How Operations Dashboard is Aiding SA Water's Digital Transformation

A Dashboard Odyssey

24 May 2018

Government of South Australia

SA Water

You

What do I want you to get out of this presentation:

- Dashboards are great and deserve to be respected and not just be a buzzword to be thrown around.
- Water Utilities are great! They're basically the Batman of the utility field.
- Why don't I just login to our ArcGIS Online Organisational Account tonight and make a dashboard for the fun of it tonight?

But enough about you.

Asset Information Key Principles

Information is only a valuable commodity if it can be used effectively, so our key principles that guide us are:

- Asset Information meets business needs
- Asset Information is easy to discover
- Asset Information is easy to use

SA Water's Vision

Asset Information Application

As SA Water undergoes the transformation into a digital utility, it is vital that we have a robust and agile asset information environment that facilitates customer focussed insight, promotes the innovative application of asset information technology and supports our vision of ***"providing world class water services for a better life."***

Asset Info & Values

Having quality asset information and technology provides insight to our customers and assets. It enables informed decision making and assists with "***getting the basics right every time***".

Asset Info & Values

A common understanding and awareness of asset data and information creates an environment of confidence and enthusiasm that encourages teams ***"working together"*** to deliver value to our customers.

Asset Info & Values

Continual improvements in the use and application of asset information technologies will not only improve our knowledge about what is happening and assist evidence-based decision making, it will also give our stakeholders and customers confidence that we are ***"leading the way"*** through innovation.

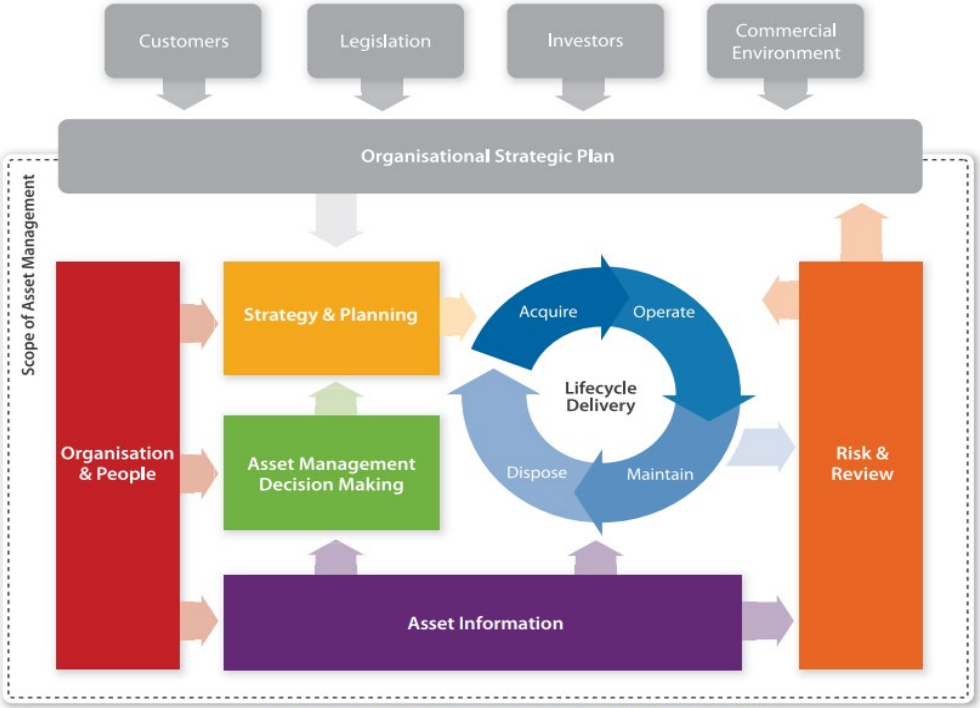
Asset Info & Values

"Capable and committed teams" are informed and motivated by the achievements that good asset information and technology will provide.

Asset Info & Values

The innovative use of asset information and related technologies will provide opportunities for more effective and efficient ways in which we can be ***"keeping it simple"*** by streamlining operational activities, better engagement with customers and optimised asset data management workflows.

Asset Information



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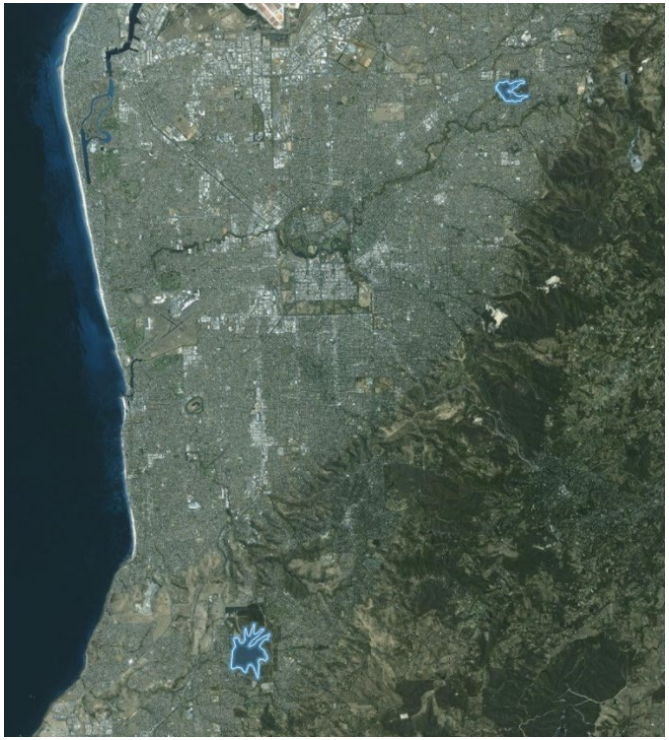
When does this get good?

When I talk about Digital Transformation

A lot of Australian utilities have been around a long time and are goliaths on the world stage.

SA Water's 2 main Metropolitan Supply Reservoirs were completed in mid 1890s without electricity or help from combustion engines. Horse and Steam power all the way.



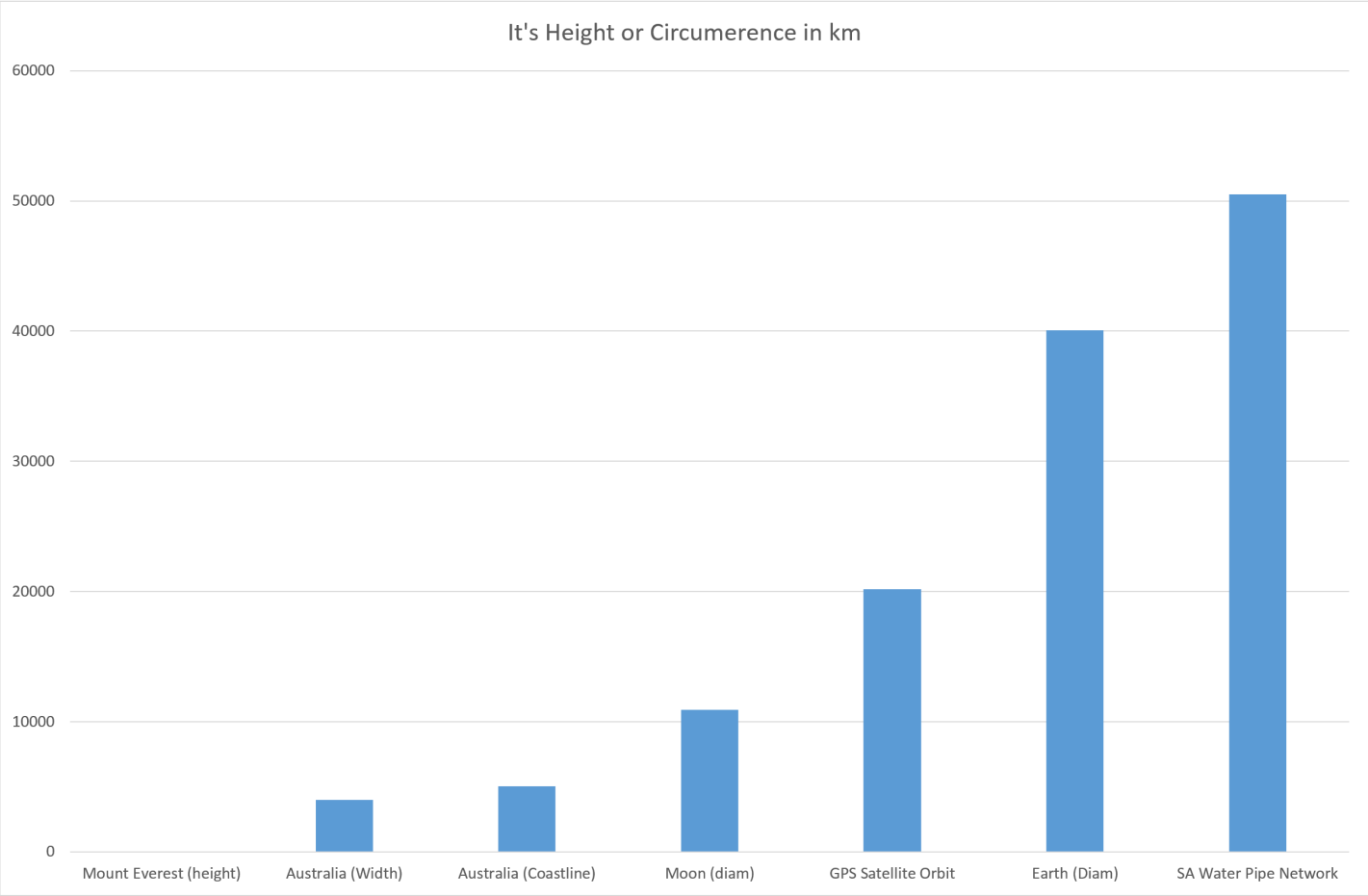
SA Water Itself

Decent size, for an Australian Utility

Waterworks and Drainage Commission (SA Water) founded in 1856, changed name to E&WS in 1929, changed name to SA Water in 1995.

Government owned corporation.

Adored by the people of South Australia

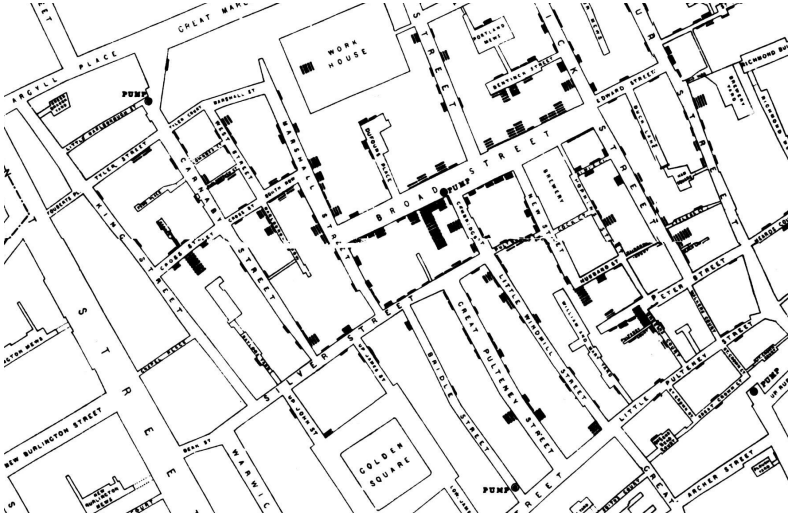

It's Height or Circumerence in km
60000
50000
40000
30000
20000
10000
0
Mount Everest (height)
Australia (Width)
Australia (Coastline)
Moon (diam)
GPS Satellite Orbit
Earth (Diam)
SA Water Pipe Network

Wooden Pipes

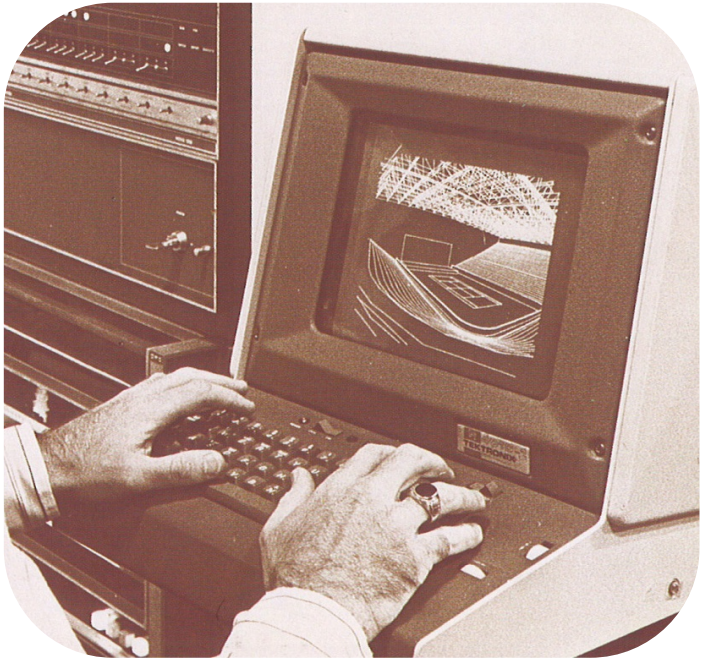
This is a 3km run of Wooden Pipe In-Situ Lined with cement gazetted in July, 1914 just outside the township of Ardrossan, on the east coast of the Yorke Peninsula of South Australia. (You know, the one that looks like a boot)

GIS History

We have vast asset base and service area, where >90% of assets are buried, so GIS is like, super-duper popular.

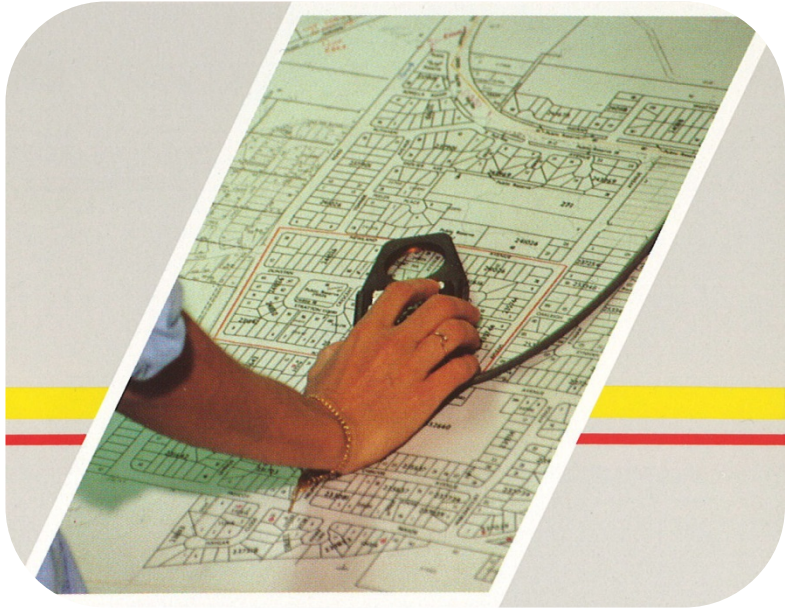


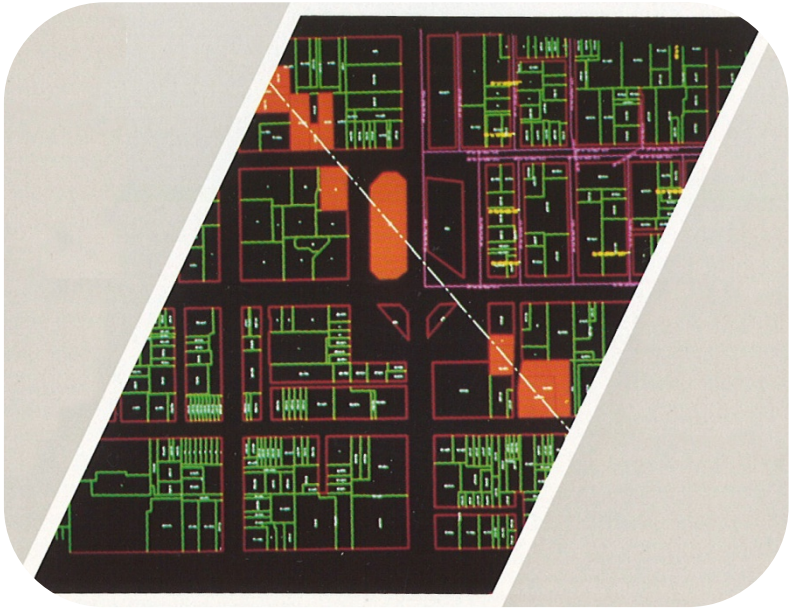
Easinet -1985



Meanwhile in 1985

1986 – The Great Capture Begins





Meanwhile in 1986

The capture takes ≈5 years

1991 – Capture Complete!

1992 – Pats on the back finally end! “Online” updates begin.

1994 – Migration to ESRI

1997 – DFIS Web Browser

- Before Map Objects, before practically any web mapping, a guy at SA Water created one using ArcInfo on a UNIX server, with an ArcPlot module (or something?)
- People from around the country gathered to see it do it's thing one last time in 2003 when it was finally turned off. Kind of like the Bay to Birdwood Run.

Meanwhile in 1997

2001 - 2003

- A directory of coverages ($THEMES) was phased out in favour of ArcSDE
- 100 or so ArcView Single Use Licences were traded in given what Eview could provide.
- ArcGIS Desktop 8.2 rolled out
- Kind of a big deal... JOHN BORMANN = HIRED!
- ArcIMS & Eview replaced the DFIS Web Browser
- ArcIMS was integrated in to the Works Management System (MAXIMO)
- ArcFM replaced "ADF" Editing on ArcInfo Workstation
- Eview System integrated with Water Quality System
- Eview System integrated with Works Management System (phasing out bespoke ArcIMS Viewer)

2004 - 2013

- Eview & ArcIMS tweaked/refined/iterated to become all singing, all dancing, generally beloved by the corporation.
- Eview is superceded by Geocortex in October 2013.
- Internal Eview is disabled September 2014 after 12.5 years of active use.
- **TWELVE and a HALF YEARS**

2014 - Now

Ubiquitous GIS use across every level of the business, within and without.

- Location SA
- Outage Map
- Water Main Replacements
- SmarterWx
- HTML5 Geocortex (AquaMap)
- Event Map (Mobility)

But still…. Something is missing.

Water Main Replacement Program(s)

on [AU] | https://www.sawater.com.au/current-projects/metropolitan-water-main-replacement-program

Current Projects

- Metropolitan Water Main Replacement Program
- Blackwood PRV Upgrade
- Bundaleer Pipeline Scheme
- Country Water Main Replacement Program
- Gorge Road and Silkes Road Water Main Renewal
- Hope Valley Tank Upgrade
- Jetty Road Glenelg Water Main Renewal
- Kangaroo Creek Dam Upgrade
- Leigh Creek Water Supply Transition
- Mount Gambier Bore Replacement
- Murray Bridge Wastewater Treatment Plant Relocation
- Northern Adelaide Irrigation Scheme (NAIS)
- Northern Connector Enabling Works

Metropolitan Water Main Replacement Program

SHARE

What is the program?

We look after 27,000 kilometres of pipeline across Adelaide and throughout the state to deliver safe, clean water to South Australian households and businesses.

In the past 10 years we've replaced 638,000 metres and – in the four years until 2020 – we'll be replacing 375,700 more.

Watch this video for an overview of what the program will achieve by 2020.

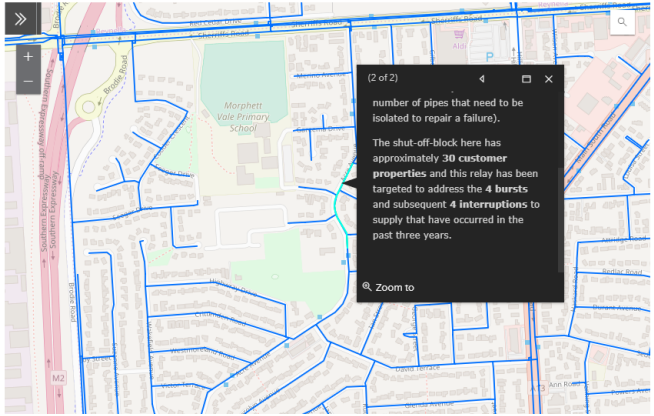
Interactive Map

This map shows you our water main network, works undertaken, works planned to July 2018 and priority areas between now and 2020.

You can zoom in or type in a street address, click on a main and find out more about when it was laid or when works are planned, life expectancy of that pipe and the diameter (DN) of the pipe.

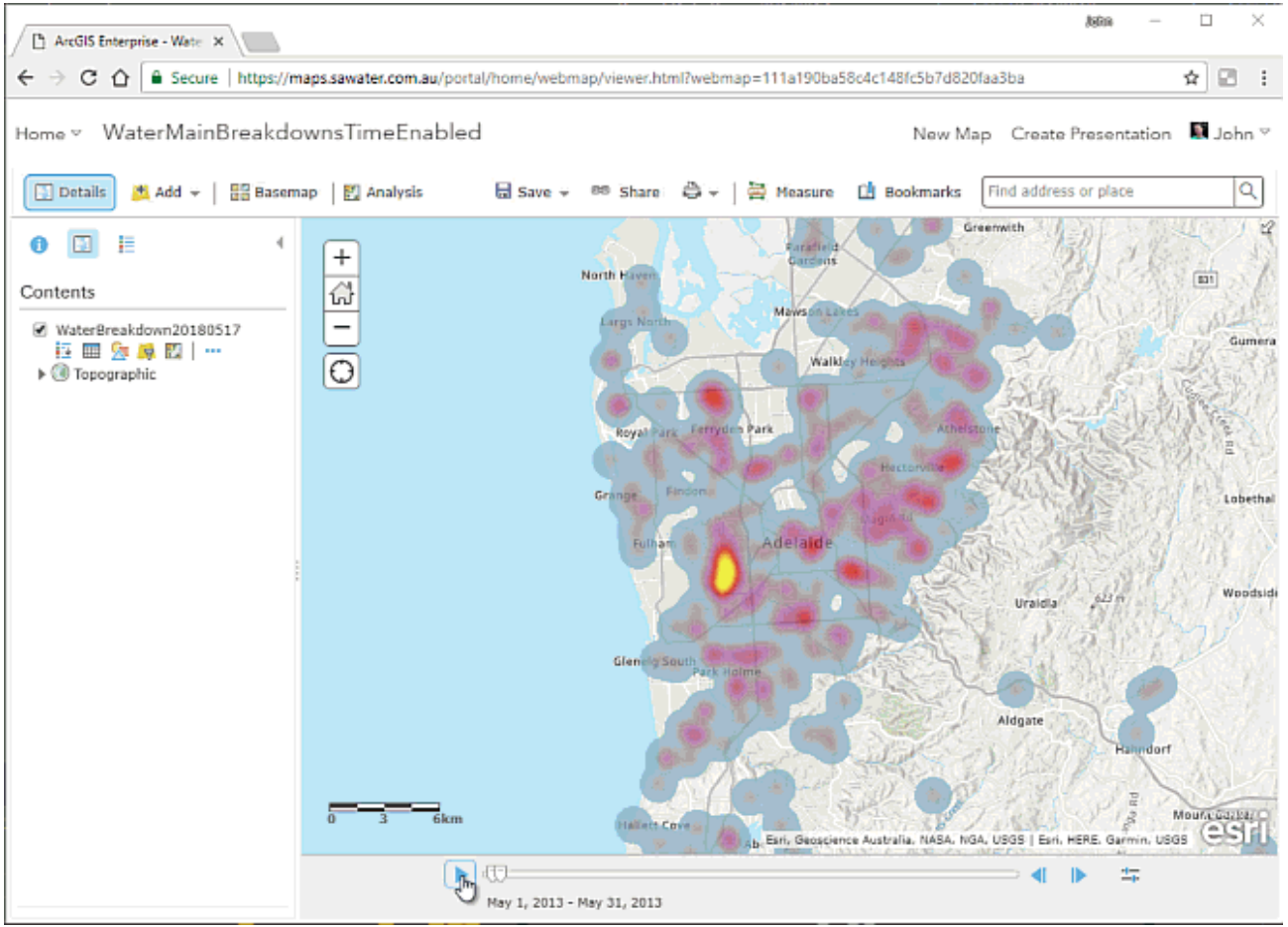
We will keep this updated in coming years as part of our efforts to deliver relevant information.

- Planned Metro Water Main Replacements 2017/2018/2019
- Replaced Water Mains (Last 10 years)
- Water Mains
- Water Main Replacement Focus Areas



ArcGIS Online & ArcGIS Portal

If you have a licence for any local software – you've got it (Online at least)


ArcGIS Enterprise - Wate
Secure | https://maps.sawater.com.au/portal/home/webmap/viewer.html?webmap=111a190ba58c4c148fc5b7d820faa3ba
Home
WaterMainBreakdownsTimeEnabled
New Map
Create Presentation
John
Details
Add
Basemap
Analysis
Save
Share
Measure
Bookmarks
Find address or place
Contents
WaterBreakdown20180517
Topographic
Greenwith
North Haven
Largs North
Mawson Lakes
Walkley Heights
Gumeracha
Royal Park
Ferryden Park
Athelstone
Hectorville
Grange
Findon
Fulham
Adelaide
Lobethal
Uraidla
Woodside
Glenelg South
Park Holme
Aldgate
Hahndorf
Hallett Cove
Mount Barker
0
3
6km
Esri, Geoscience Australia, NASA, NGA, USGS | Esri, HERE, Garmin, USGS
esri
May 1, 2013 - May 31, 2013

Operations Dashboard

We had problems just trying to install Operations Dashboard (client) in SA Water. There was however, an open Beta for the web (ArcGIS Online) version.

But now, it's fully functional and glorious.

My Boss

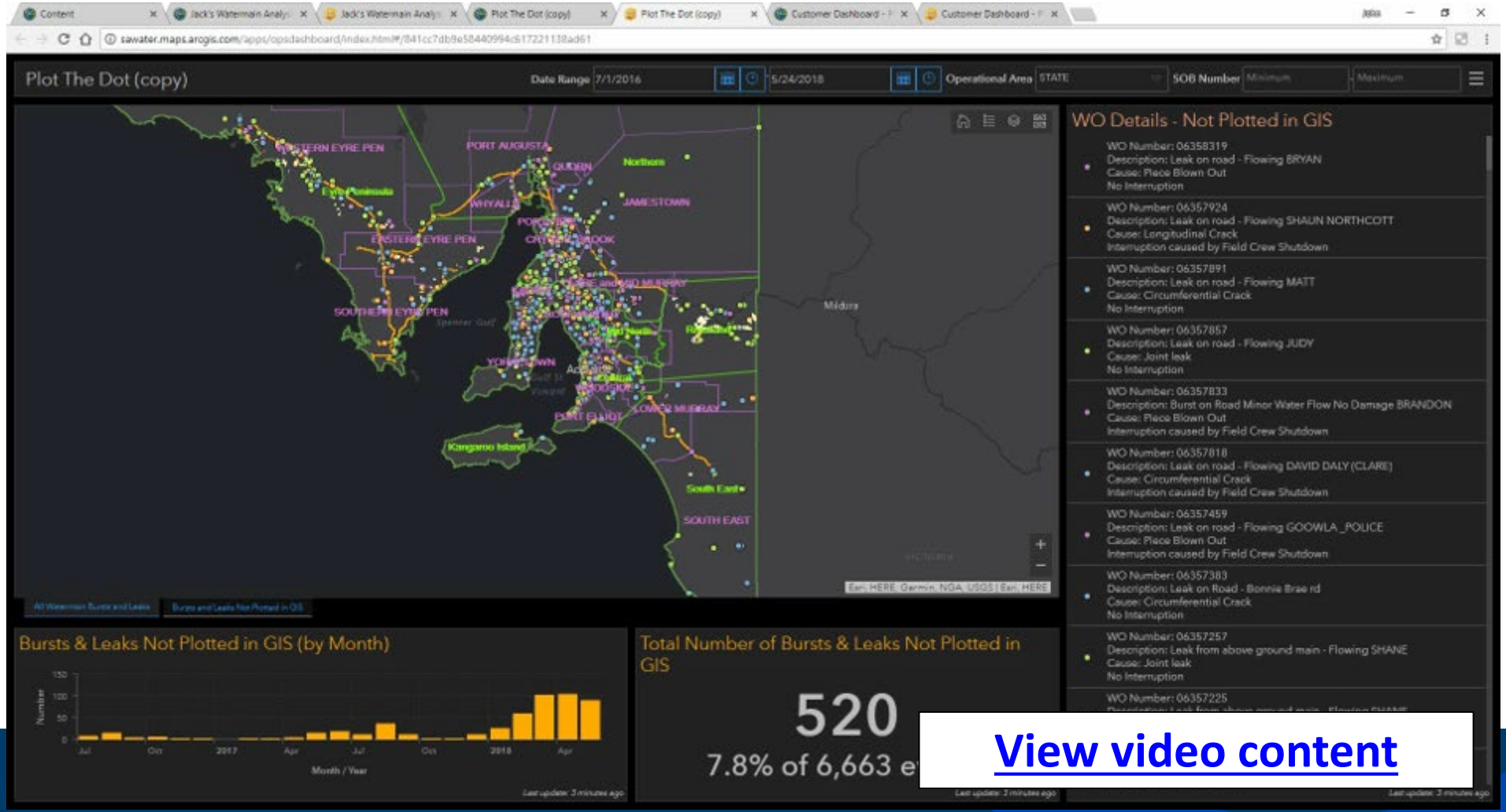
Dashboards Full Release in AGOL

Jim tinkers

Shakespeare

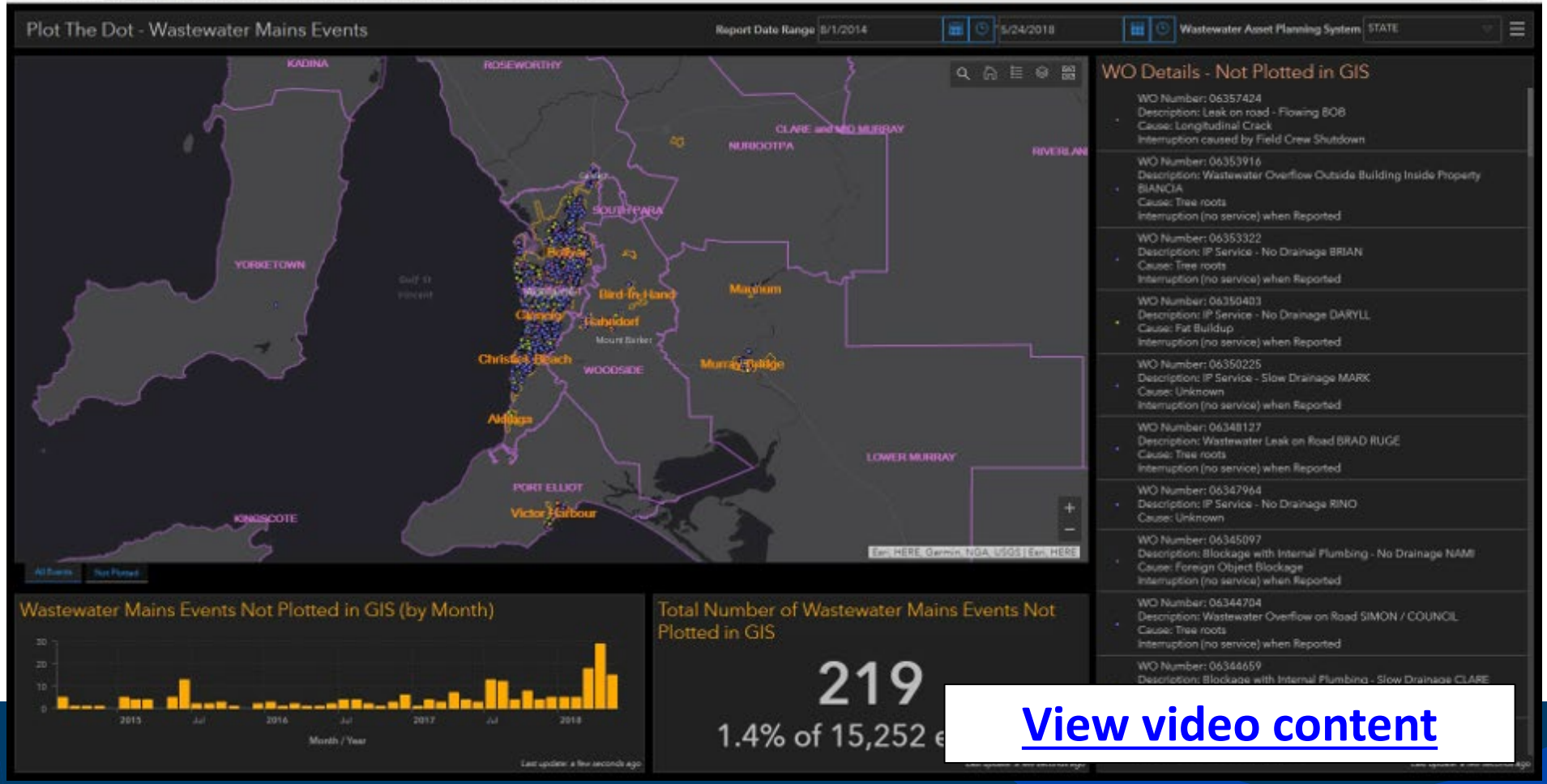
Plot the Dot

Data Quality!



[View video content]

Same goes for Sewer/WW



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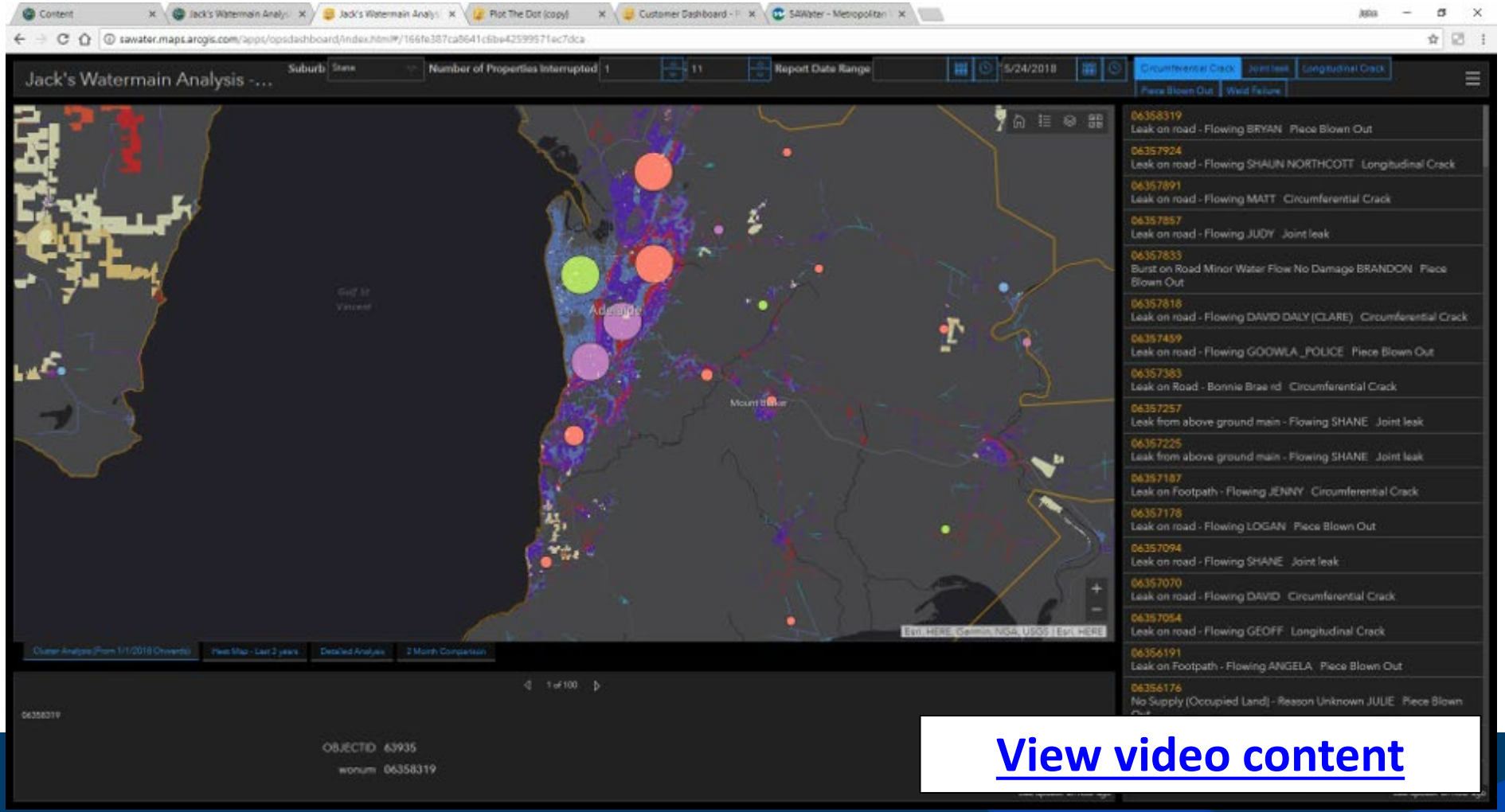
Getting Analytical

Visually representing what kinds of bursts occur across the network.

- eg. Areas of high pressure, longitudinal break, areas with notoriously bad soil, circumerential cracks.



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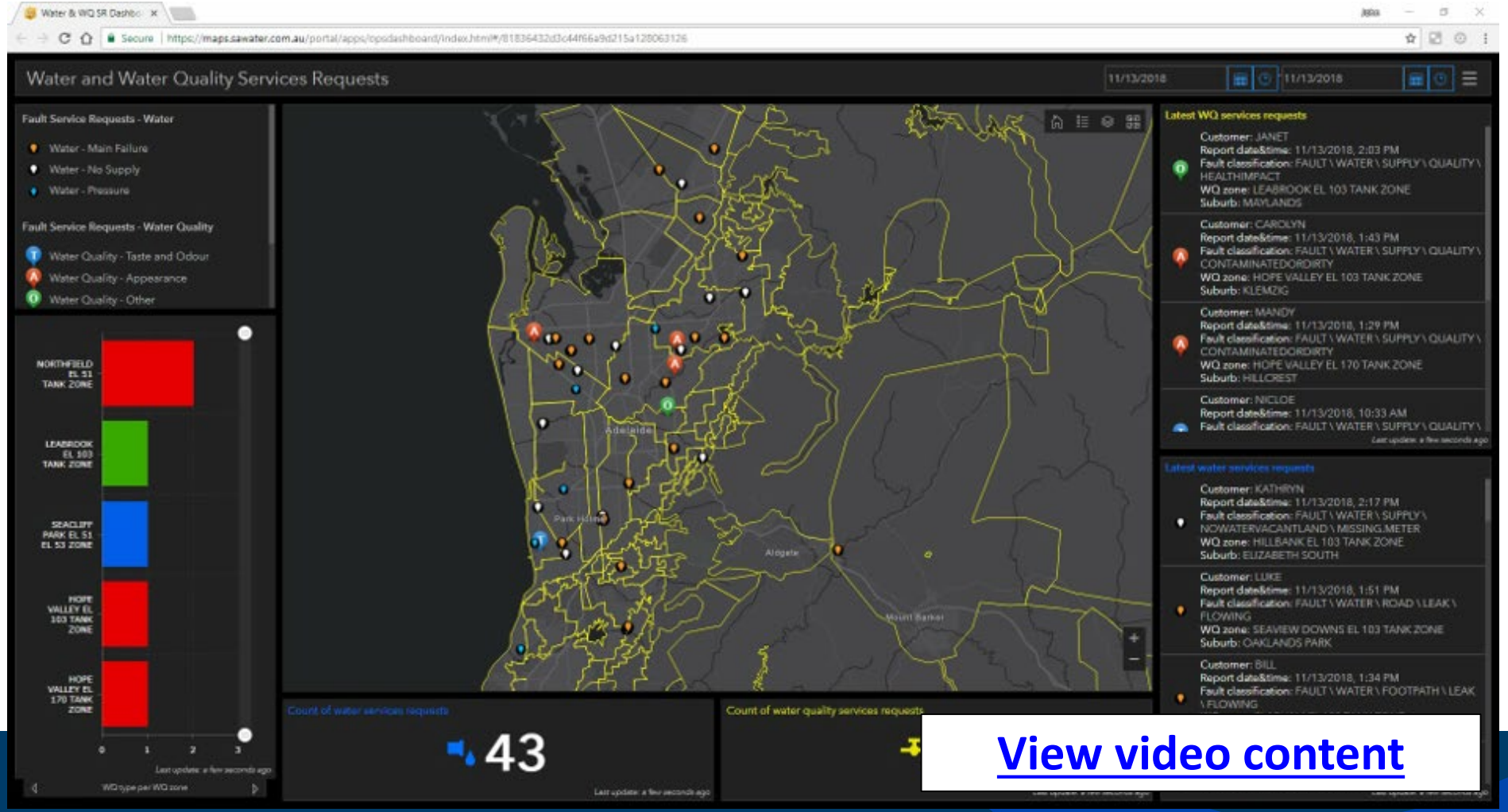
Water Quality & Service Requests

- How are we performing in Supply & Aesthetics?
-



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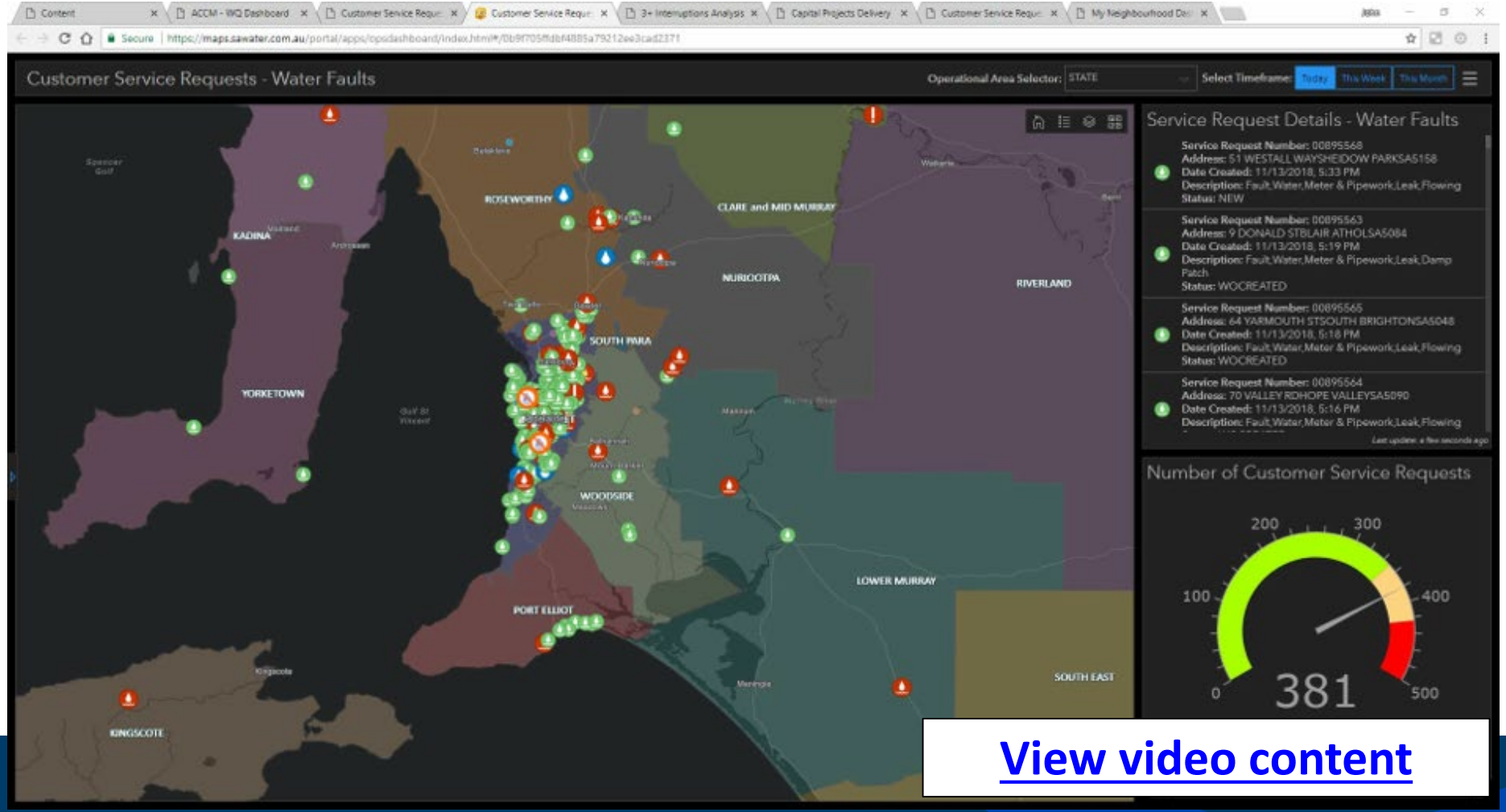
All Customer Requests

- How are we performing on Customer Service Requests?



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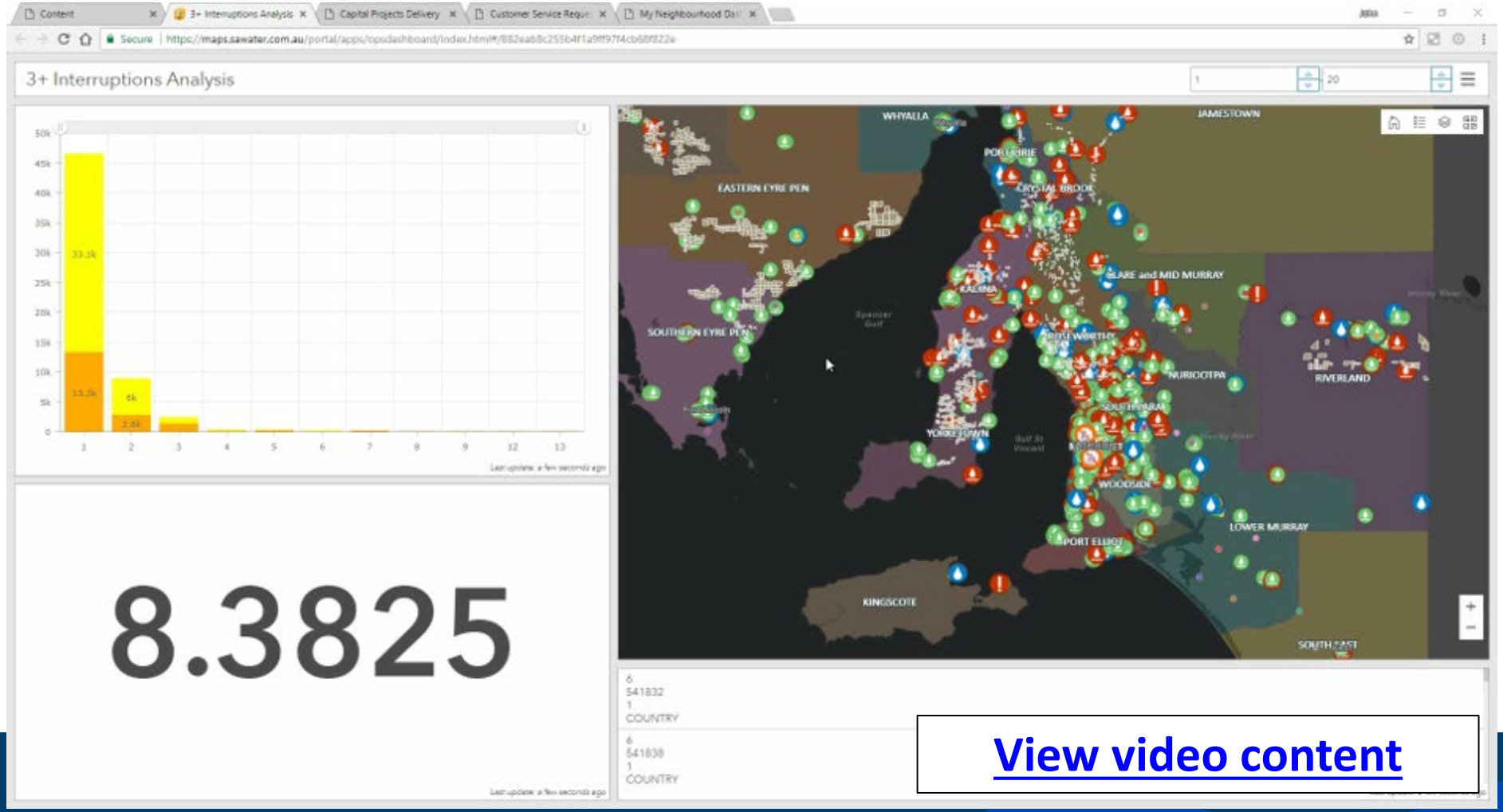
Analysing KPIs

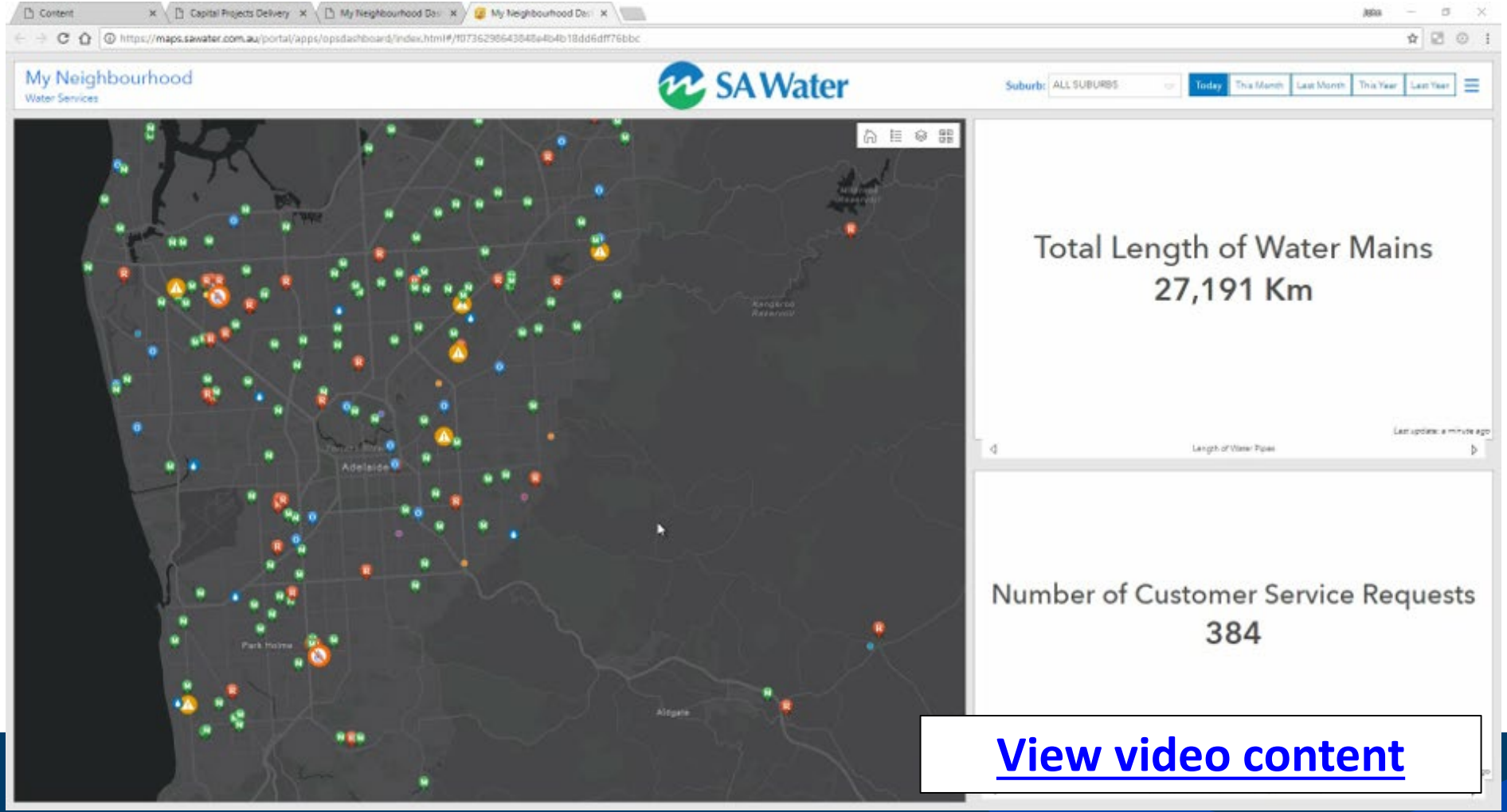
In this case no more than 2 unplanned interruptions in a rolling 12 months. But, with this dashboard the user can change that KPI to see what the results would be like if we made it easier or harder.



[View video content]

Brand Ambassadorship

At SA Water, we had a new CE start about 18 months ago, and, he seems great! One of his driving tenants is keeping the customer at the heart of everything we do, and having a workforce that is intrinsically motivated that *wants* to be there and *wants* to do the best for our customer and our owner – the people of South Australia. So one of the dashboards we have is to do with being aware of your own neighbourhood.



[View video content]

None of these are pretty

I wouldn't want to deal out ***any*** of these to any of my users – but people love these.

Get something out, not get something perfect.

Asset Information Key Principles

Remember this?

Information is only a valuable commodity if it can be used effectively, so our key principles that guide us are:

- Asset Information meets business needs
- Asset Information is easy to discover
- Asset Information is easy to use

EXTEND

So these sessions are split in to Adopt, Extend and Deepen.

I hope you've all decided to adopt dashboards. Having it **in** the ESRI platform makes a big difference for me.

You know you can put Dashboards in ESRI Story Maps? So you could have a series of refreshing dashboards, working on live data, while Story Map is set to advance a panel every minute and then loop on a display somewhere in your organisation? (Tell me if I'm crazy?)

Where does this all fit with…

Power BI

Microsoft PowerView/PowerPivot

GeoCortex's Reporting

Questions?

Government of South Australia

SA Water