



Transport
for NSW



Open Opal Dataset Documentation

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Author: Transport for NSW
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1 Introduction

1.1 What is Opal?

Opal is the smartcard ticketing system which is used on Transport for NSW's public transport. Opal cards are smartcard tickets that are used to pay for travel on public transport. The Opal network covers train, bus, ferry and light rail services in Sydney, the Blue Mountains, Central Coast, Hunter, Illawarra and Southern Highlands.

1.2 Opal Data – Tap on and Tap off

Transport for NSW customers can tap on (depart) and tap off (arrive) at a destination. Tap on and tap off data can be from re-useable stored value cards or from single use tickets.

2 Data overview

The Open Opal dataset contains 6 CSV files covering 14 days across the four (4) public transport modes.

The CSV files (one for each week) are:

- Tap on and off time (single attribute data set)
- Tap on and off location (single attribute data set)
- Tap on and off time and location (double attribute data set)

The 14 days are:

- Monday 25 July to Sunday July 31 2016
Before paper ticket retirement – note trips made with paper tickets in this week are not included in the data.
- Monday 8 August to Sunday 14 August 2016
After paper ticket (Magnetic Stripe Tickets/MST) retirement.

The four (4) public transport modes are:

- Train
- Bus
- Ferry
- Light rail

3 Privacy protection

Protecting customers' privacy is a priority when releasing open data. The Opal dataset has been treated to ensure no personal information and no information that can be linked to an individual was released in the dataset.

Algorithms with a proof of privacy associated with their output, known as differential privacy, were developed to treat the Opal data to produce a privacy-protected dataset.

The Opal dataset produced by the differential privacy algorithms are protected against all known classes of privacy attacks, such as re-identification. Privacy attacks currently not known also have little chance of success in these datasets.

The algorithms are designed to:

- Remove high risk low count queries – low count is less than 18 customers (excluding zero)
- Include noise in queries that are not removed.

The algorithms modified elements of the Opal data that can be used to identify an individual to produce a privacy-protected dataset. The privacy-protected dataset maintains the statistical accuracy.

The Opal data is modified by algorithms to ensure customers' privacy is protected. This includes the following:

- All information that is or can be linked to an individual Opal card is removed
- Geographic information that could identify travel patterns of individuals on low volume transport services such as bus stops that a small number of passengers use is treated and aggregated.

4 Time Binning

To mitigate privacy risk of re-identification, all times in the dataset have been binned to 15 minutes. For example, a tap on at 3.58pm will be represented in the data as a tap on at 3.45pm.

All times in all tables have been binned to 15 minutes and are outlined in the table below.

Original time	Bin	Example
0 to 14 minutes past the hour	To the hour	Original time: 8.05am Bin: 8am
15 to 29 minutes past the hour	15 minutes past the hour	Original time: 10.20am Bin: 10.15am
30 to 44 minutes past the hour	Half past the hour	Original time: 11.40pm Bin: 11.30pm
45 to 59 minutes past the hour	45 minutes past the hour	Original time: 1.49pm Bin: 1.45pm

5 Using the data

5.1 Fields

The available fields in the data are mode, date, tap, time, location and count.

Field	Type	Description
mode	text	Transport mode - Either Train, Bus, Ferry or Light Rail indicating the mode of transport the tap on or off is related to
date	number	Date in format of yyyyymmdd
tap	text	Tap type - Either on or off indicating departure (on) or arrival (off)
time	time	Binned time in 24 hour format. Time is binned to 15 minutes intervals. -1 indicates "unknown" -- an error with the Opal card reader Time is based on Opal system time
loc	text	Location -1 indicates "unknown" -- an error with the Opal card reader 4 digit number indicates Postcode Named locations are Train Stations or Ferry Wharves or Light Rail stops
count	number	A privacy protected number of tap occurrences

Some data has been hidden for privacy. A return of a zero count is an indication that either there were zero counts in the data or that there were insufficient trips to ensure privacy protection.

5.2 Data variances

In order to preserve privacy, data has been aggregated and treated. Trips have been removed which pose a threat to privacy. Bus locations (bus stops) have been binned by postcode. Light rail stops are not binned but has resulted in some small counts being removed from the released dataset.

A return of a zero count is an indication that there were zero counts or there are insufficient trips to release the information.

The total (sum) of the double attribute data set may not match the details from the single attribute set due to privacy protection measures.

6 Open Opal Data period

6.1 Dates

There are two non- consecutive weeks of data in the Opal dataset. The two (2) 7 day period of data is from

- Monday 25 July to Sunday July 31 2016

and

- Monday 8 August to Sunday 14 August 2016.

6.2 Events

The period was selected to have the fewest incidents across the network. A comma separated values (csv) files of relevant events can be found on the Open Data hub with the Open Opal dataset.

6.3 Trackwork

Train trackwork for the two weeks may skew tap on and tap off data. The usual case during trackwork is that neither tap on or tap off data is collected for the period for the train stations affected. Customers may still tap on, however it is not necessary as the buses which replace train services during trackwork do not require customers to tap on or off (and may not have an enabled Opal card reader).

Comma separated values (csv) files of the trackwork information can be found on the Open Data hub with the Open Opal dataset.

For information about the route details and which stops/stations are affected, please refer to the GTFS specification and

<https://developers.google.com/transit/gtfs/reference/> and the GTFS trains bundle which can be found on the Open Data Hub the link to the GTFS bundles are stored at <https://opendata.transport.nsw.gov.au/dataset/timetables-complete-gtfs/>.

6.3.1 Monday 25 July to Sunday July 31 2016

Start Time	End Time	Affected Routes	Description
27/07/2016 18:53	27/07/2016 19:29	{WL_1a,WL_1b,WL_2a,WL_2b}	Trains have been suspended on the Western Line both directions between Richmond & Riverstone due to extended trackwork. A limited bus service will operate.
29/07/2016 16:14	30/07/2016 17:11	{AEHL_1a,AEHL_1b,AEHL_1d,AEHL_2a,AEHL_2b,AEHL_2d,BL_1a,BL_1b,BL_1c,BL_1d,BL_2a,BL_2b,BL_2c,BL_2d,ESIL_1a,ESIL_1b,ESIL_1c,ESIL_1d,ESIL_2a,ESIL_2b,ESIL_2c,ESIL_2d,ESIL_3c,ESIL_3d,IWL_1,IWL_1b,IWL_2,IWL_2b,IWL_2c,IWS_1a,IWS_1b,IWS_1c,IWS_1d,IWS_1e,IWS_1f,IWS_1g,IWS_1h,IWS_1j,IWS_2a,IWS_2b,IWS_2c,IWS_2d,IWS_2e,IWS_2f,IWS_2g,IWS_2h,IWS_2j,SL_1,SL_1b,SL_2,SL_2b}	<p>Saturday 30 and Sunday 31 July</p> <p>City Circle</p> <ul style="list-style-type: none"> - Trains run in one direction only, from Central first stop Town Hall. - Some City Circle trains run to a changed timetable and leave from different platforms. - You may need to change trains at Central to complete your journey. <p>T2 Airport Line</p> <ul style="list-style-type: none"> - Most trains start and end at Central, platform 23, to a changed timetable. <p>T2 Inner West & South Line</p> <ul style="list-style-type: none"> - Buses replace all-stations trains between Strathfield and Central. - Trains run to a changed timetable between Campbelltown, Leppington and Strathfield then express to Redfern, Central and City Circle stations. Trains make an extra stop at Homebush and do not stop at Ashfield. <p>T3 Bankstown Line</p> <ul style="list-style-type: none"> - Buses replace trains between Cabramatta, Lidcombe and Sydenham via Bankstown. Some late night and early morning buses extend to Glenfield or Campbelltown. - An extra bus service runs between Cabramatta and Lidcombe via Regents Park.

T4 Eastern Suburbs & Illawarra Line

- Extra trains run between Hurstville and the City Circle, making extra stops at Sydenham, St Peters and Erskineville.

25/07/2016 9:18 26/07/2016 16:51 {BL_1a,BL_1b,BL_1c,BL_1d,BL_2a,BL_2b,
BL_2c,BL_2d,IWL_2c,NCCL_1a,NCCL_1b,N
CCL_2a,NCCL_2b,NSL_1,NSL_2,WL_1a,WL
_1b,WL_2a,WL_2b}

Monday 25, Tuesday 26, Wednesday 27 and Thursday 28

T1 Western Line

- Nightly from 8.50pm until 2am, buses replace trains from Richmond to Blacktown.

- Nightly from 9.10pm until 2am, buses replace trains from Blacktown to Richmond.

T3 Bankstown Line

Nightly from 10.05pm until 2am

- Buses replace trains between Bankstown and Sydenham.

- Trains run between Liverpool and Bankstown and between Lidcombe and Bankstown, some to a changed timetable.

Tuesday 26, Wednesday 27, Thursday 28 and Friday 29 July

T1 North Shore and Central Coast & Newcastle Line

Each morning from 12.20am until 4.50am

The following trains run up to 20 minutes later than normal due to trackwork between Hornsby and Cowan:

- 00:22 Hornsby to Hamilton service

- 01:22 Hornsby to Wyong service

- 02:22 Hornsby to Hamilton service

On Thursday and Friday morning, these trains leave Asquith, Mount Colah, Mount Kuring-gai, Berowra and Cowan from platform 1, not platform 2.

27/07/2016 8:02 27/07/2016 11:33 {BL_1a,BL_1b,BL_1c,BL_1d,BL_2a,BL_2b,
BL_2c,BL_2d,IWL_2c,NCCL_1a,NCCL_1b,N
CCL_2a,NCCL_2b,NSL_1,NSL_2,WL_1a,WL
_1b,WL_2a,WL_2b}

Monday 25, Tuesday 26, Wednesday 27 and Thursday 28

T1 Western Line

- Nightly from 8.50pm until 2am, buses replace trains from

Richmond to Blacktown.
 - Nightly from 9.10pm until 2am, buses replace trains from Blacktown to Richmond.

T3 Bankstown Line
 Nightly from 10.05pm until 2am
 - Buses replace trains between Bankstown and Sydenham.
 - Trains run between Liverpool and Bankstown and between Lidcombe and Bankstown, some to a changed timetable.

Tuesday 26, Wednesday 27, Thursday 28 and Friday 29 July

T1 North Shore and Central Coast & Newcastle Line
 Each morning from 12.20am until 4.50am
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 - 01:22 Hornsby to Wyong service
 - 02:22 Hornsby to Hamilton service
 On Thursday and Friday morning, these trains leave Asquith, Mount Colah, Mount Kuring-gai, Berowra and Cowan from platform 1, not platform 2.

27/07/2016 18:53	27/07/2016 19:29	{WL_1a,WL_1b,WL_2a,WL_2b}	Trains have been suspended on the Western Line both directions between Richmond & Riverstone due to extended trackwork. A limited bus service will operate.
27/07/2016 19:31	27/07/2016 20:07	{WL_1a,WL_1b,WL_2a,WL_2b}	Due to extended trackwork between Richmond & Blacktown earlier.
27/07/2016 19:31	27/07/2016 20:07	{WL_1a,WL_1b,WL_2a,WL_2b}	Due to extended trackwork between Richmond & Blacktown earlier.
27/07/2016 8:02	29/07/2016 7:04	{BL_1a,BL_1b,BL_1c,BL_1d,BL_2a,BL_2b, BL_2c,BL_2d,IWL_2c,NCCL_1a,NCCL_1b,NCCL_2a,NCCL_2b,NSL_1,NSL_2,WL_1a,WL_1b,WL_2a,WL_2b}	Monday 25, Tuesday 26, Wednesday 27 and Thursday 28 T1 Western Line - Nightly from 8.50pm until 2am, buses replace trains from

Richmond to Blacktown.

- Nightly from 9.10pm until 2am, buses replace trains from Blacktown to Richmond.

T3 Bankstown Line

Nightly from 10.05pm until 2am

- Buses replace trains between Bankstown and Sydenham.
- Trains run between Liverpool and Bankstown and between Lidcombe and Bankstown, some to a changed timetable.

Tuesday 26, Wednesday 27, Thursday 28 and Friday 29 July

T1 North Shore and Central Coast & Newcastle Line

Each morning from 12.20am until 4.50am

The following trains run up to 20 minutes later than normal due to trackwork between Hornsby and Cowan:

- 00:22 Hornsby to Hamilton service
- 01:22 Hornsby to Wyong service
- 02:22 Hornsby to Hamilton service

On Thursday and Friday morning, these trains leave Asquith, Mount Colah, Mount Kuring-gai, Berowra and Cowan from platform 1, not platform 2.

30/07/2016 17:11 31/07/2016 16:01 {AEHL_1a,AEHL_1b,AEHL_1d,AEHL_2a,AEHL_2b,AEHL_2d,BL_1a,BL_1b,BL_1c,BL_1d,BL_2a,BL_2b,BL_2c,BL_2d,ESIL_1a,ESIL_1b,ESIL_1c,ESIL_1d,ESIL_2a,ESIL_2b,ESIL_2c,ESIL_2d,ESIL_3c,ESIL_3d,IWL_1,IWL_1b,IWL_2,IWL_2b,IWL_2c,IWS_1a,IWS_1b,IWS_1c,IWS_1d,IWS_1e,IWS_1f,IWS_1g,IWS_1h,IWS_1j,IWS_2a,IWS_2b,IWS_2c,IWS_2d,IWS_2e,IWS_2f,IWS_2g,IWS_2h,IWS_2j,SL_1,SL_1b,SL_2,SL_2b}

Saturday 30 and Sunday 31 July

City Circle

- Trains run in one direction only, from Central first stop Town Hall.

- Some City Circle trains run to a changed timetable and leave from different platforms.

- You may need to change trains at Central to complete your journey.

T2 Airport Line

- Most trains start and end at Central, platform 23, to a changed timetable.

			<p>T2 Inner West & South Line</p> <ul style="list-style-type: none"> - Buses replace all-stations trains between Strathfield and Central. - Trains run to a changed timetable between Campbelltown, Leppington and Strathfield then express to Redfern, Central and City Circle stations. Trains make an extra stop at Homebush and do not stop at Ashfield. <p>T3 Bankstown Line</p> <ul style="list-style-type: none"> - Buses replace trains between Cabramatta, Lidcombe and Sydenham via Bankstown. Some late night and early morning buses extend to Glenfield or Campbelltown. - An extra bus service runs between Cabramatta and Lidcombe via Regents Park. <p>T4 Eastern Suburbs & Illawarra Line</p> <ul style="list-style-type: none"> - Extra trains run between Hurstville and the City Circle, making extra stops at Sydenham, St Peters and Erskineville.
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24/07/2016 4:05 24/07/2016 15:56 {BML_1,BML_2,CFL_1,CFL_2,CUL_1a,CUL_1b,CUL_1c,CUL_2a,CUL_2b,CUL_2c,IWL_1,IWL_1b,IWL_2,IWL_2b,IWS_1a,IWS_1b,IWS_1c,IWS_1d,IWS_1e,IWS_1f,IWS_1g,IWS_1h,IWS_1j,IWS_2a,IWS_2b,IWS_2c,IWS_2d,IWS_2e,IWS_2f,IWS_2g,IWS_2h,IWS_2j,SL_1,SL_1b,SL_2,SL_2b,WL_1a,WL_1b,WL_2a,WL_2b}

Saturday 23 and Sunday 24 July

T5 Cumberland Line

- Trains run between Glenfield and Penrith or Leppington and Richmond due to trackwork affecting trains on the T1 Western Line and T2 Inner West & South Line.

T6 Carlingford Line

- Buses replace trains between Carlingford and Clyde then continue to Strathfield.

Blue Mountains Line

- Buses replace trains between Blacktown and Central.

T1 Western Line

- Buses replace trains between Parramatta and Strathfield.

24/07/2016 4:05	24/07/2016 15:56	{BML_1,BML_2,CFL_1,CFL_2,CUL_1a,CUL_1b,CUL_1c,CUL_2a,CUL_2b,CUL_2c,IWL_1,IWL_1b,IWL_2,IWL_2b,IWS_1a,IWS_1b,IWS_1c,IWS_1d,IWS_1e,IWS_1f,IWS_1g,IWS_1h,IWS_1j,IWS_2a,IWS_2b,IWS_2c,IWS_2d,IWS_2e,IWS_2f,IWS_2g,IWS_2h,IWS_2j,SL_1,SL_1b,SL_2,SL_2b,WL_1a,WL_1b,WL_2a,WL_2b}	<p>T2 Inner West & South Line - Buses replace trains between Merrylands and Strathfield via Granville.</p> <p>Saturday 23 and Sunday 24 July</p> <p>T5 Cumberland Line - Trains run between Glenfield and Penrith or Leppington and Richmond due to trackwork affecting trains on the T1 Western Line and T2 Inner West & South Line.</p> <p>T6 Carlingford Line - Buses replace trains between Carlingford and Clyde then continue to Strathfield.</p> <p>Blue Mountains Line - Buses replace trains between Blacktown and Central.</p> <p>T1 Western Line - Buses replace trains between Parramatta and Strathfield.</p> <p>T2 Inner West & South Line - Buses replace trains between Merrylands and Strathfield via Granville.</p>
25/07/2016 9:18	26/07/2016 16:51	{BL_1a,BL_1b,BL_1c,BL_1d,BL_2a,BL_2b,BL_2c,BL_2d,IWL_2c,NCCL_1a,NCCL_1b,NCCL_2a,NCCL_2b,NSL_1,NSL_2,WL_1a,WL_1b,WL_2a,WL_2b}	<p>Monday 25, Tuesday 26, Wednesday 27 and Thursday 28</p> <p>T1 Western Line - Nightly from 8.50pm until 2am, buses replace trains from Richmond to Blacktown. - Nightly from 9.10pm until 2am, buses replace trains from Blacktown to Richmond.</p> <p>T3 Bankstown Line Nightly from 10.05pm until 2am - Buses replace trains between Bankstown and Sydenham. - Trains run between Liverpool and Bankstown and between</p>

Lidcombe and Bankstown, some to a changed timetable.

Tuesday 26, Wednesday 27, Thursday 28 and Friday 29 July

T1 North Shore and Central Coast & Newcastle Line

Each morning from 12.20am until 4.50am

The following trains run up to 20 minutes later than normal due to trackwork between Hornsby and Cowan:

- 00:22 Hornsby to Hamilton service
- 01:22 Hornsby to Wyong service
- 02:22 Hornsby to Hamilton service

On Thursday and Friday morning, these trains leave Asquith, Mount Colah, Mount Kuring-gai, Berowra and Cowan from platform 1, not platform 2.

6.3.2 Monday 8 August to Sunday 14 August 2016

Start Time	End Time	Affected Routes	Description
7/08/2016 6 16:32	7/08/2016 6 16:46	{HL_1a,HL_1b,HL_2a,HL_2b,NCCL_1a,NCCL_1b,NCCL_2a,NCCL_2b}	2am Monday 8 to 2.40am Saturday 13 August Central Coast & Newcastle Line - Buses replace trains between Broadmeadow and Hamilton, then continue to Newcastle. - Trains run between Broadmeadow or Wyong and Central, to the normal timetable. Bus route: 60CN Broadmeadow, then all stations to Newcastle and return Hunter Line - Buses replace trains between Broadmeadow and Hamilton, then continue to Newcastle. - Trains start and end at Broadmeadow, then run between

			Waratah and Hunter Line stations to the normal timetable. Bus route: 60CN Broadmeadow, then all stations to Newcastle and return
8/08/201 6 9:45	8/08/201 6 16:20	{ESIL_1a,ESIL_1b,ESIL_1c,ESIL_1d,ESIL_2a,ESIL_2b,ESIL_2c,ESIL_2d,ESIL_3c,ESIL_3d}	Monday 8 to Thursday 11 August T4 Eastern Suburbs & Illawarra Line - Nightly from 11.55pm, buses replace trains between Hurstville and Sutherland.
3/08/201 6 22:56	7/08/201 6 16:47	{HL_1a,HL_1b,HL_2a,HL_2b,NCCL_1a,NCCL_1b,NCCL_2a,NCCL_2b,NL_1a,NL_1b,NL_1c,NL_1d,NL_2a,NL_2b,NSL_1,NSL_2}	Saturday 6 and Sunday 7 August T1 North Shore Line - Buses replace trains between Berowra and Gordon. T1 Northern Line - Buses replace trains between Hornsby and Strathfield via Eastwood. Central Coast & Newcastle Line - Buses replace trains between Central and Hamilton, then continue to Newcastle. Hunter Line - Buses replace trains between Scone, Dungog and Hamilton, then continue to Newcastle.
7/08/201 6 16:46	7/08/201 6 21:03	{HL_1a,HL_1b,HL_2a,HL_2b,NCCL_1a,NCCL_1b,NCCL_2a,NCCL_2b}	2am Monday 8 to 2.40am Saturday 13 August Central Coast & Newcastle Line - Buses replace trains between Broadmeadow and Hamilton, then continue to Newcastle. - Trains run between Broadmeadow or Wyong and Central, to the normal timetable. Bus route: 60CN Broadmeadow, then all stations to Newcastle and return

			<p>Hunter Line</p> <ul style="list-style-type: none"> - Buses replace trains between Broadmeadow and Hamilton, then continue to Newcastle. - Trains start and end at Broadmeadow, then run between Waratah and Hunter Line stations to the normal timetable. <p>Bus route: 60CN Broadmeadow, then all stations to Newcastle and return</p>
8/08/201 6 13:55	8/08/201 6 16:45	{57-43T-4-sj2-1,57-45T-4-sj2-1}	<p>From Monday 8 to Thursday 11 August Nightly from 11.55pm to 2.45am the next day</p> <ul style="list-style-type: none"> - Buses replace trains between Hurstville and Sutherland - The last direct trains leaves: <ul style="list-style-type: none"> - Hurstville at 23:45 and arrives Waterfall at 00:03 - Waterfall at 23:24 and arrives Hurstville at 23:51 - Hurstville at 23:52 and arrives Cronulla at 00:23 - Cronulla at 23:33 and arrives Hurstville at 00:05 <p>Train replacement bus services: 43T4: Hurstville, then all stations to Sutherland and return 45T4: Hurstville, then Sutherland and return</p>
9/08/201 6 9:53	9/08/201 6 16:32	{ESIL_1a,ESIL_1b,ESIL_1c,ESIL_1d,ESIL_2a,ESIL_2b,ESIL_2c,ESIL_2d,ESIL_3c,ESIL_3d}	<p>Monday 8 to Thursday 11 August</p> <p>T4 Eastern Suburbs & Illawarra Line</p> <ul style="list-style-type: none"> - Nightly from 11.55pm, buses replace trains between Hurstville and Sutherland.
9/08/201 6 13:55	9/08/201 6 16:45	{57-43T-4-sj2-1,57-45T-4-sj2-1}	<p>From Monday 8 to Thursday 11 August Nightly from 11.55pm to 2.45am the next day</p> <ul style="list-style-type: none"> - Buses replace trains between Hurstville and Sutherland - The last direct trains leaves:

			<ul style="list-style-type: none"> - Hurstville at 23:45 and arrives Waterfall at 00:03 - Waterfall at 23:24 and arrives Hurstville at 23:51 - Hurstville at 23:52 and arrives Cronulla at 00:23 - Cronulla at 23:33 and arrives Hurstville at 00:05 <p>Train replacement bus services: 43T4: Hurstville, then all stations to Sutherland and return 45T4: Hurstville, then Sutherland and return</p>
10/08/20 16 11:08	10/08/20 16 11:11	{ESIL_1a,ESIL_1b,ESIL_1c,ESIL_1d,ESIL_2a,ESIL_2b,ESIL_2c,ESIL_2d,ESIL_3c,ESIL_3d}	Monday 8 to Thursday 11 August T4 Eastern Suburbs & Illawarra Line - Nightly from 11.55pm, buses replace trains between Hurstville and Sutherland.
10/08/20 16 11:11	10/08/20 16 17:19	{ESIL_1a,ESIL_1b,ESIL_1c,ESIL_1d,ESIL_2a,ESIL_2b,ESIL_2c,ESIL_2d,ESIL_3c,ESIL_3d}	Monday 8 to Thursday 11 August T4 Eastern Suburbs & Illawarra Line - Nightly from 11.55pm, buses replace trains between Hurstville and Sutherland.
10/08/20 16 13:55	10/08/20 16 16:45	{57-43T-4-sj2-1,57-45T-4-sj2-1}	From Monday 8 to Thursday 11 August Nightly from 11.55pm to 2.45am the next day <ul style="list-style-type: none"> - Buses replace trains between Hurstville and Sutherland - The last direct trains leaves: - Hurstville at 23:45 and arrives Waterfall at 00:03 - Waterfall at 23:24 and arrives Hurstville at 23:51 - Hurstville at 23:52 and arrives Cronulla at 00:23 - Cronulla at 23:33 and arrives Hurstville at 00:05 <p>Train replacement bus services:</p>

			43T4: Hurstville, then all stations to Sutherland and return 45T4: Hurstville, then Sutherland and return
11/08/20 16 13:55	11/08/20 16 16:45	{57-43T-4-sj2-1,57-45T-4-sj2-1}	<p>From Monday 8 to Thursday 11 August Nightly from 11.55pm to 2.45am the next day</p> <ul style="list-style-type: none"> - Buses replace trains between Hurstville and Sutherland - The last direct trains leaves: <ul style="list-style-type: none"> - Hurstville at 23:45 and arrives Waterfall at 00:03 - Waterfall at 23:24 and arrives Hurstville at 23:51 - Hurstville at 23:52 and arrives Cronulla at 00:23 - Cronulla at 23:33 and arrives Hurstville at 00:05 <p>Train replacement bus services: 43T4: Hurstville, then all stations to Sutherland and return 45T4: Hurstville, then Sutherland and return</p>
11/08/20 16 10:26	11/08/20 16 18:32	{ESIL_1a,ESIL_1b,ESIL_1c,ESIL_1d,ESIL_2a,ESIL_2b,ESIL_2c,ESIL_2d,ESIL_3c,ESIL_3d}	<p>Monday 8 to Thursday 11 August</p> <p>T4 Eastern Suburbs & Illawarra Line</p> <ul style="list-style-type: none"> - Nightly from 11.55pm, buses replace trains between Hurstville and Sutherland.
7/08/201 6 21:02	12/08/20 16 18:51	{HL_1a,HL_1b,HL_2a,HL_2b,NCCL_1a,NCCL_1b,NCCL_2a,NCCL_2b}	<p>Monday 8 until Friday 12 August</p> <p>Central Coast & Newcastle Line</p> <ul style="list-style-type: none"> - Buses replace trains between Broadmeadow and Hamilton, then continue to Newcastle. - Trains run between Broadmeadow or Wyong and Central, to the normal timetable. <p>Hunter Line</p> <ul style="list-style-type: none"> - Buses replace trains between Broadmeadow and Hamilton,

then continue to Newcastle.

- Trains start and end at Broadmeadow, then run between Waratah and Hunter Line stations to the normal timetable.