addinsight

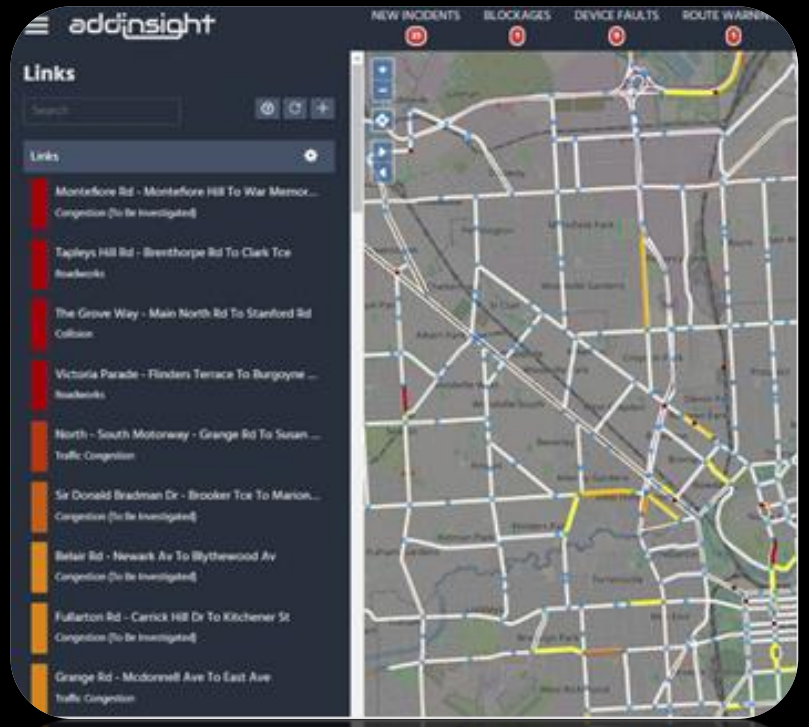
Utilising Addinsight data for activity monitoring during the initial COVID-19 lockdowns

James Cox, Product Manager, Addinsight

SAGE

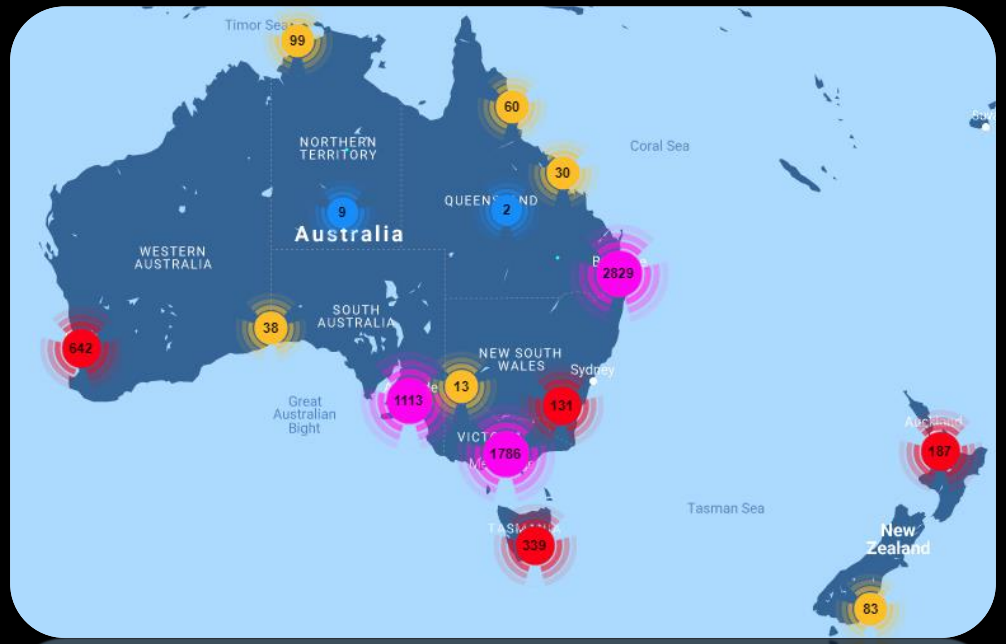
About Addinsight

- Data collection and analysis system originally developed by SA Government (DIT) and licenced to other road authorities
- Used in TMC for detecting incidents, travel times on VMS
- Used by transport planners to analyse travel times, trip patterns and SCATS data
- Continuous data set captures everything
- Recently acquired by SAGE group



Data Collected – Probe Data

- More than 7,500 field devices across Australia and NZ
- Primarily Bluetooth data, but multi-scanner hardware now the standard
- Exceptionally high sample rate, well over 50% achieved
- Platoons clearly identifiable
- Powerful for trip analysis



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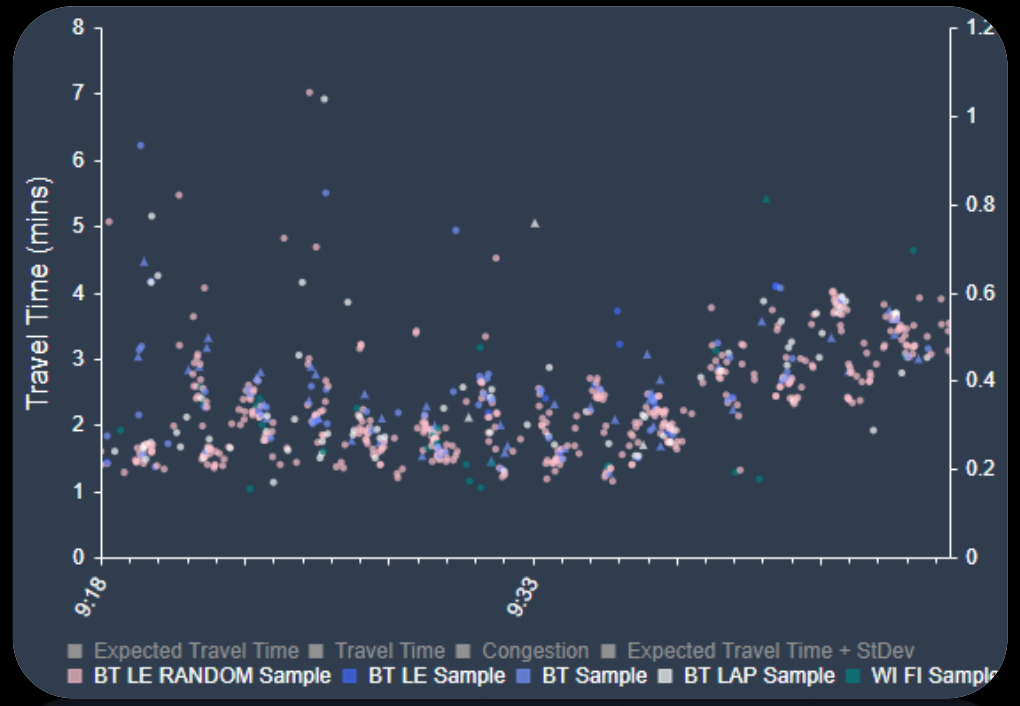

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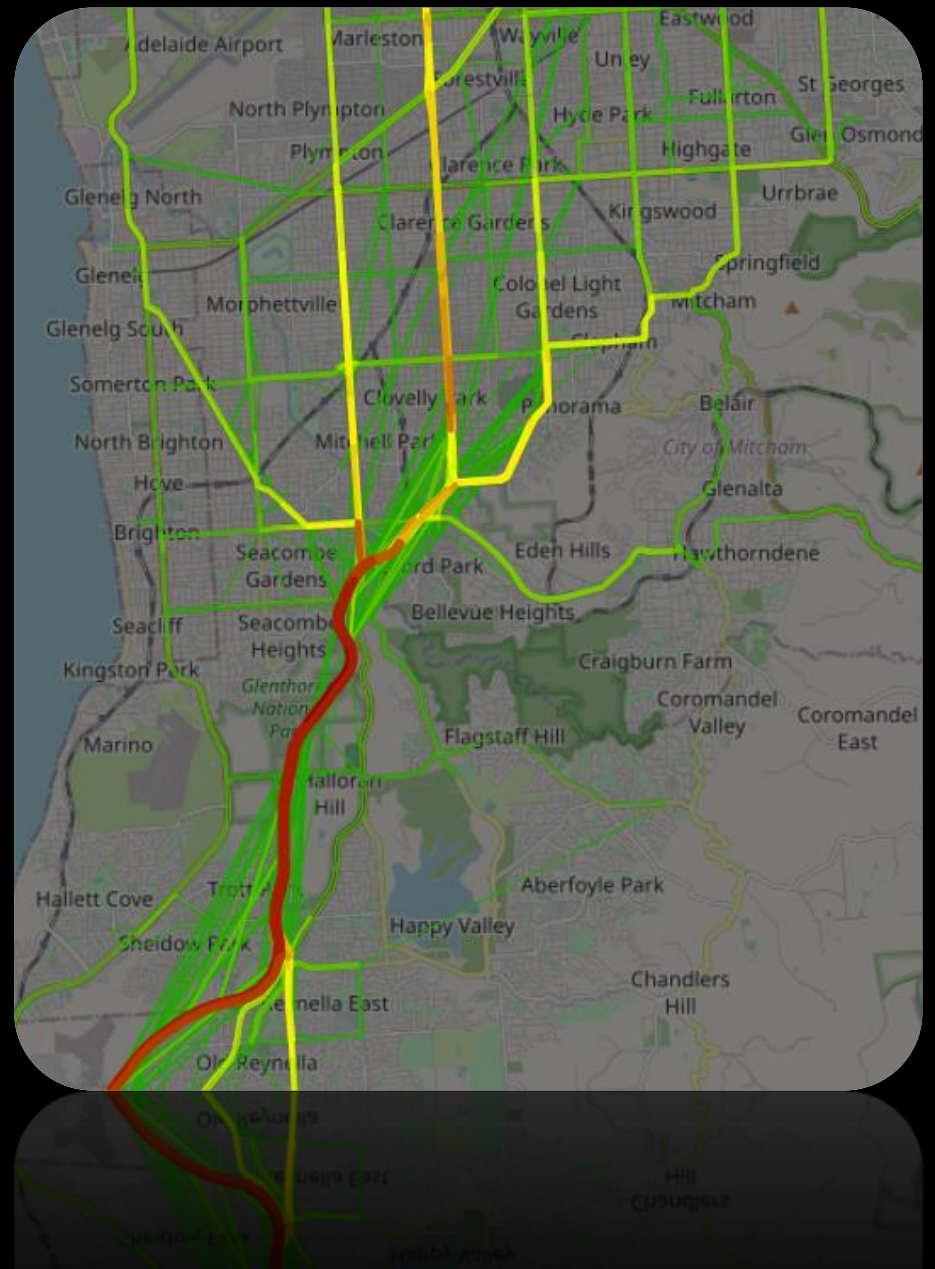
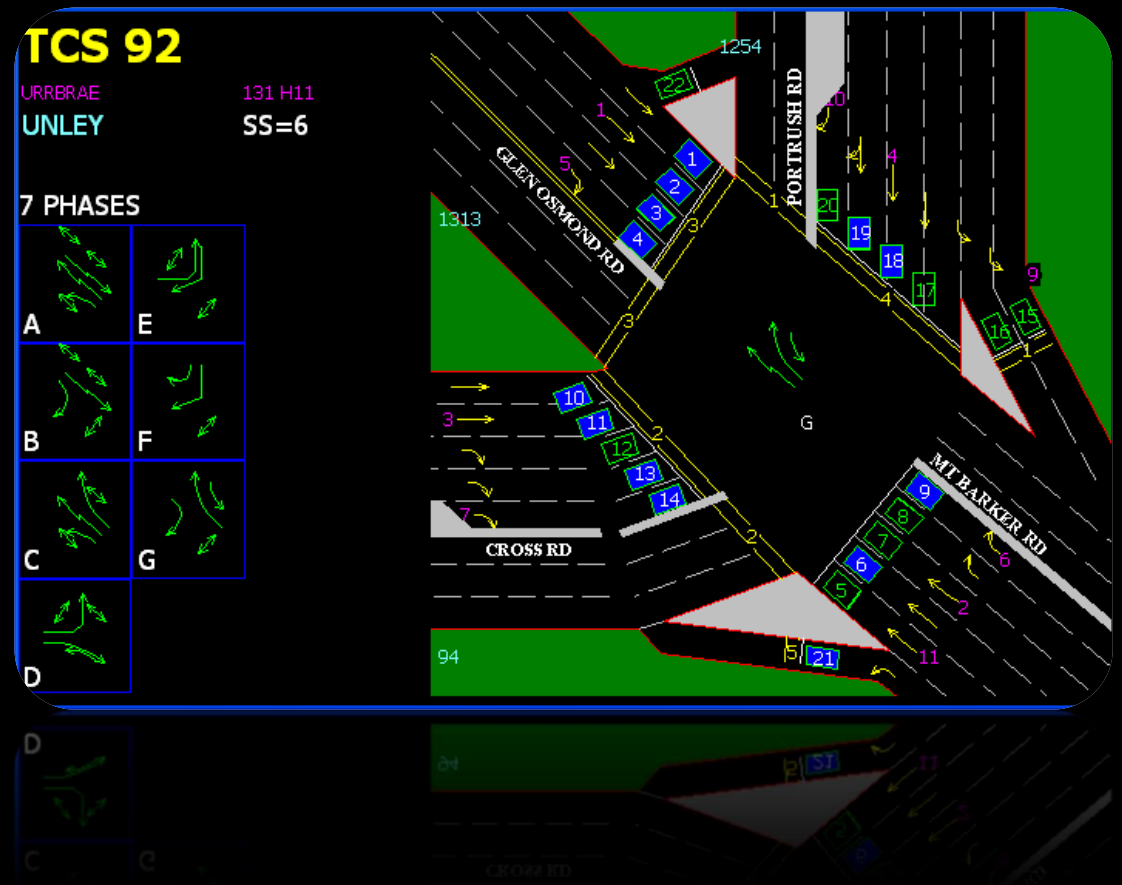


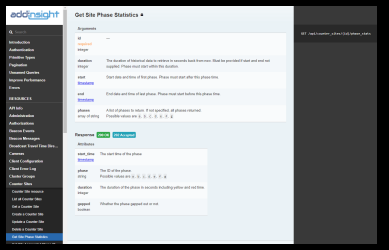
Data Collected – SCATS Data

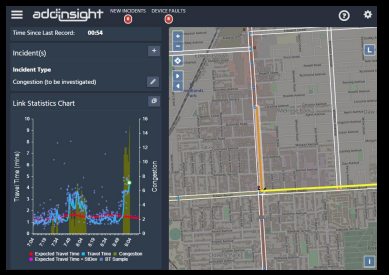
- Vehicle counts per lane, typically 5-minute aggregation
- Individual signal phase times
- Retrospective import of data at end of day, not real-time, but is on roadmap

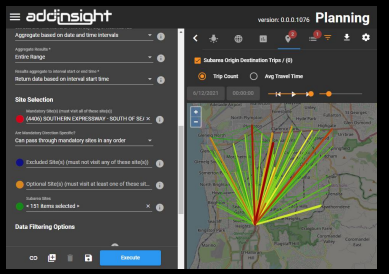


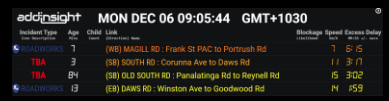
Our role to our clients

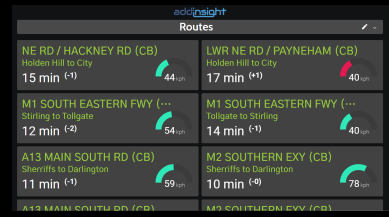
- Provider of system to collect, process, view and analyse the data
  - REST API – All client applications use the 300+ endpoints available
  - Web client applications
    - Real Time – incident detection/management & system configuration
    - Planning – data analysis and extraction via nearly 40 different report types
    - Links, Routes & Network Statistics dashboards – designed for TMC/TOC video walls











Get Site Phase Statistics

`GET /api/counter_sites/{id}/phase_stats`

Arguments

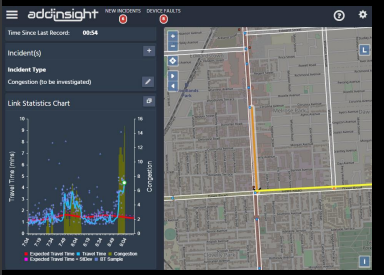
id required integer	—
duration integer	The duration of historical data to retrieve in seconds back from now. Must be provided if start and end not supplied. Phase must start within this duration.
start timestamp	Start date and time of first phase. Phase must start after this phase time.
end timestamp	End date and time of last phase. Phase must start before this phase time.
phases array of string	A list of phases to return. If not specified, all phases returned. Possible values are `a`, `b`, `c`, `d`, `e`, `f`, `g`

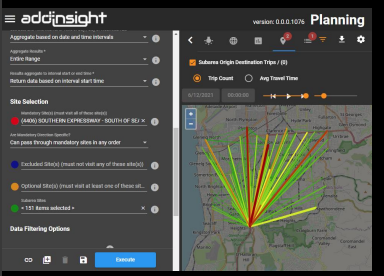
Response

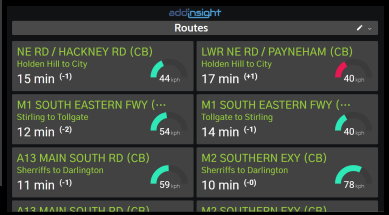
200 OK 202 Accepted

Attributes

start_time timestamp	The start time of the phase
phase string	The ID of the phase. Possible values are `a`, `b`, `c`, `d`, `e`, `f`, `g`
duration integer	The duration of the phase in seconds including yellow and red time.
gapped boolean	Whether the phase gapped out or not.







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NEW INCIDENTS 6

DEVICE FAULTS 8

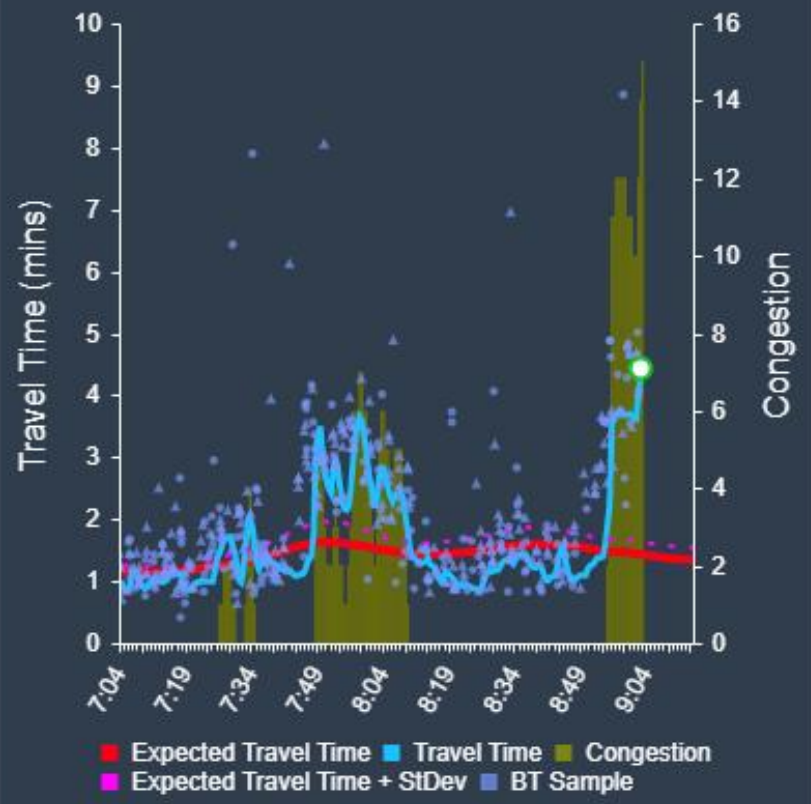
Time Since Last Record: **00:54**

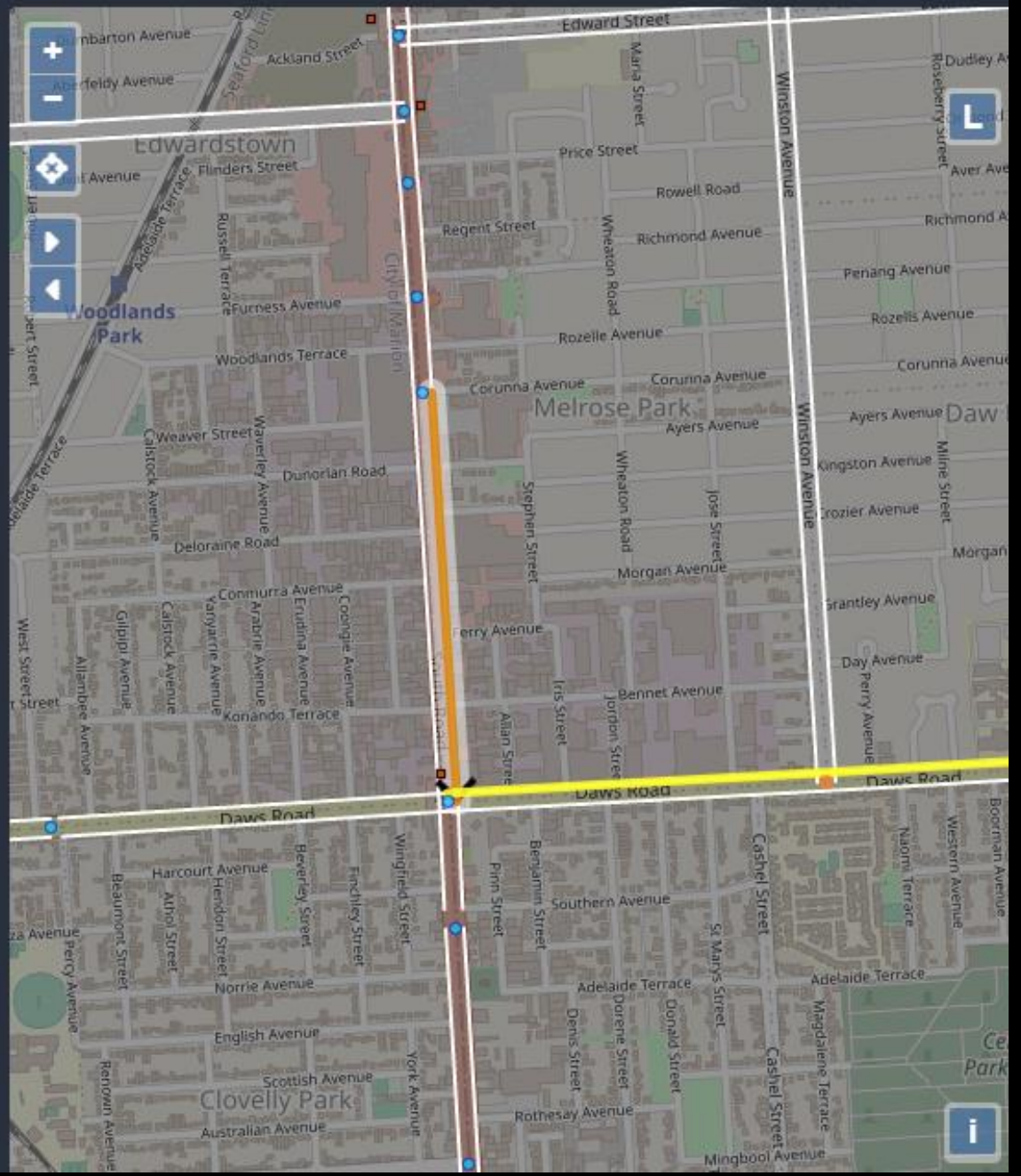
Incident(s)

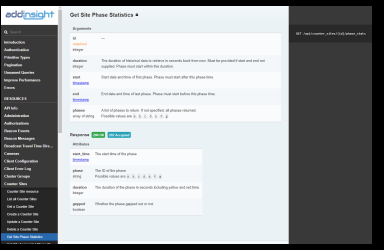
Incident Type

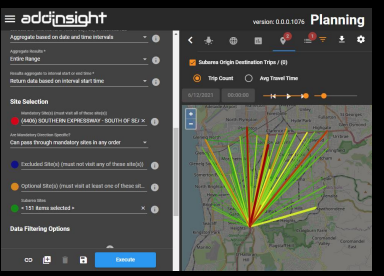
Congestion (to be investigated)

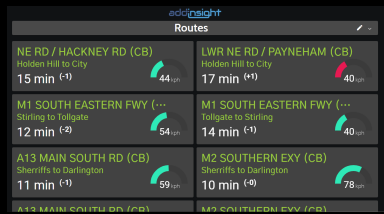
Link Statistics Chart











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version: 0.0.0.1076 **Planning**

Aggregate based on date and time intervals

Aggregate Results *

Entire Range

Results aggregate to interval start or end time *

Return data based on interval start time

Site Selection

Mandatory Site(s) (must visit all of these site(s))

(4406) SOUTHERN EXPRESSWAY - SOUTH OF SE/ ×

Are Mandatory Direction Specific?

Can pass through mandatory sites in any order

Excluded Site(s) (must not visit any of these site(s))

Optional Site(s) (must visit at least one of these sit...

Subarea Sites

< 151 items selected > ×

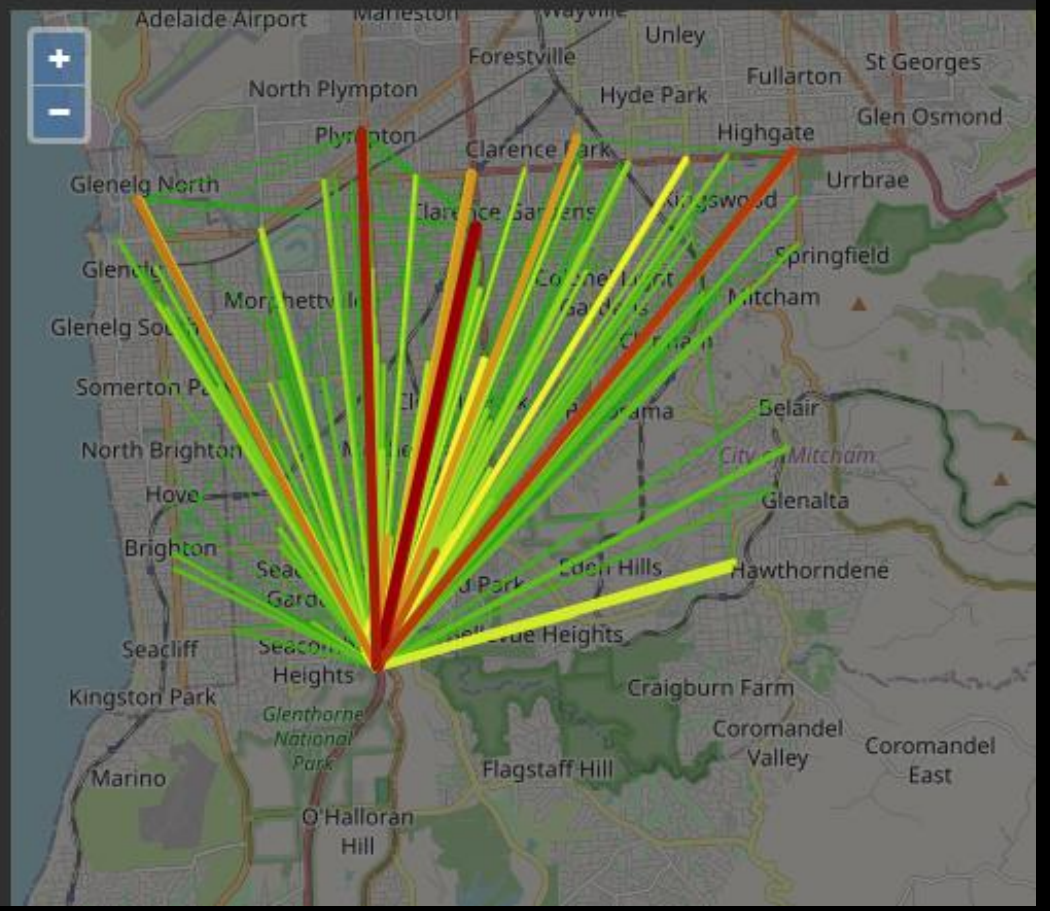
Data Filtering Options

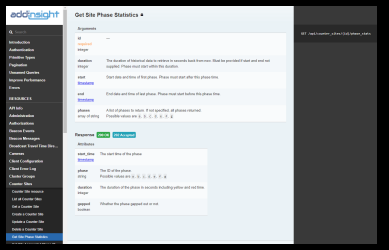
Execute

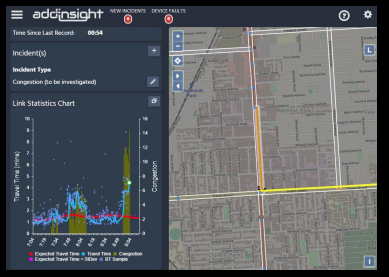
Subarea Origin Destination Trips / (0)

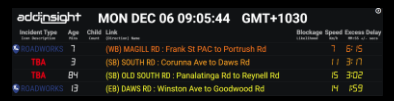
Trip Count Avg Travel Time

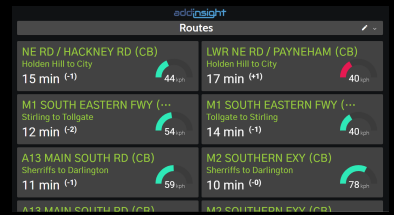
6/12/2021 00:00:00











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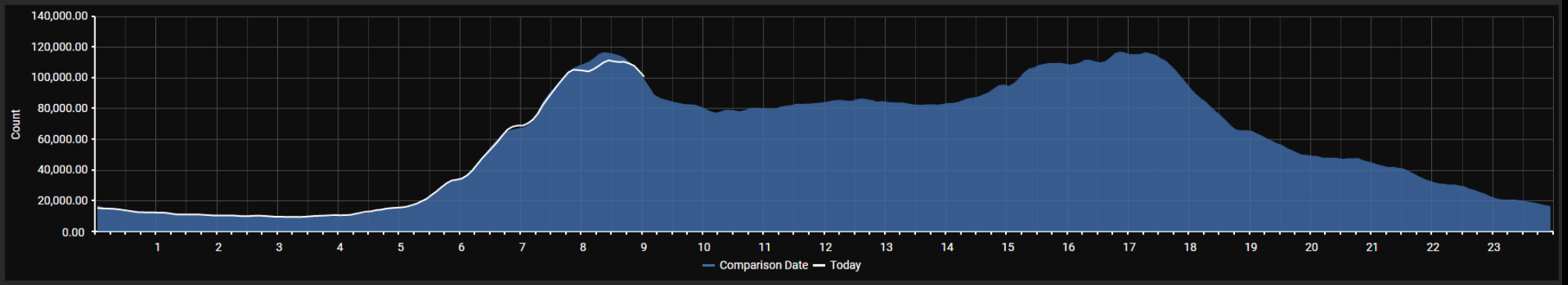
46: Total number of Active Probes being tracked

Comparison Date: 7 Days Ago



Delay Incidents

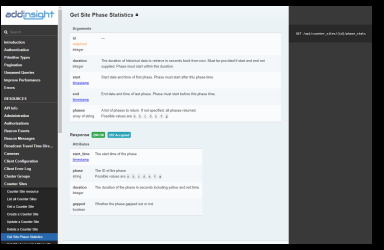
8

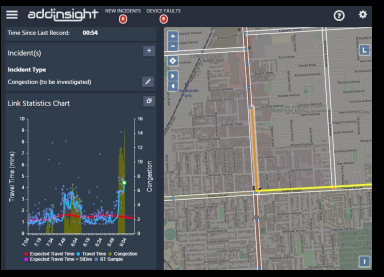
To be investigated	Roadworks
6	2

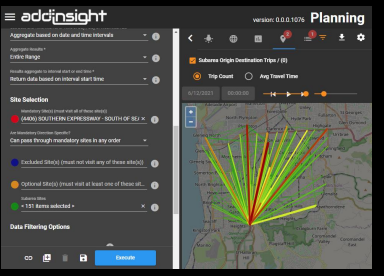
Incident Overlays

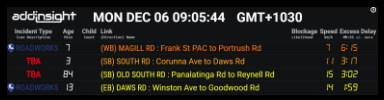
212

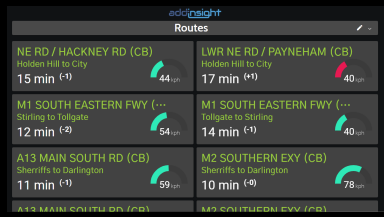
Roadworks	Long Term Roadworks	Burst Water Main	Road Closure
69	140	1	2





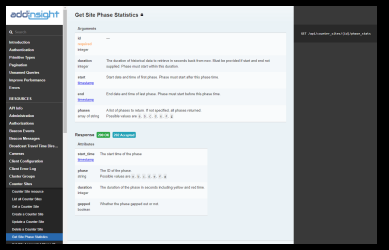


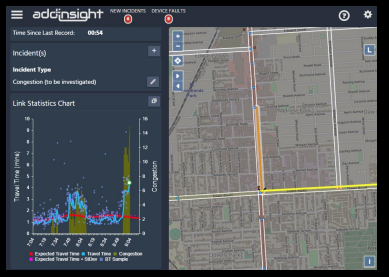


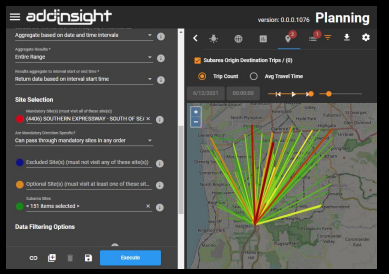


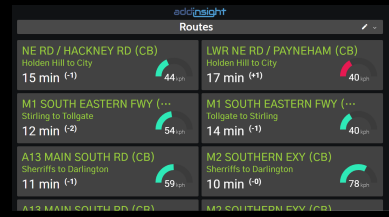
addinsight **THU DEC 02 09:10:17 GMT+1030**

Incident Type Icon Description	Age Mins	Child Count	Link (Direction) Name	Blockage Likelihood	Speed Km/h	Excess Delay MM:SS +/- secs
ROADWORKS	40	1	(NB) VICTORIA PARADE : Flinders Terrace to Burgo...		6	16:00 ▼ 2
TBA	19		(WB) SIR DONALD BRADMAN DR : Brooker Tce to M...		6	5:5 1 ▲ 3
COLLISION	27		(SEB) THE GROVE WAY : Main North Rd to Stanfor...		7	5:20 ▲ 2
ROADWORKS	41		(SB) PORT WAKEFIELD HWY : Burgoyne St to Flinde...		14	2:59 ▲ 1
TBA	4		(EB) WAR MEMORIAL DRV : Montefiore Rd to King ...		6	4:29
TBA	5		(WB) KENSINGTON RD : Sydenham Rd to Fullarton ...		4	4: 17 ▼ 1
TBA	5		(NB) FULLARTON RD : Kitchener St to Cross Rd		11	2:47 ▲ 4
CONGESTION	75		(WB) GRANGE RD : Mcdonnell Ave to East Ave		11	3:30 ▼ 23
TBA	20	1	(SB) MONTEFIORE RD/MORPHETT ST : War Memori...		13	3: 16 ▲ 7









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Routes

NE RD / HACKNEY RD (CB)
Holden Hill to City

15 min (-1)

44 kph

LWR NE RD / PAYNEHAM (CB)
Holden Hill to City

17 min (+1)

40 kph

M1 SOUTH EASTERN FWY (…
Stirling to Tollgate

12 min (-2)

54 kph

M1 SOUTH EASTERN FWY (…
Tollgate to Stirling

14 min (-1)

40 kph

A13 MAIN SOUTH RD (CB)
Sherriffs to Darlington

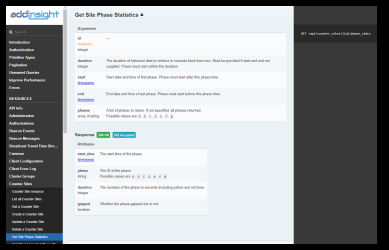
11 min (-1)

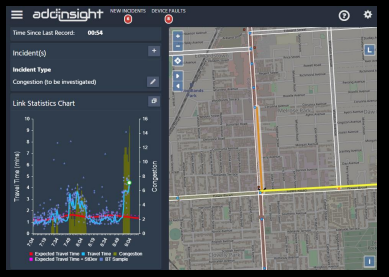
59 kph

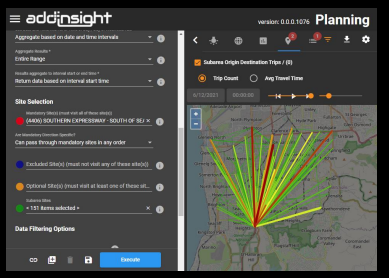
M2 SOUTHERN EXY (CB)
Sherriffs to Darlington

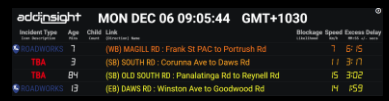
10 min (-0)

78 kph







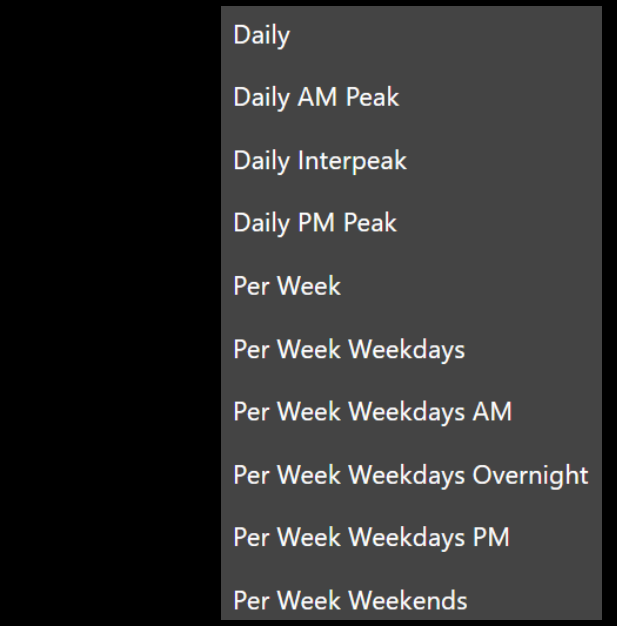


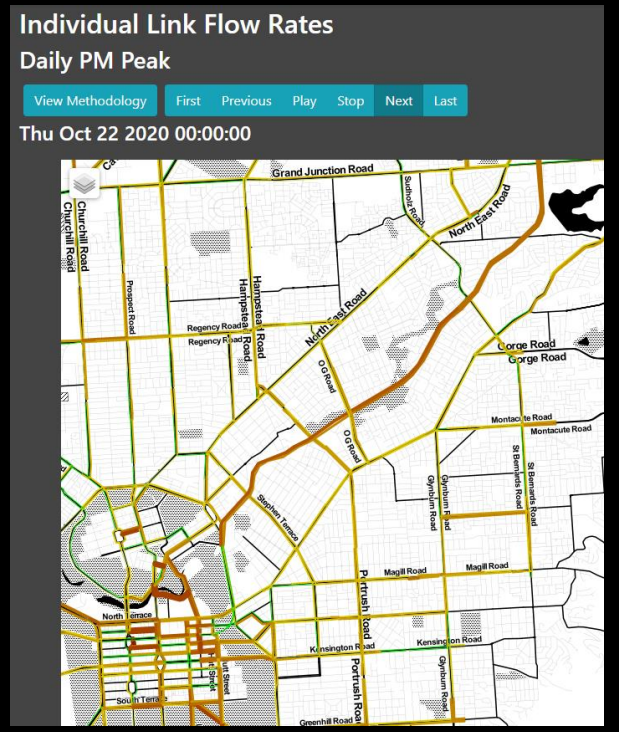
Our role to our clients

- Consultancy service to undertake bespoke analysis or create interfaces to other systems
- Support, training and feature development
  - Functionality and enhancements driven by client needs
  - Diverse range of end users, not necessarily all road-focussed

COVID-19 Dashboard

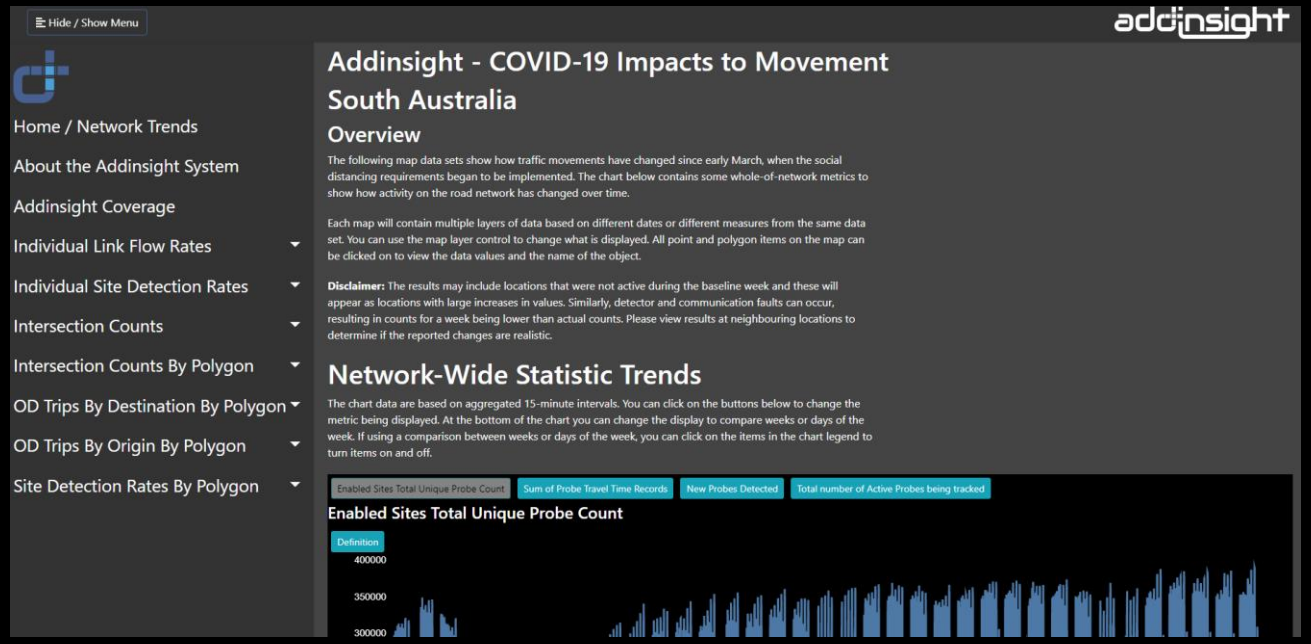
- DSTO were tasked with assisting governments with containment and intelligence
- Self-service python script developed to extract, process and compare various metrics:
  - Probe counts per site and by ABS SA2
  - Link flows
  - Intersection counts per site and by ABS SA2
  - O-D trip changes by origin and destination ABS SA2
  - Various whole of network statistics
  - Aggregated to different times of day / days of week

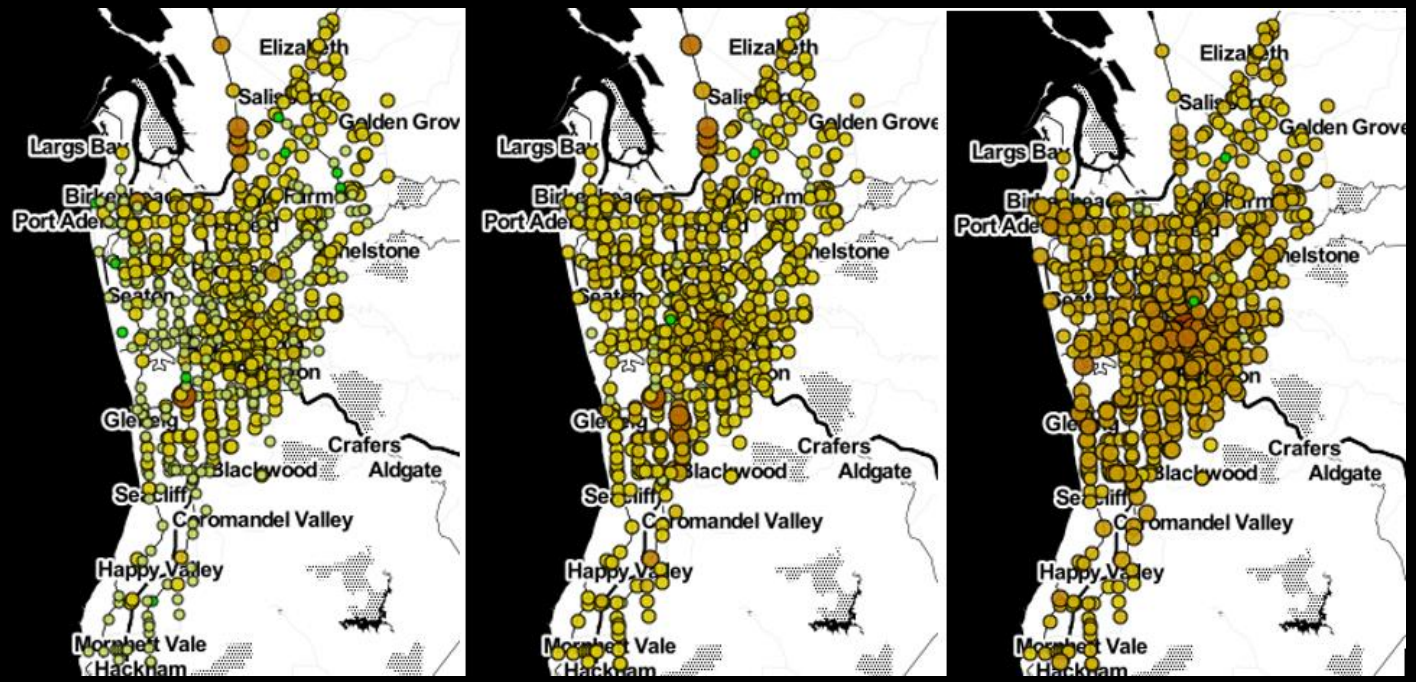




COVID-19 Dashboard

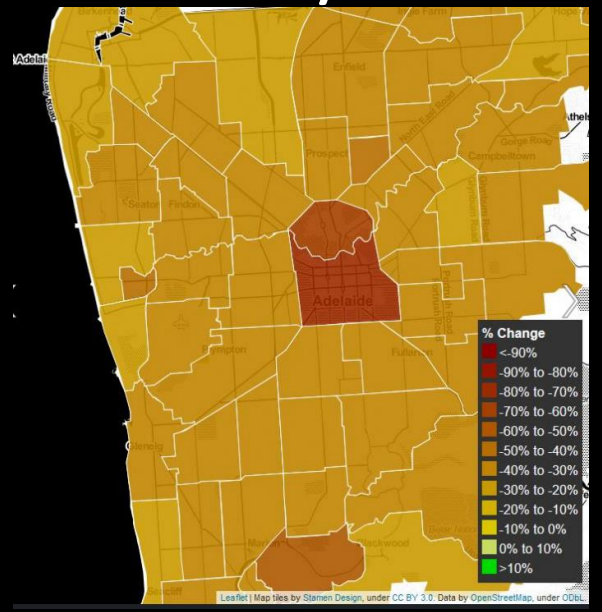
- Script automatically created web page to publish and view the data
- Animated map displays to view changes over time

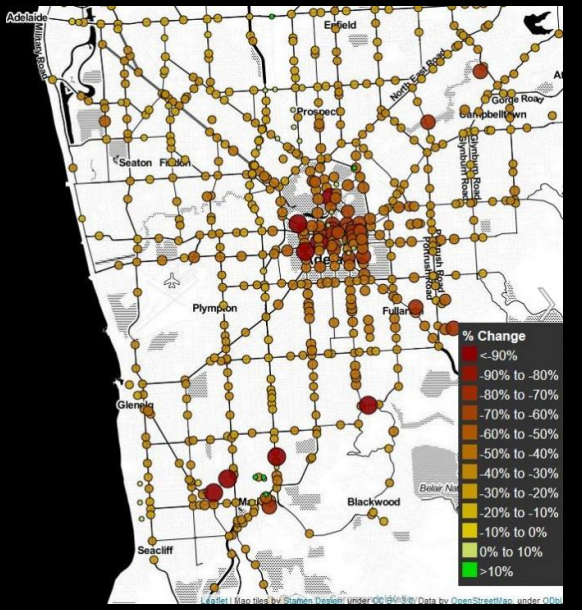


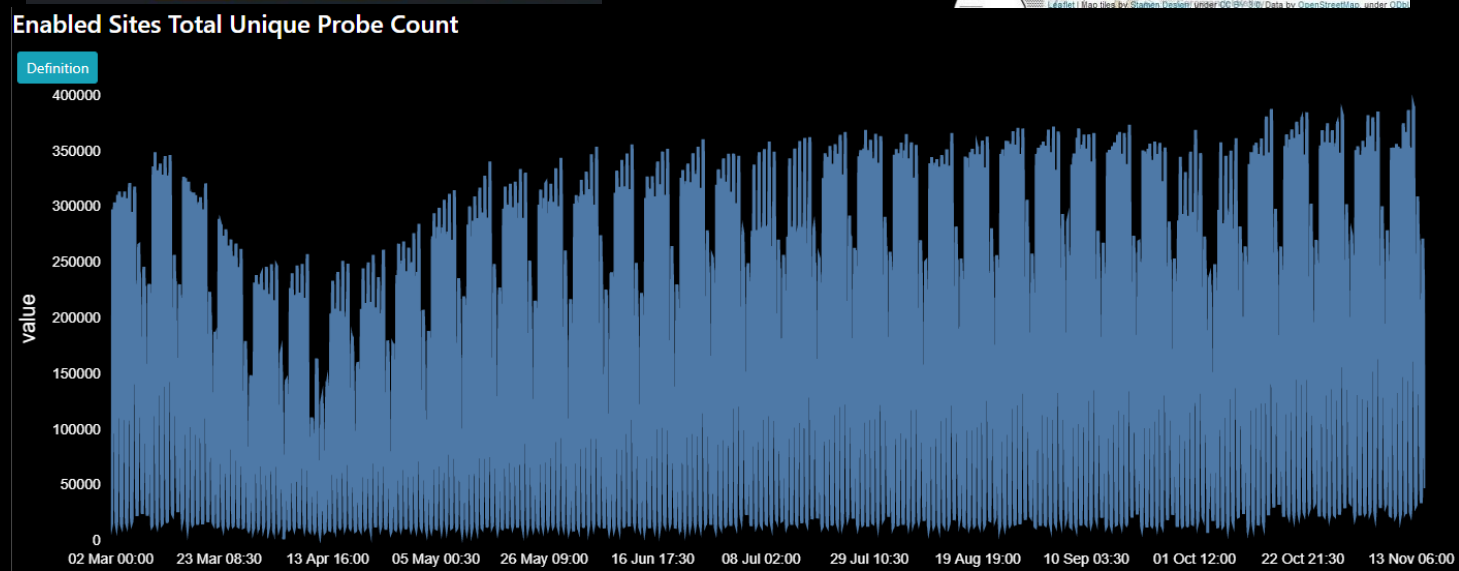


COVID-19 Dashboard – Key Observations

- About 30% reduction during initial 2020 travel restrictions, but traffic eventually increased above historical levels
  - CBD trips reduced – working from home
  - PT demand impacted more (O-Bahn)
  - University precincts impacted

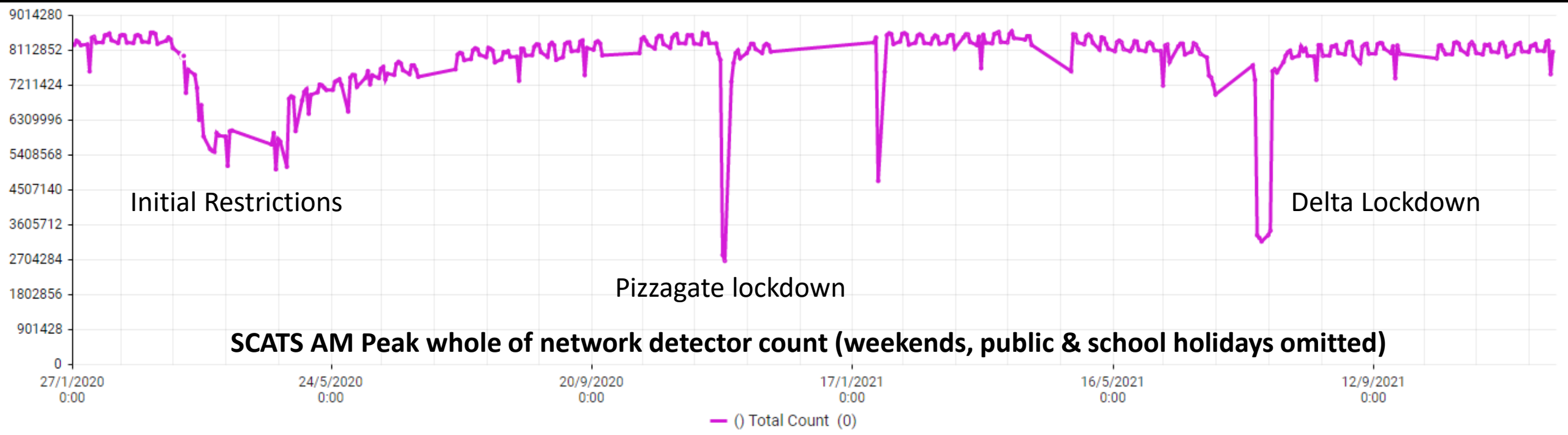






COVID-19 Dashboard – Key Observations

- About 66% reduction during first “Pizzagate” lockdown (Nov 2020)
- About 57% reduction during 2021 delta lockdown
- More vehicles than ever now on the road



Key takeaway for today

- If you work for one of these organisations, you have access to this information:
  - DIT (SA)
  - DoT (VIC)
  - DTMR (QLD) & Brisbane City Council
  - MRWA
  - TfNSW
  - State Growth (TAS)
  - Roads ACT
  - DIPL (NT)
  - Hamilton, Dunedin, Tauranga & Christchurch (soon)

Key takeaway for today

- COVID-19 Impacts are unique to each location
  - Continuously recorded data allows you to review changes at a movement, approach, site, subarea or whole-of-network level
- Road networks are living things
  - Past 2 years of data highly contaminated by restrictions
  - Irrespective of COVID-19, major projects (during and post construction) and even signal changes can create volatility
- Single surveys provide more detail, such as classification, but should be considered with time series data