




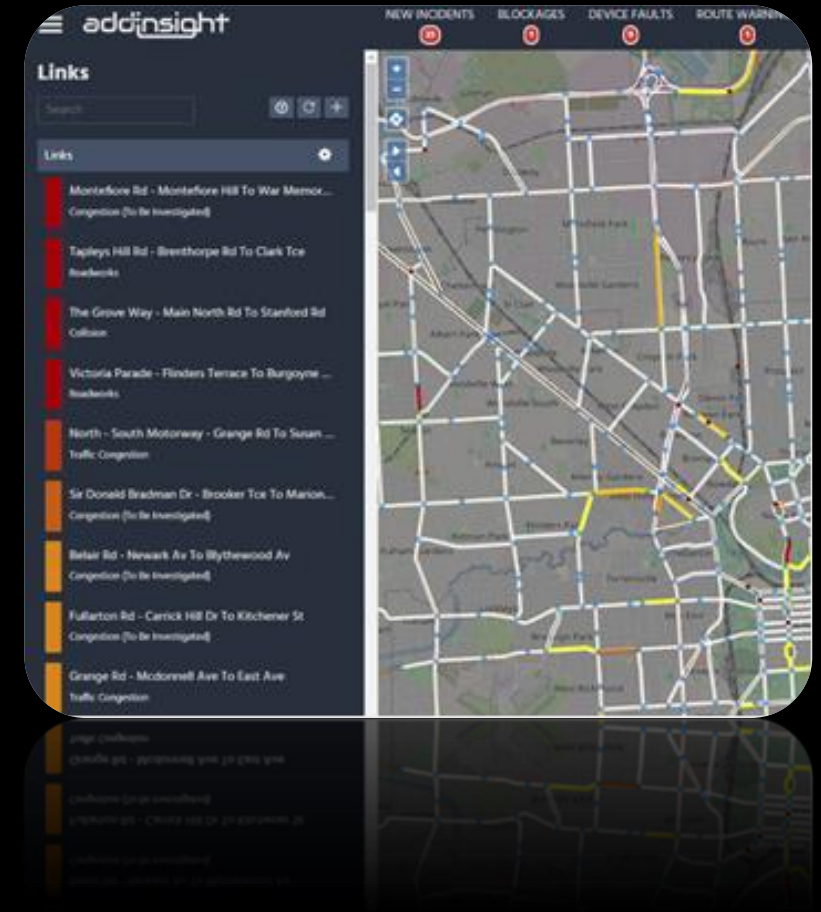
Utilising Addinsight data for activity monitoring during the initial COVID-19 lockdowns

James Cox, Product Manager, Addinsight



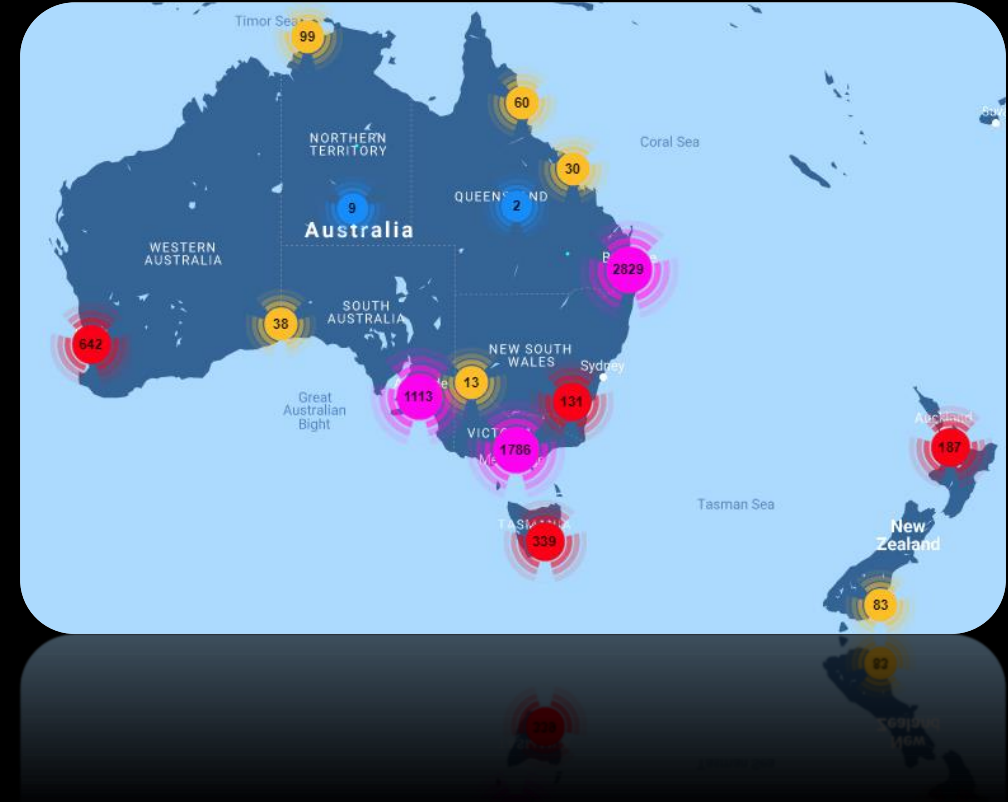
About Addinsight

- 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



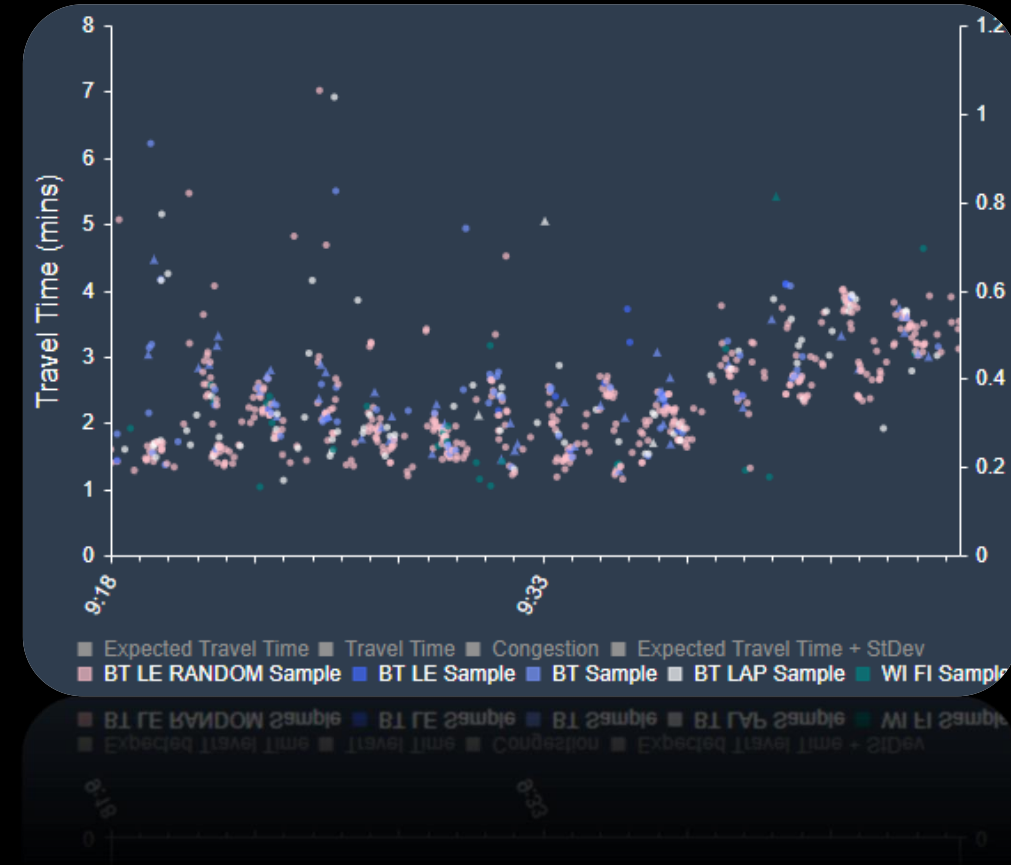
Data Collected – Probe Data

- 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



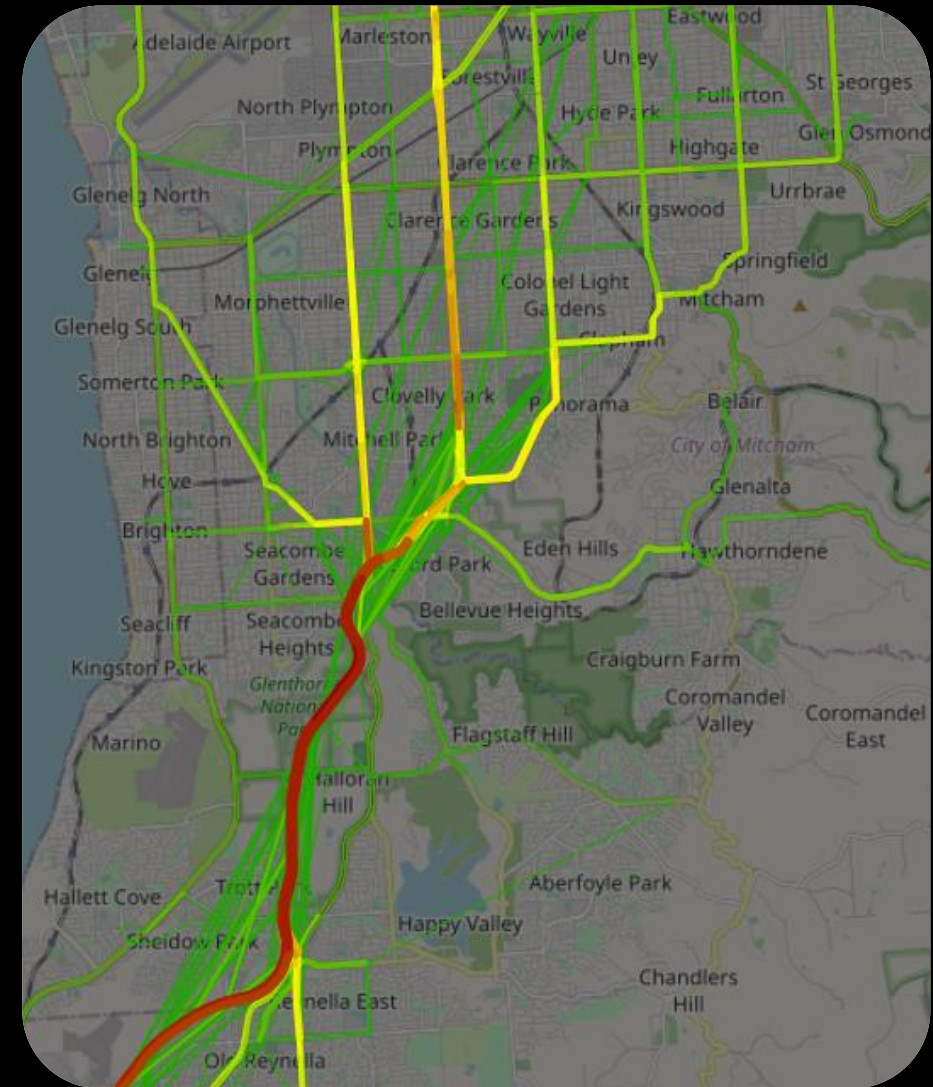
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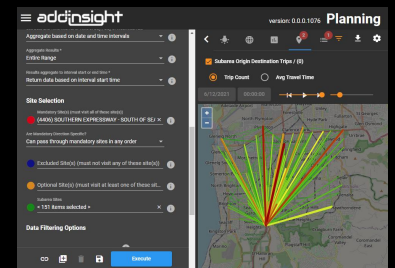
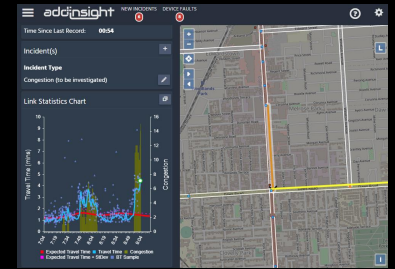
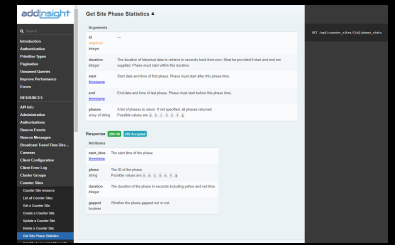
Data Collected – SCATS Data

- 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



Incident Type	Age	Link	Status	Speed	Delay	Delay Type
TBA	3	(S8) MAGILL RD - Frank St PAC to Portrush Rd	1	6	5	
TBA	8	(S8) SOUTH RD - Cornelia Ave to Dawes Rd	1	3	11	
TBA	8	(S8) OLD SOUTH RD - Panalalanga Rd to Reynell Rd	5	302		
TBA	8	(S8) DAWES RD - Winston Ave to Goodwood Rd	1	59		

Route	Time	Status	Delay
NE RD / HACKNEY RD (CB) Holden Hill to City	15 min (-1)	44	
LWR NE RD / PAYNEHAM (CB) Holden Hill to City	17 min (-1)	40	
M1 SOUTH EASTERN FWY (---) Stirling to Tollgate	12 min (-2)	54	
M1 SOUTH EASTERN FWY (---) Tollgate to Stirling	14 min (-1)	40	
A13 MAIN SOUTH RD (CB) Sheriffs to Darlington	11 min (-1)	59	
M2 SOUTHERN EBY (CB) Sheriffs to Darlington	10 min (-6)	78	

Get Site Phase Statistics

Arguments

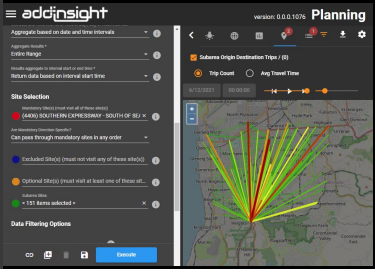
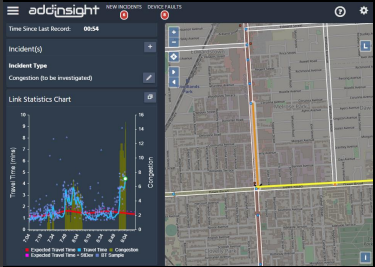
id	—
required	
integer	
duration	The duration of historical data to retrieve in seconds back from now. Must be provided if start and end not supplied. Phase must start within this duration.
integer	
start	Start date and time of first phase. Phase must start after this phase time.
timestamp	
end	End date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

Response 200 OK 202 Accepted

Attributes

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

GET /api/counter_sites/{id}/phase_stats



addinsight	MON DEC 06 09:05:44	GMT+1030
Incident Type	Agg	Link
Incident Location	Agg	Link
Incident Type	Agg	Link
Incident Location	Agg	Link
Incident Type	Agg	Link
Incident Location	Agg	Link

addinsight	Routes
NE RD / HACKNEY RD (CB)	LWR NE RD / PAYNEHAM (CB)
Holborn Hill to City	Holborn Hill to City
15 min (-1)	17 min (-1)
M1 SOUTH EASTERN FWY (-)	M1 SOUTH EASTERN FWY (-)
Stirling to Tollgate	Tollgate to Stirling
12 min (-2)	14 min (-1)
A13 MAIN SOUTH RD (CB)	M2 SOUTHERN EKY (CB)
Sheriffs to Darlington	Sheriffs to Darlington
11 min (-1)	10 min (-1)
A13 MAIN SOUTH RD (CB)	M2 SOUTHERN EKY (CB)
Sheriffs to Darlington	Sheriffs to Darlington
11 min (-1)	10 min (-1)

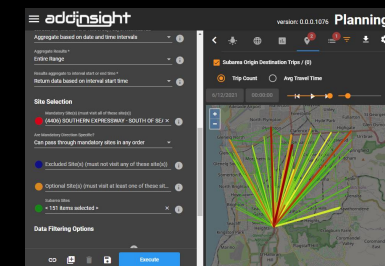
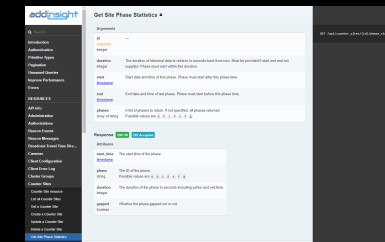
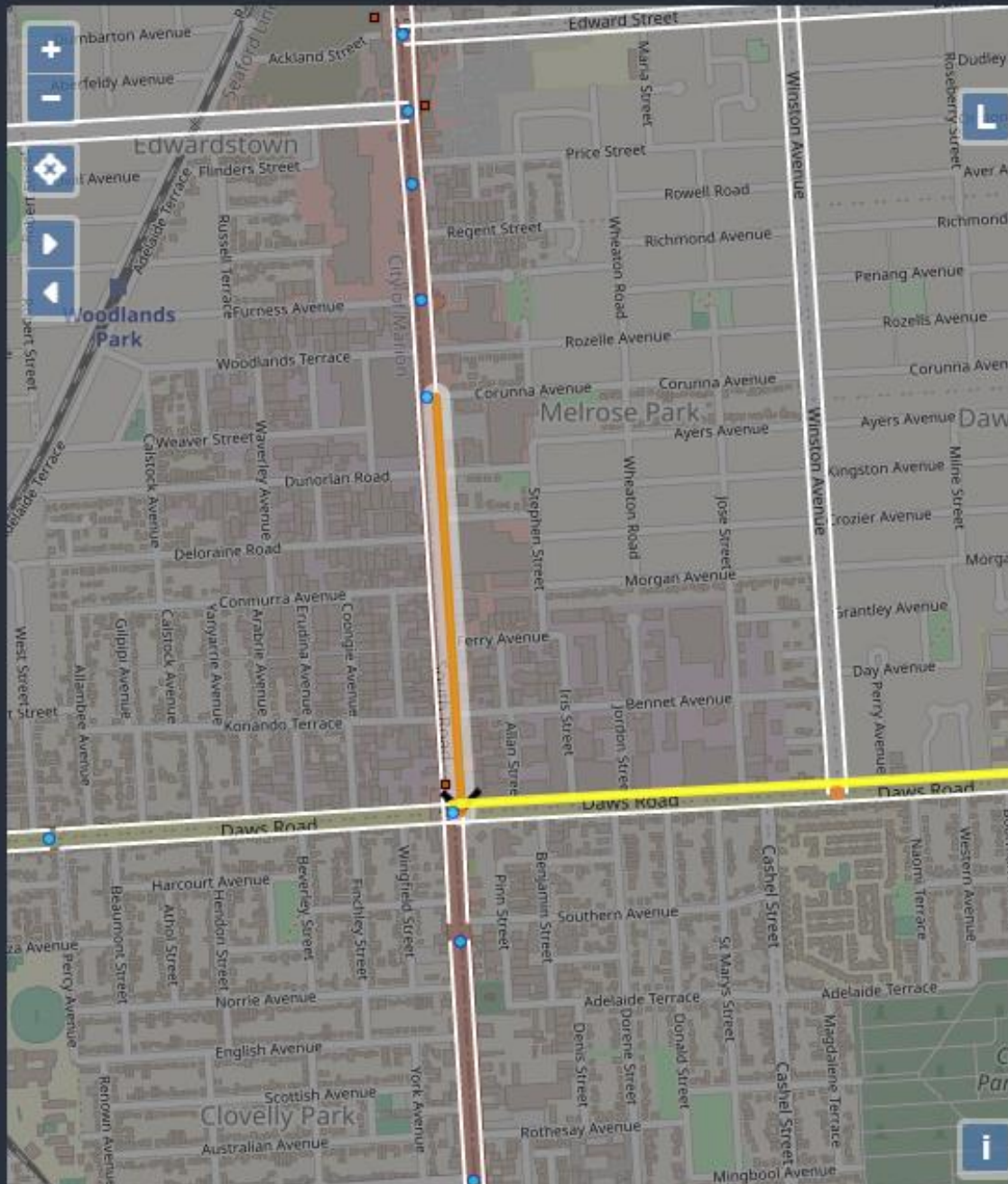
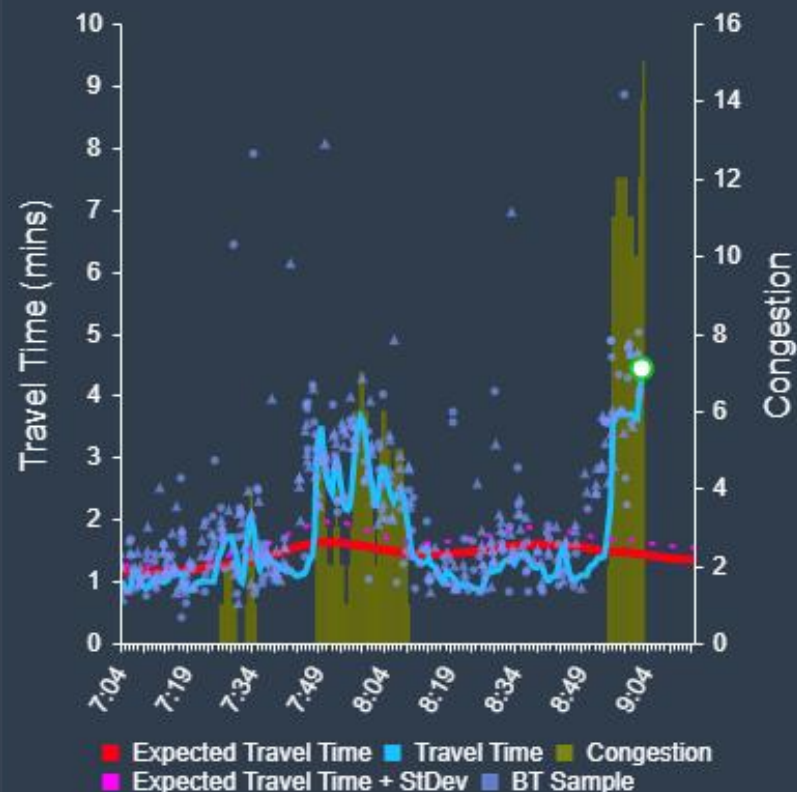
Time Since Last Record: 00:54

Incident(s)

Incident Type

Congestion (to be investigated)

Link Statistics Chart



addinsight MON DEC 06 09:05:44 GMT+1030

Incident Type	Age	Class	Link	Direction	Speed	Speed Delay
ROADWORK	7	(W) MAGILL RD - Frank St PAC to Portrush Rd			11	6:51
TBA	3	(S) SOUTH RD - Corunna Ave to Daws Rd			11	3:11
TBA	84	(S) OLD SOUTH RD - Panalalanga Rd to Reynell Rd			6	302
ROADWORK	13	(S) DAWES RD - Winston Ave to Goodwood Rd			11	55

addinsight Routes

Route	Travel Time	Speed	Speed Delay
NE RD / HACKNEY RD (CB)	15 min (-1)	44	40
LWR NE RD / PAYNEHAM (CB)	17 min (-1)	40	40
M1 SOUTH EASTERN FWY (---)	12 min (-2)	54	40
M1 SOUTH EASTERN FWY (---)	14 min (-1)	40	40
A13 MAIN SOUTH RD (CB)	11 min (-1)	59	78
M2 SOUTHERN EKY (CB)	10 min (-1)	78	78

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/ x

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

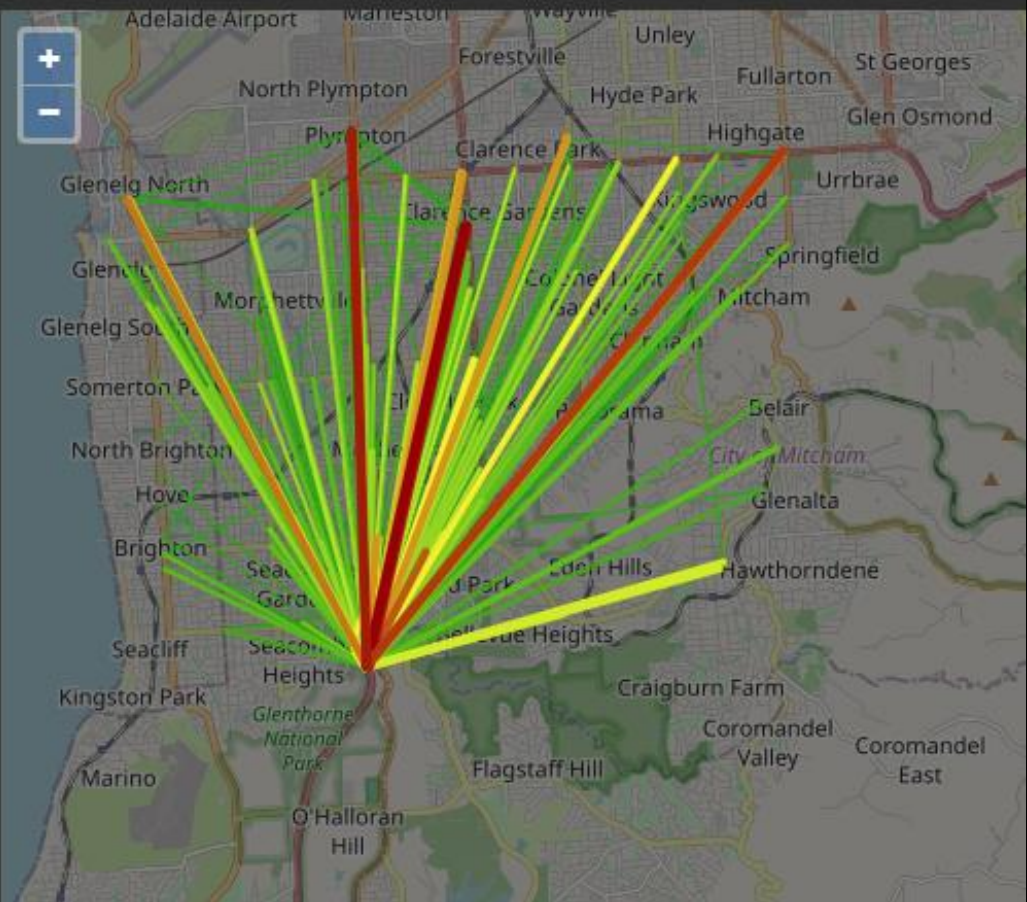
Subarea Origin Destination Trips / (0)

Trip Count

Avg Travel Time

6/12/2021

00:00:00



addinsight

Get the Phase Statistics

Phase

Phase 1

Phase 2

Phase 3

Phase 4

Phase 5

Phase 6

Phase 7

Phase 8

Phase 9

Phase 10

Phase 11

Phase 12

Phase 13

Phase 14

Phase 15

Phase 16

Phase 17

Phase 18

Phase 19

Phase 20

Phase 21

Phase 22

Phase 23

Phase 24

Phase 25

Phase 26

Phase 27

Phase 28

Phase 29

Phase 30

Phase 31

Phase 32

Phase 33

Phase 34

Phase 35

Phase 36

Phase 37

Phase 38

Phase 39

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Phase 41

Phase 42

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Phase 74

Phase 75

Phase 76

Phase 77

Phase 78

Phase 79

Phase 80

Phase 81

Phase 82

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Phase 84

Phase 85

Phase 86

Phase 87

Phase 88

Phase 89

Phase 90

Phase 91

Phase 92

Phase 93

Phase 94

Phase 95

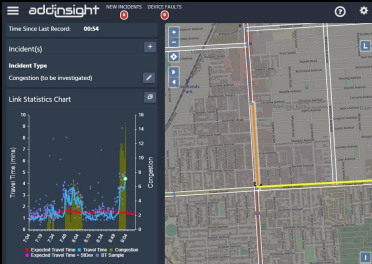
Phase 96

Phase 97

Phase 98

Phase 99

Phase 100



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MON DEC 06 09:05:44 GMT+1030

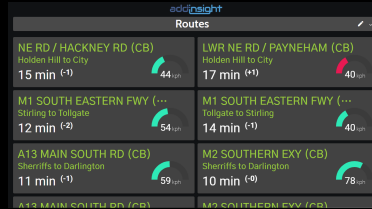
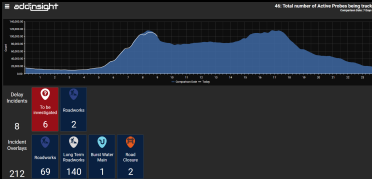
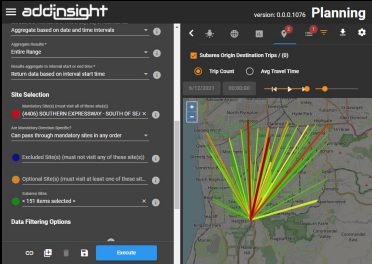
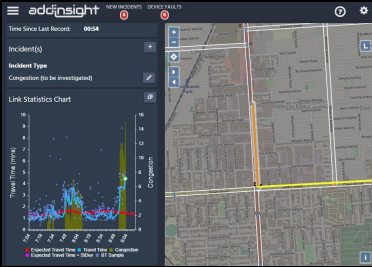
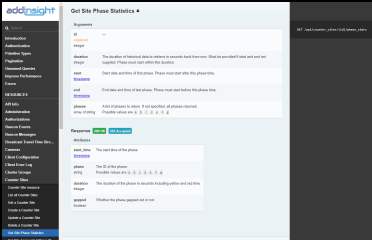
Incident Type	Age	Class	Link	Blockage	Speed	Passes	Delay
ROADWORK	7	(W) MAGILL RD - Frank St PAC to Portrush Rd			1	6	5
TBA	3	(S) SOUTH RD - Cornelia Ave to Daves Rd			1	3	1
TBA	84	(S) OLD SOUTH RD - Panalalanga Rd to Reynell Rd			5	302	
ROADWORK	13	(S) DAVES RD - Winston Ave to Goodwood Rd			1	59	

addinsight

Routes

NE RD / HACKNEY RD (CB) Holden Hill to City 15 min (-1)	44 min	LWR NE RD / PAYNEHAM (CB) Holden Hill to City 17 min (-1)	40 min
M1 SOUTH EASTERN FWY (...) Stirling to Tollgate 12 min (-2)	54 min	M1 SOUTH EASTERN FWY (...) Tollgate to Stirling 14 min (-1)	40 min
A13 MAIN SOUTH RD (CB) Sheriffs to Darlington 11 min (-1)	59 min	M2 SOUTHERN EBY (CB) Sheriffs to Darlington 10 min (-6)	78 min
A13 MAIN SOUTH RD (CB) Sheriffs to Darlington 11 min (-1)	59 min	M2 SOUTHERN EBY (CB) Sheriffs to Darlington 10 min (-6)	78 min

Incident Type	Age	Child	Link	Blockage	Speed	Excess Delay
Icon Description	Mins	Count	(Direction) Name	Likelihood	Km/h	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	5:51 ▲ 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 ▲ 1



Routes

NE RD / HACKNEY RD (CB)

Holden Hill to City

15 min ⁽⁻¹⁾



LWR NE RD / PAYNEHAM (CB)

Holden Hill to City

17 min ⁽⁺¹⁾



M1 SOUTH EASTERN FWY (...)

Stirling to Tollgate

12 min ⁽⁻²⁾



M1 SOUTH EASTERN FWY (...)

Tollgate to Stirling

14 min ⁽⁻¹⁾



A13 MAIN SOUTH RD (CB)

Sherriffs to Darlington

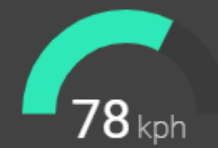
11 min ⁽⁻¹⁾



M2 SOUTHERN EXY (CB)

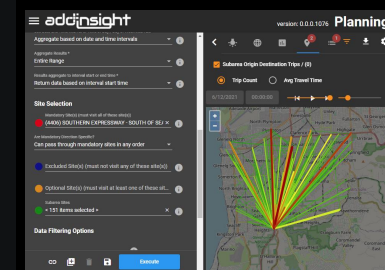
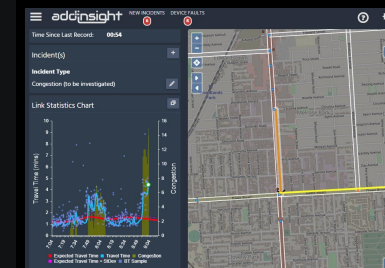
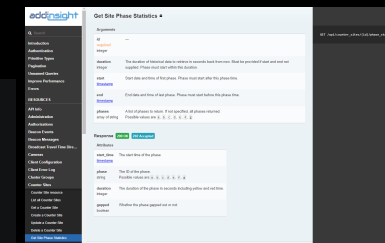
Sherriffs to Darlington

10 min ⁽⁻⁰⁾



A13 MAIN SOUTH RD (CB)

M2 SOUTHERN EXY (CB)



addinsight MON DEC 06 09:05:44 GMT+1030

Incident Type	Age	Chid	Link	Blockage	Speed	Passes	Delay
ROADWORKS	7		(W) MAGILL RD - Frank St PAC to Portrush Rd		1	6:5	
TBA	3		(S) SOUTH RD - Cornelia Ave to Daves Rd		1	3:11	
TBA	24		(S) OLD SOUTH RD - Panalalanga Rd to Reynell Rd		5	302	
ROADWORKS	13		(S) DAVES RD - Winston Ave to Goodwood Rd		1	59	

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

Daily

Daily AM Peak

Daily Interpeak

Daily PM Peak

Per Week

Per Week Weekdays

Per Week Weekdays AM

Per Week Weekdays Overnight

Per Week Weekdays PM

Per Week Weekends

Individual Link Flow Rates

Daily PM Peak

[View Methodology](#)

[First](#)

[Previous](#)

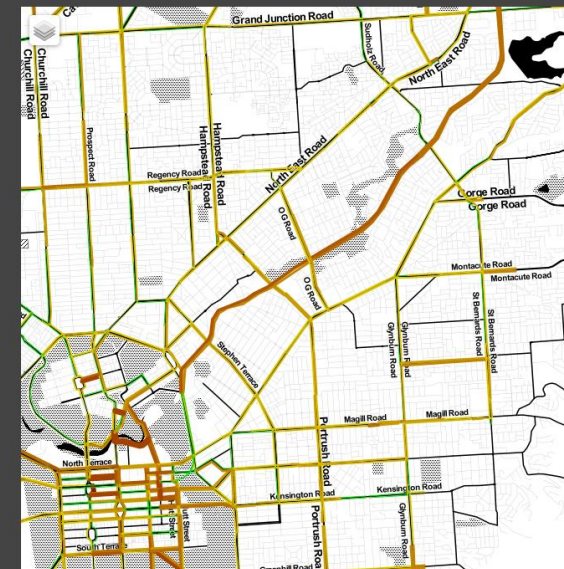
[Play](#)

[Stop](#)

[Next](#)

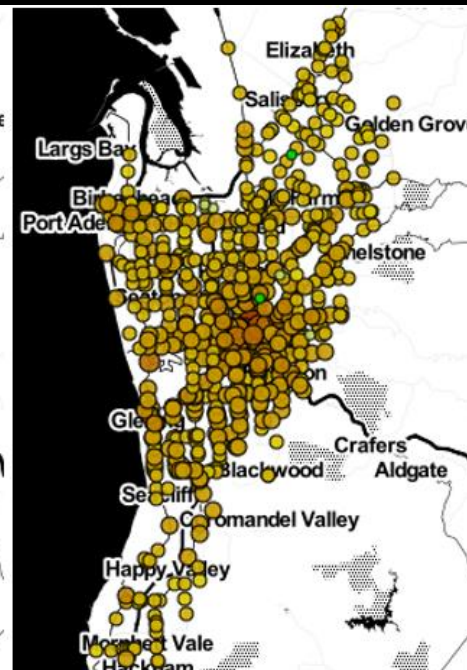
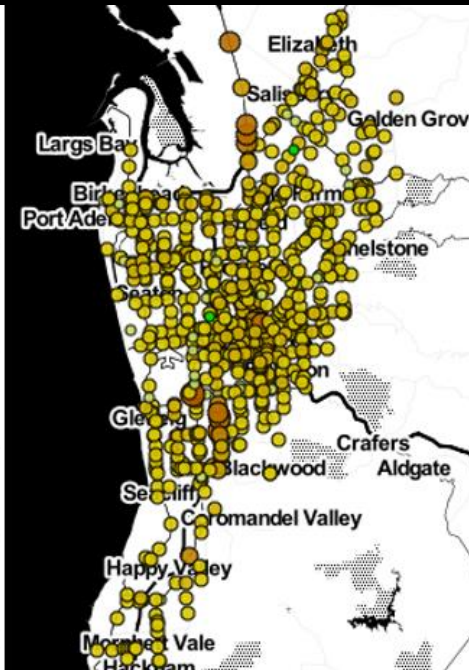
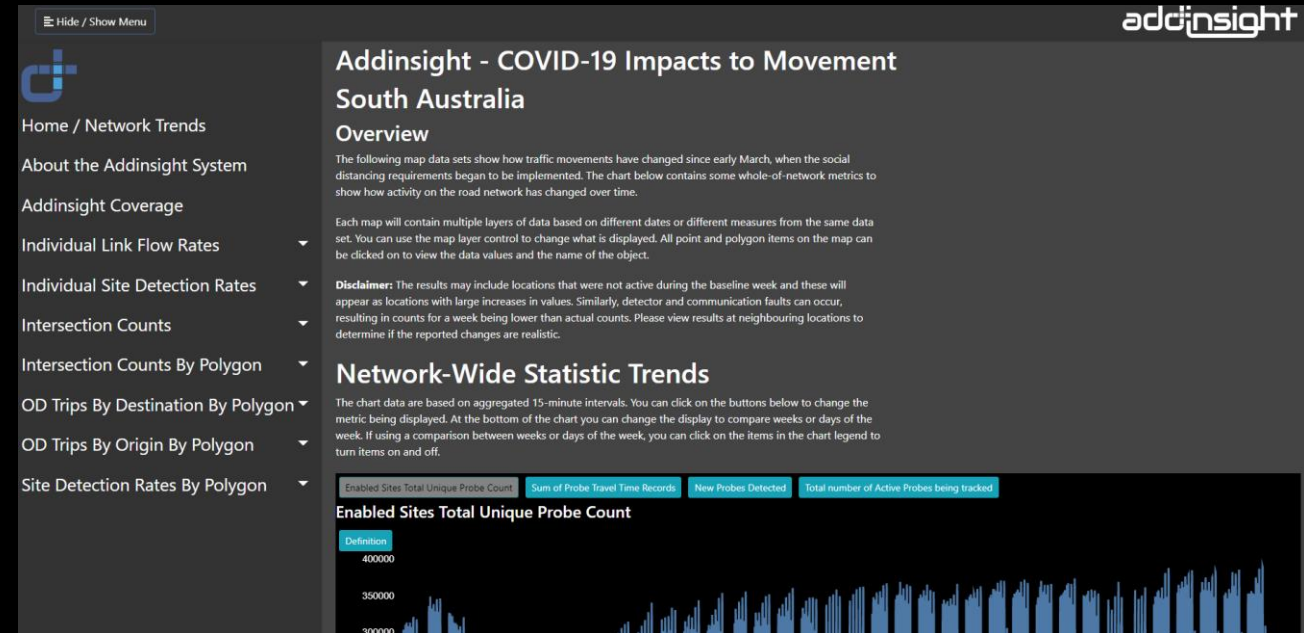
[Last](#)

Thu Oct 22 2020 00:00:00



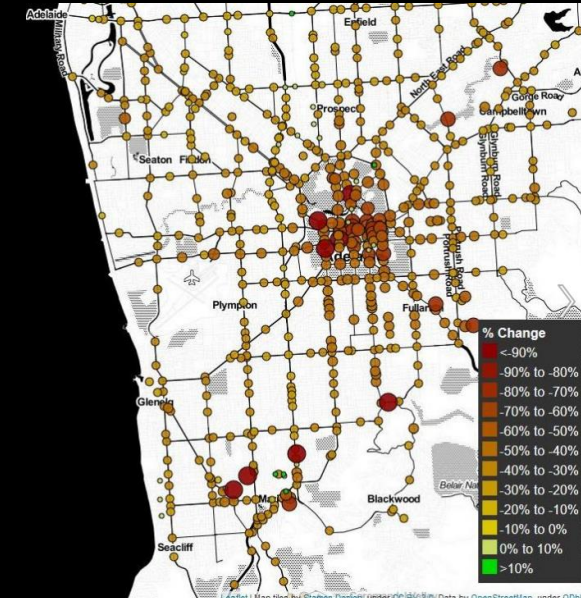
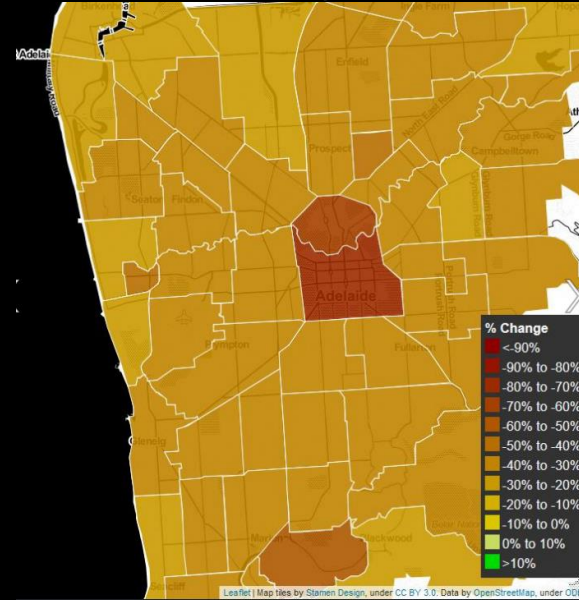
COVID-19 Dashboard

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

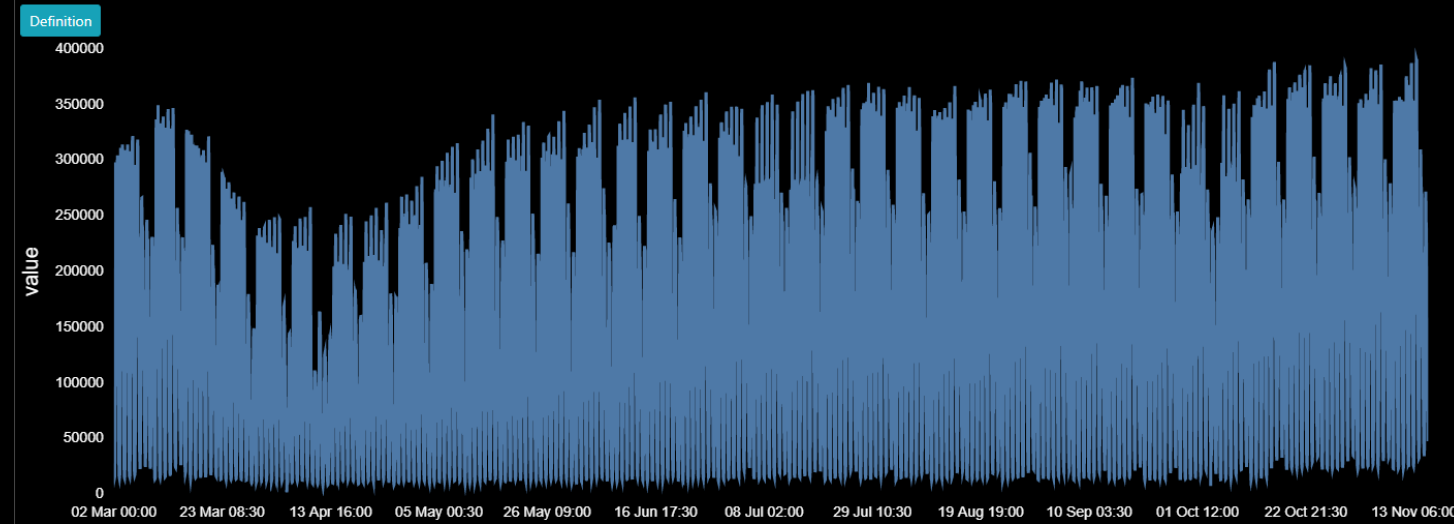


COVID-19 Dashboard – Key Observations

- 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

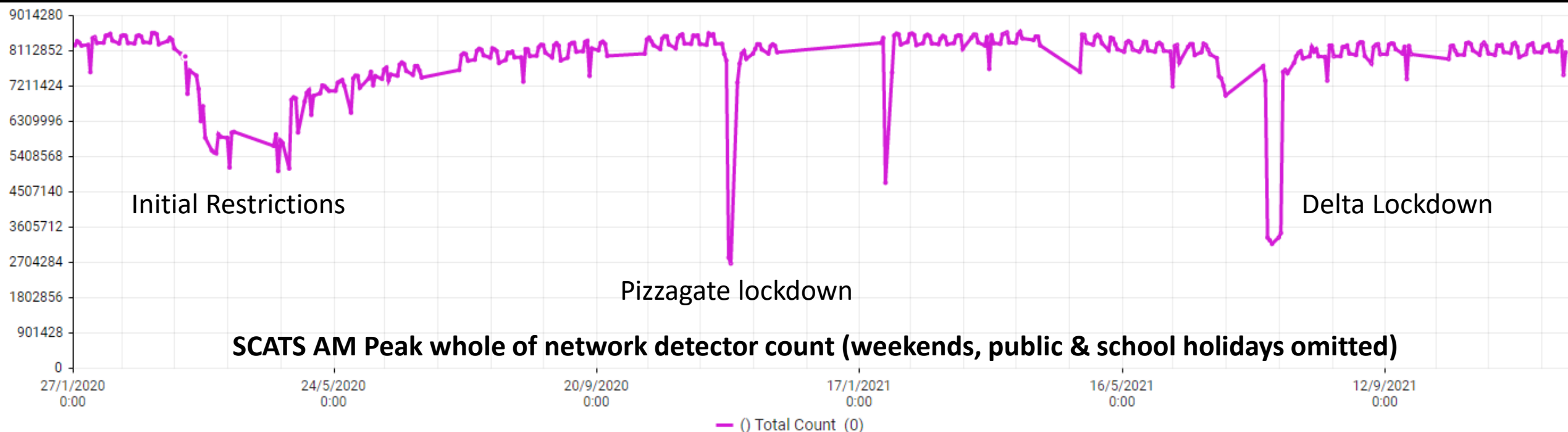


Enabled Sites Total Unique Probe Count



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