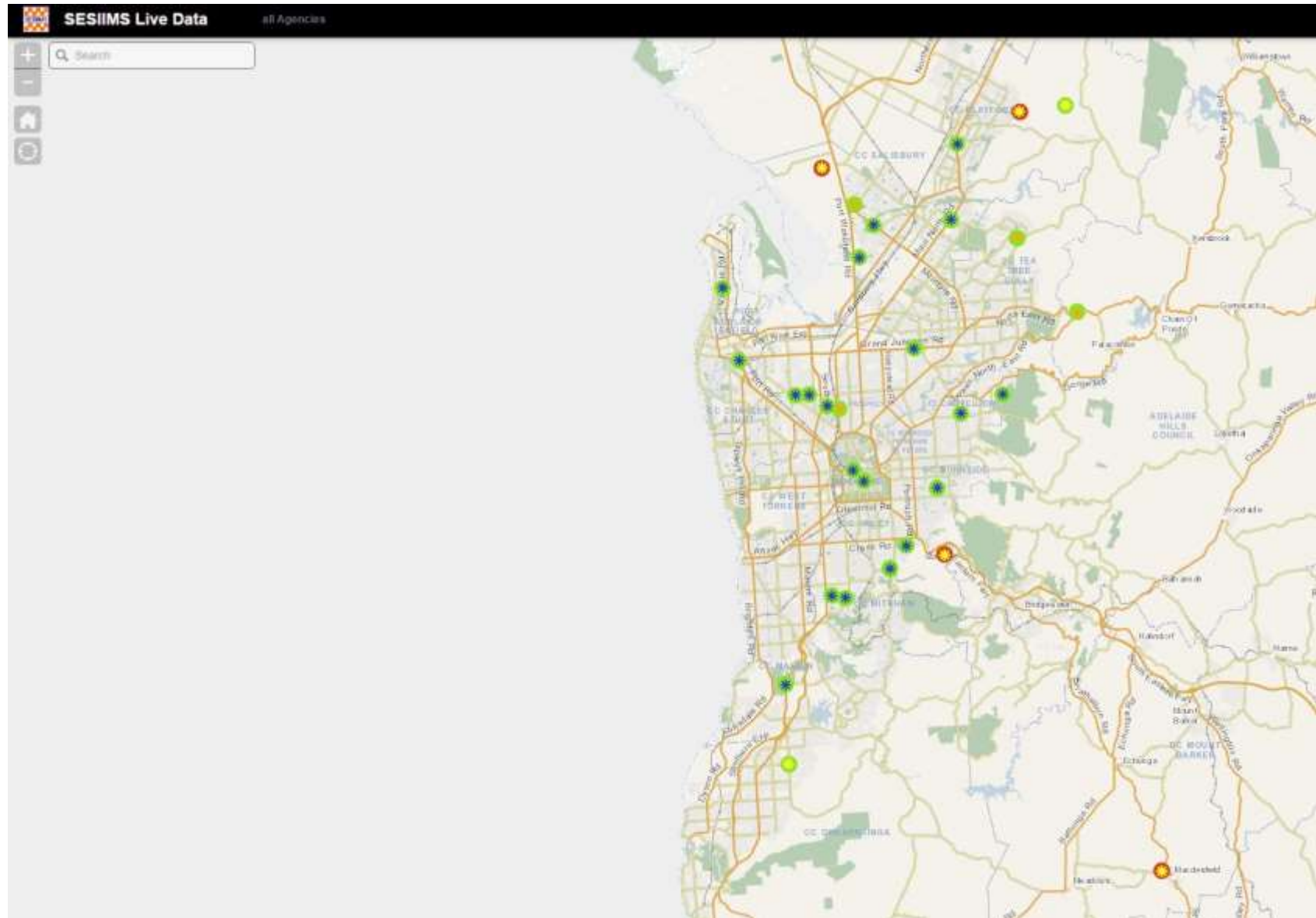
SA SES Unit Information



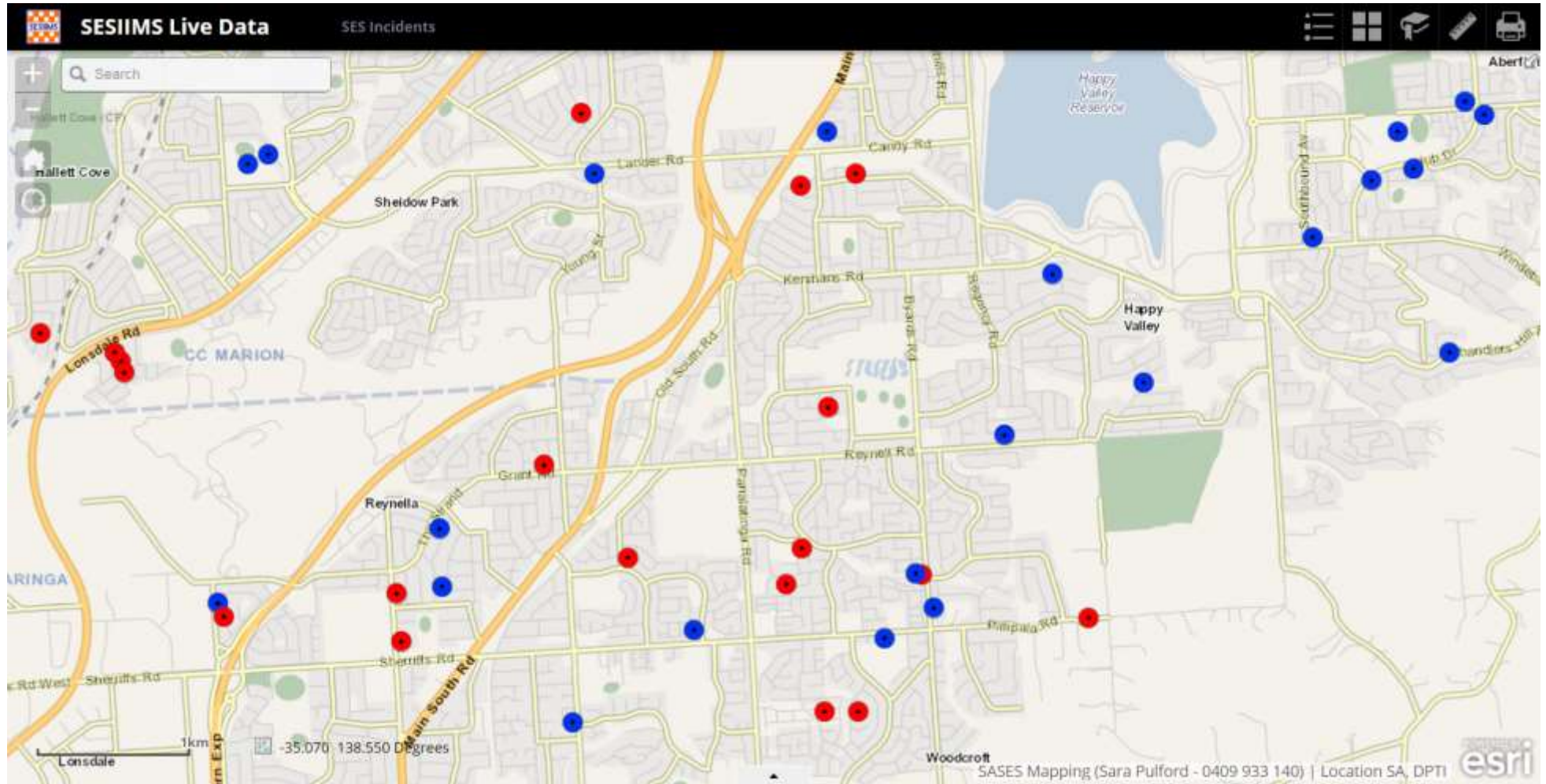
SA SES Boundaries



Example: WebApp all agencies



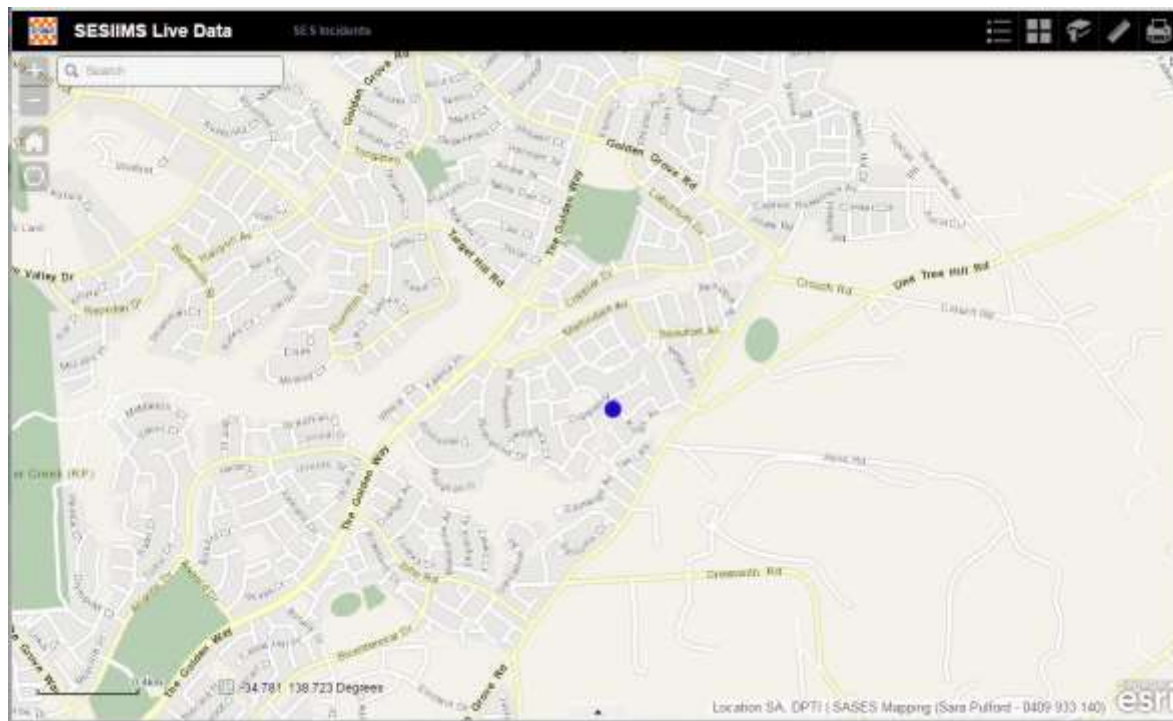
Example: WebApp SES only



Example: Daily Incidents

Individual incident view

RESCUE GENERAL	GOLDEN GROVE	Awaiting Report	Northern Adelaide	SES	Tea Tree Gully	04/07/16 1136hrs	0	
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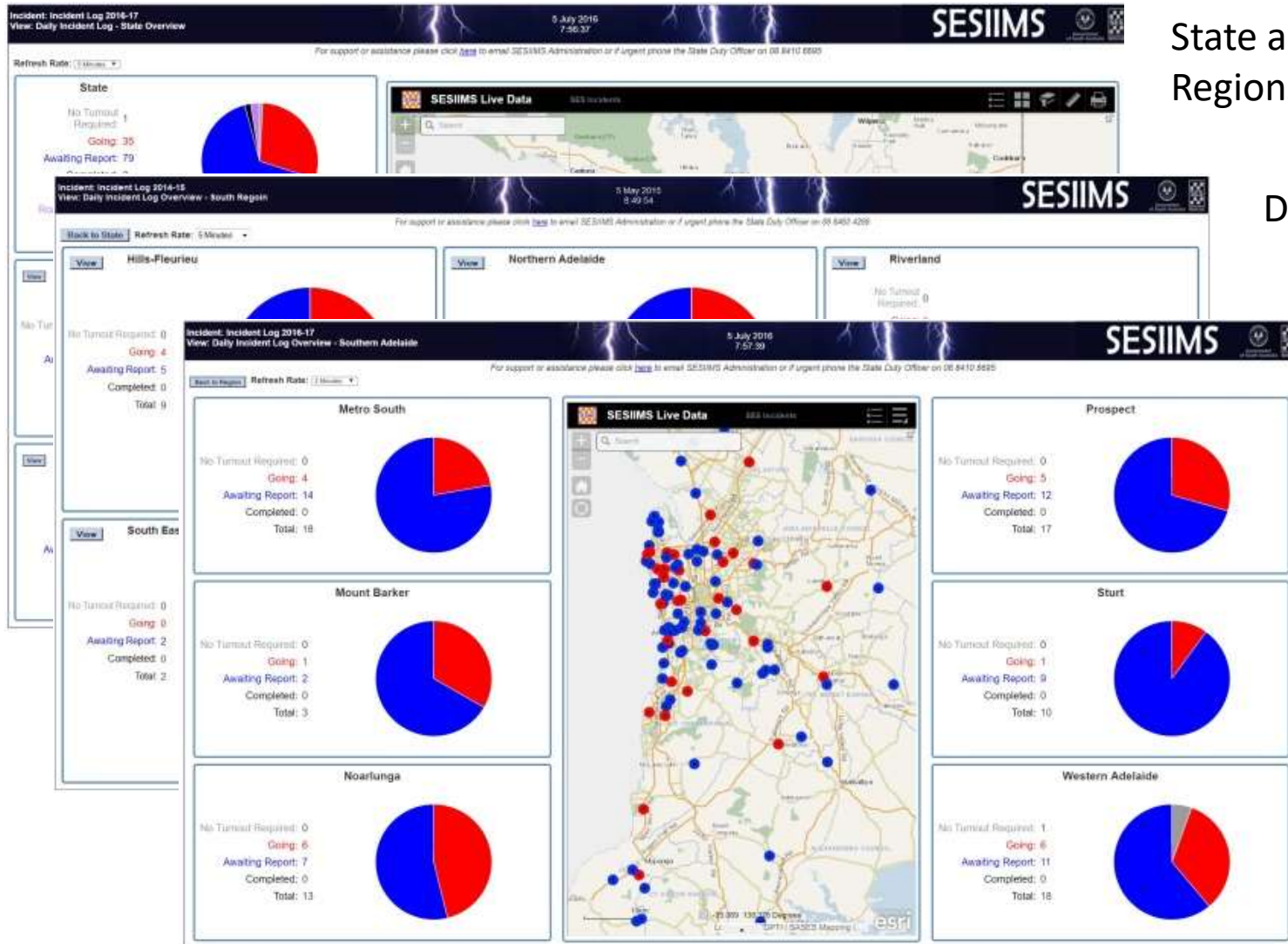


State Overview Dashboard

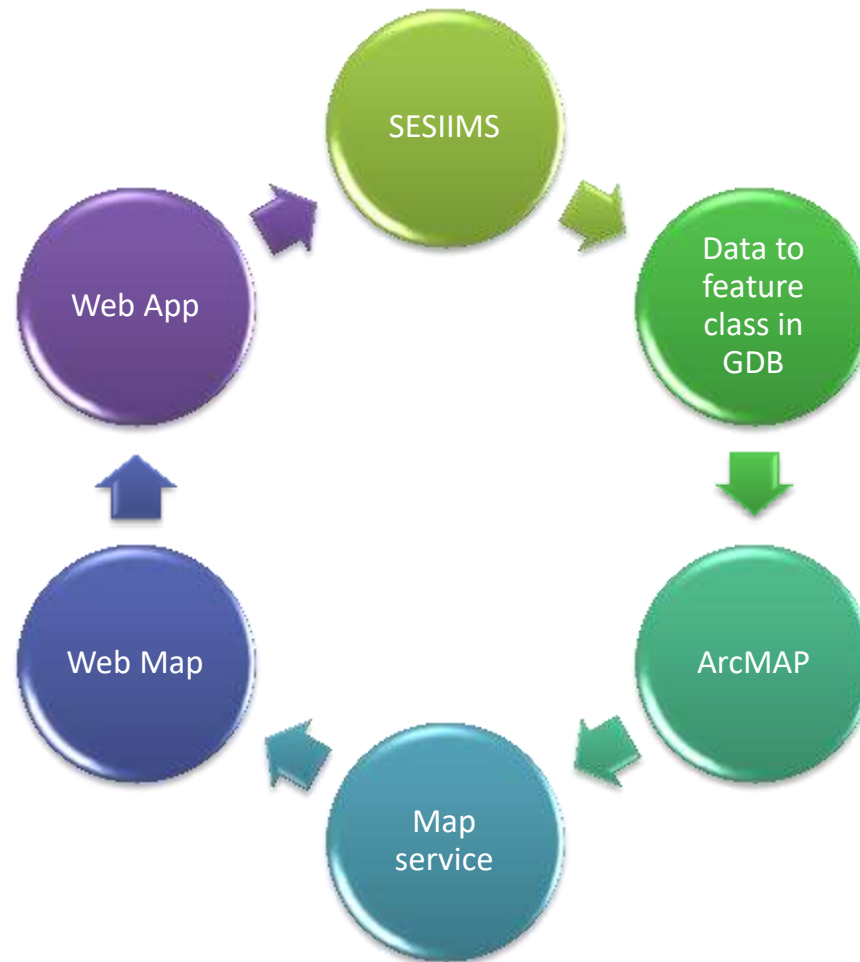
State and
Regions

Districts

Units



SA SES WebEOC - ArcGIS Integration



Improved emergency management through the use of spatial information



Spatial Analysis

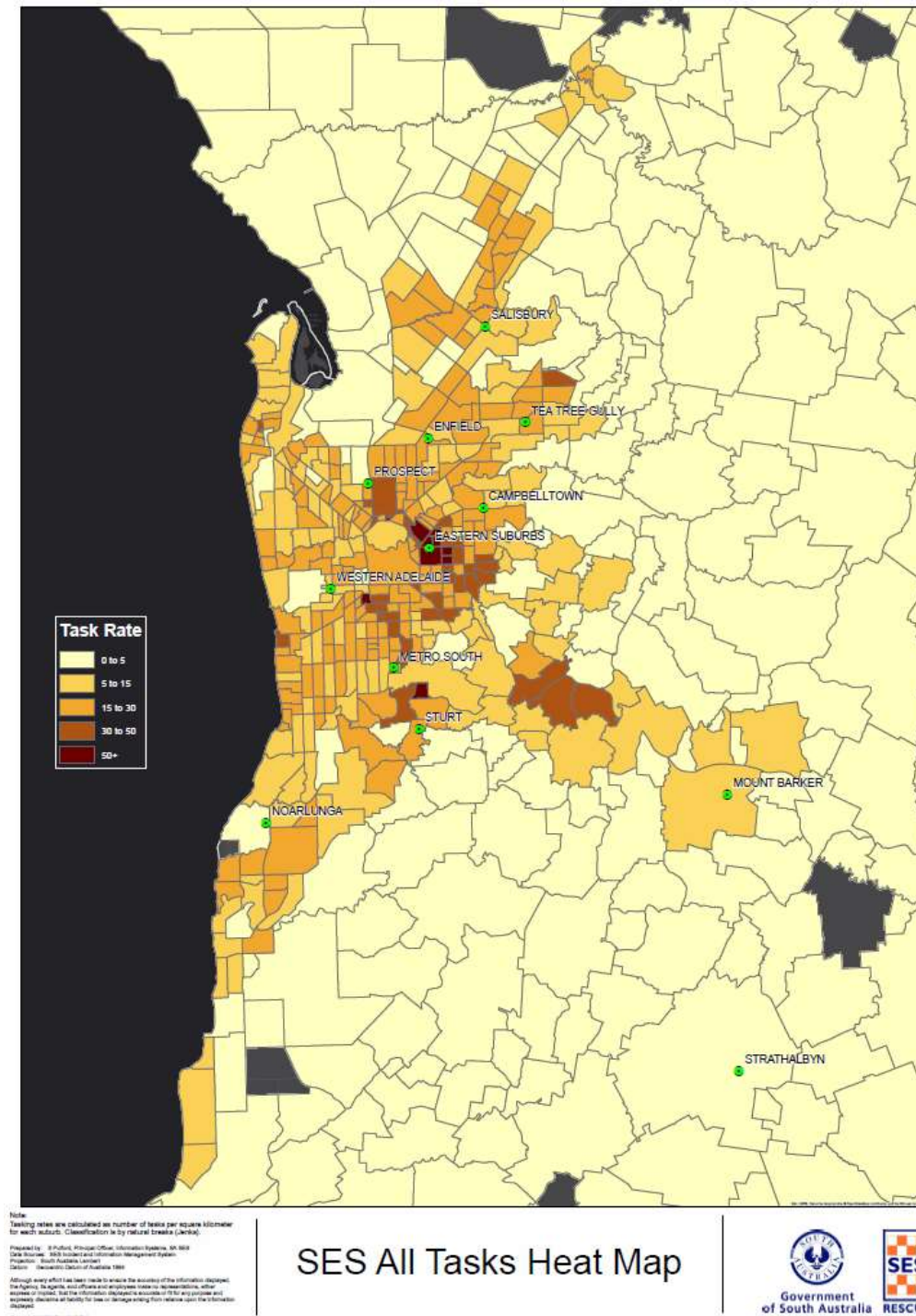
In addition to the operational applications, having the response data in a stand alone GDB allows us to:

- analyse it for patterns, coverage gaps etc.
- combine it with other data to inform decisions

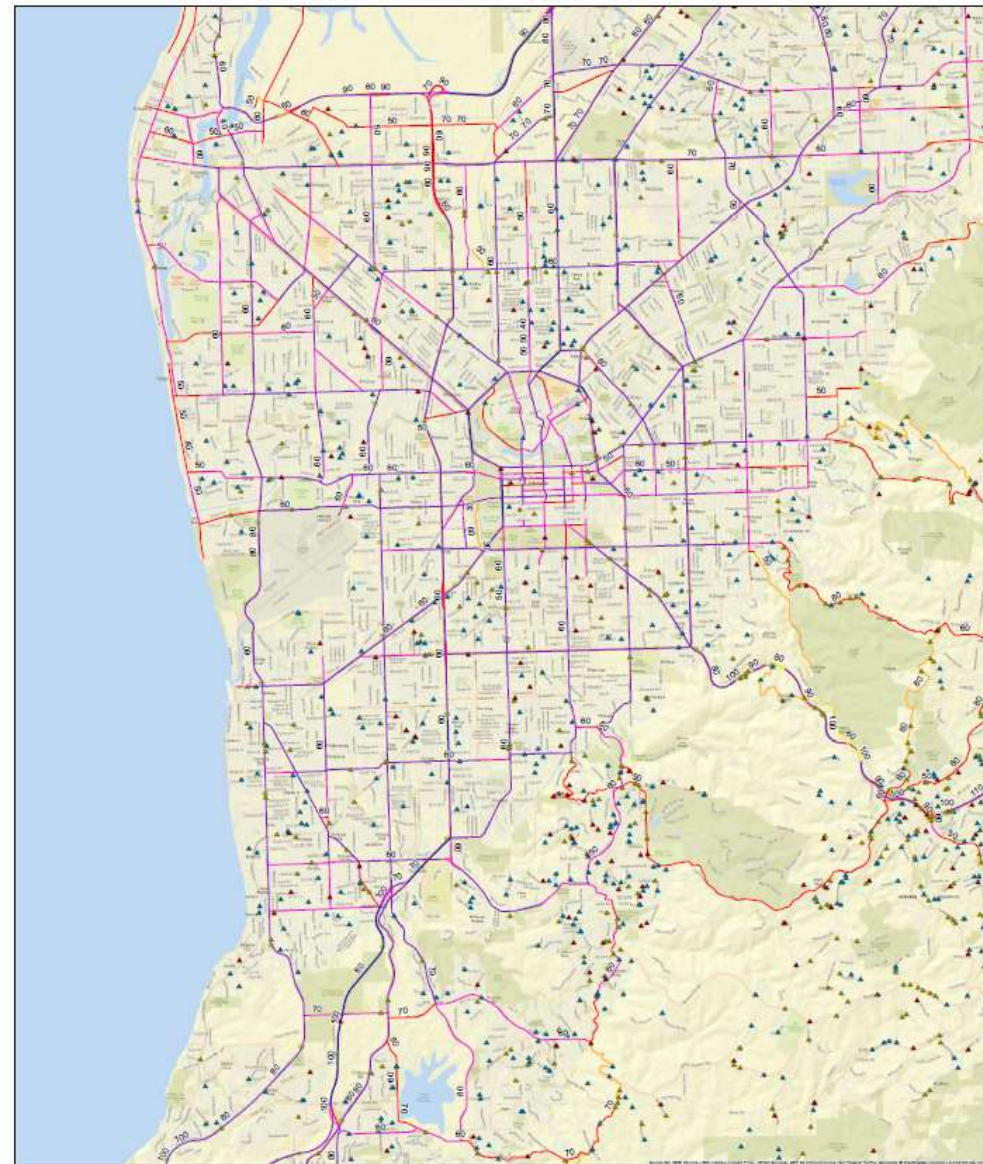
All without any impact to the live Incident Management system



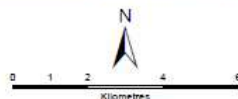
Example: coverage gap analysis



Tree Down on Road Taskings with Traffic Volume and Speed Limits



**Example:
response
planning**



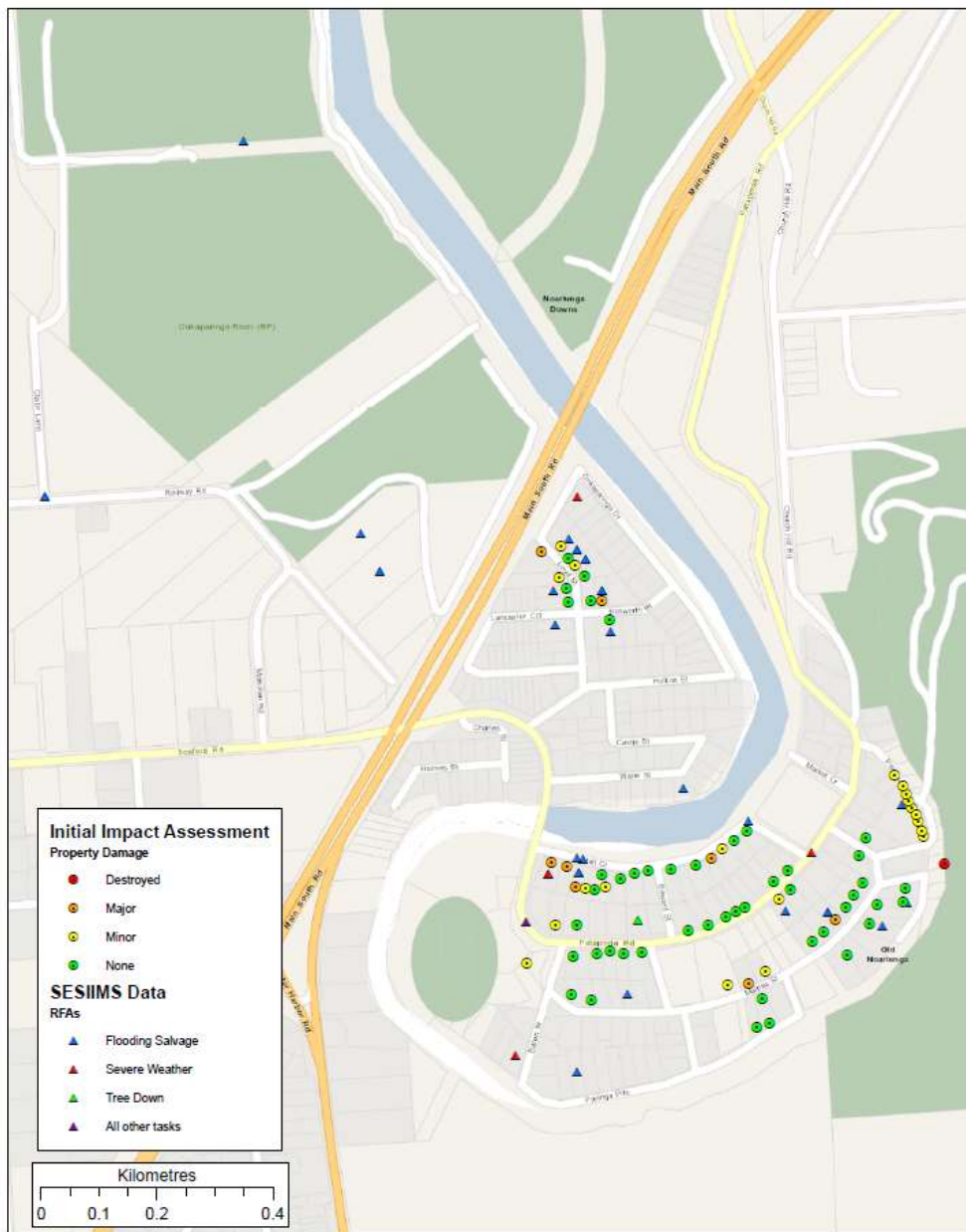
Prepared by: S Pufford
Principal Officer, Geospatial and
Operational Systems
SA SES
Data Sources: DPTI (Location SA)
Projection: South Australia Lambert
Datum: Geocentric Datum of Australia 1994

Although every effort has been made to ensure the accuracy of the information displayed,
the user should verify the information and data used in this map. The user should also
verify the information and data used in this map. The user should also verify the information
and data used in this map.

Created: 21/08/2017 5:30 PM



Example: post event impact analysis



SES Taskings and Initial Impact Assessments
Old Noarlunga
Flood Event 14th to 17th September 2016

What next?

- Integration of content of two portals (internal and AGOL) into one portal leveraging WofG ELA and Location SA services
- Upgrade of Python scripts to support new symbology
- Public incident and warning maps for SASES website



Summary

- Integration of spatial data into operational boards was vital to intelligence based operational decision making
- Additionally, enabling historical spatial data analysis facilitates organisational data driven decision making

*Note: Mapper Pro has now been superseded by an WebEOC/Esri alternative comprising three separate components:

Maps (included in WebEOC licence) – limited configuration options

Maps + and ArcGIS - two separately licenced plugins



