

London Underground: Lost Customer Hours Incident Data

Guidance Notes

Lost Customer Hours are used to measure the customer experience of reliability on the London Underground network. The system estimates the impact of any service disruption of two minutes or more in terms of time lost by our customers.

Delays are recorded by London Underground Service Control teams, before being investigated further to establish a root cause and allocate them to a specific London Underground business function (department).

Factors that influence the value of Lost Customer Hours (the size of disruption) include:

- Day of the week
- Time of day
- Location
- Direction of travel
- Duration of the incident

Therefore a five minute train delay at Oxford Circus at 17:30 would generate a far higher Lost Customer Hours value, than a five minute delay at Epping at 23:30.

Although delays are recorded for durations of two minutes or more, on occasion some sub two minute delays maybe recorded for other purposes. Consequential delays are not recorded separately as the Lost Customer Hours value includes an estimate for this in the modelling calculation.

Limitations of the data

The data in the associated file represents a snapshot of the data set at the time it was extracted. It is not uncommon for the incident details to change as further investigations are carried out. Sometimes investigations may take several weeks to complete, depending on the complexity of an incident. At times it may not be possible to establish a confirmed root cause, in these situations a default root cause maybe used to ensure consistency.

All dates, times, delays and durations are captured manually and should be used as a guide. Small discrepancies in the data are not uncommon.

Planned closures and industrial action not included in the data.

The current Lost Customer Hours modelling was completed in 2022, and put into production in April 2023.

Impact of COVID19 on the recording of delay data.

In March 2020 due to the impact of COVID19 the recording of train cancellations due to train operators not being available (ONAs) was changed from booking individual incidents for each ONA, to capturing multiple ONA cancellations within one record. Example of this would be instead of having 20 separate cancellations recorded, there would instead be one record containing the cumulative sum of the delays and Lost Customer Hours.

For a period between August-December 2020 individual ONAs were recorded for Monday-Fridays only, with multiple cancellations still being used at weekends. From January 2021 onwards this then reverted back to all days being booked as multiple cancellations. From April 2022 the majority of London Underground lines went back to recording individual train cancellations for train operators not being available.

Impact of COVID19 on coding of business function / root cause

Between late March 2020 - Saturday 16 October 2021 almost all train cancellations / withdrawals due to lack of train operators were coded as COVID19. As of Sunday 17 October 2021 coding of these incidents reverted back to the usual business function of Line Operations. The same was done for station closures due to lack of Customer Service staff, with the COVID19 category no longer being used.

Definitions

The following gives definitions for the data headings used in the associated Excel file.

Line

The London Underground line (e.g. Victoria line) on which customers were delayed by an incident.

Date

Date the incident occurred.

Time

Time the incident initially occurred at.

Location

Location the incident occurred at based on where customers were delayed.

Note: Not all incidents occur at a specific station, with some delays occurring when a train is in between stations. In these scenarios, depending on exactly where the train is in the section the incident may be booked to the station the train is departing from, or the station the train is delayed arriving to.

Direction

The direction the train was travelling in when an incident occurred.

Note: This field only applies to trains in passenger service on the running line. Therefore if a train has been cancelled in the train depot without entering service this field will show as "N/A". Similarly if the incident refers to a delay involving a station asset such as lifts or escalators the direction will also show as "N/A", as there is no associated platform.

Initial Delay

The number of minutes the train service is initially delayed for due to an incident.

Example: A customer is taken ill on a train and is helped off by station staff. The train is delayed departing by three minutes, and therefore the initial delay is three minutes.

Total Duration

Whilst initial delay only captures the initial delay to the train service, the total duration captures the full extent of an incident if it is more than a simple train stop / train start.

The total duration could reflect:

- The total time a train is missing from service after being withdrawn, with the time a replacement train enters service being the time the duration finishes.
- The total time a signal fault took place over, with the time the signal is fixed and returned to normal operations the time the duration ends.

Example 1: A train is withdrawn from service due to a defect at 20:00. The initial delay to the train service is five minutes, but the train itself is taken out of service for three hours whilst the fault is fixed/train replaced, re-entering service at 23:00. The total duration is based on

the time between the initial incident occurring, and the train re-entering service. In this example the duration would be 180 minutes.

Example 2: A signal failure occurs at 13:00 causing a five minute initial delay to the first train. However the signal continues to fail and is not fixed until 14:00. In this example the duration would be 60 minutes.

Business function

Business function is used to describe the different departments in London Underground. Each incident is assigned a business function based on the root cause responsible for the delay to the service. A brief summary of these is explained below:

Business Function	Description
Built Environment	Incidents involving assets from Civils, Facilities Management or Premises.
COVID19	Mainly cancellations of trains due to lack of train operators, or closures of stations due to lack of Customer Service staff with COVID19 or related symptoms.
Fleet	Any incident involving a train being delayed, withdrawn or cancelled due to a defect on the train.
Logistics & Manufacturing	Mainly incidents involving Transplant engineering trains / vehicles that may cause delays on the network.
Other	This is used to capture other categories external to London Underground including delays due to: <ul style="list-style-type: none"> • Network Rail infrastructure such as non London Underground signalling; • Safety and security – such as police asking a station to be closed due to a criminal offence taking place outside the station; • Extreme weather related incidents – one off events. • Power failures due to UK Power Network
Service Control	A delay to the service involving Service Control staff, such as a lack of available staff requiring a reduction in service levels.
Signals	Any incident due to some form of signalling issue.
Stations Operations	Incidents involving customers such as a train being delayed due to an ill customer being taken off the train, or a train being stopped short due to a member of station staff using a track retrieval device to pick up a customers dropped mobile phone from the track. Also includes station closures due to lack of available station staff.
Systems & Infrastructure	Incidents involving assets from departments such as Power (not UK Power Networks related), Lifts and Pumps, and Escalators.
Track	Any incident due to some form of track issue – this also includes delays caused by track obstructions and vegetation.
Trains Operations	Refers to incidents predominantly involving train operators such as a train being cancelled due to lack of available train operators.

Service Disruption Category

The service disruption category is used to determine how the Lost Customer Hours value is calculated. The category is selected on this basis and may not reflect what has been advertised to customers. For example what has been advertised for customers as a partial line suspension, may have been booked using the Train Delay category.

Note: Some of the categories contained in the table below are no longer used, with delays being captured using other categories.

Category	Name	Description
CON	Conveyor downtime	Leads to reduced pedestrian throughput in the station, causing crowding and additional journey time.
DLS	Depot late start up	When trains are unable leave depots, sidings or other stabling locations including platforms at the start of the traffic day. Note: The use of this category has largely been replaced by using multiple train cancellations.
ESC	Escalator downtime	Leads to reduced pedestrian throughput in the station, causing crowding and additional journey time. There are different values for if the escalator is still able to be used as a fixed stair or is blocked off completely.
FLS	Full line suspension	An entire line is suspended, meaning passengers must take alternative lines or transport.
FSC	Full station closure	A station is entirely closed, passengers cannot enter or exit the station, and all train services running through the station non-stopping so passengers cannot interchange either.
LFT	Lift downtime	Leads to reduced pedestrian throughput in the station, causing crowding and additional journey time.
LOR	Loss of route	When a train loses the ability to access a particular section of track, the result of which is that trains take a different route. Note: This category is rarely used with delays being captured using other categories.
PLA	Platform closure	A single platform is closed, meaning effected passengers must take a suboptimal route e.g. going to next stop and travelling back. Note: This category may used when the platform is open to customers, but trains are non stopped. The service itself is not delayed, but customers are unable to board or alight.
PLD	Partial line degradation	Occurs where the movement of trains on a section of line is degraded due to issue such as loss of ATO, or manual intervention. Note: This category is no longer used, with delays being captured using other categories.
PLS	Partial line suspension	A section of a line is suspended, meaning passengers must take alternative lines or transport. Note: The use of this category was notably reduced from 2019/20 onwards due to it not capturing the ramp up in initial disruption caused by a delay like the TDL category.
PSC	Partial station closure	Part of the station is closed restricting passenger flows. Note: The information required for this category is rarely captured and thus the category is rarely used.

SIG	Signal failure	<p>Occurs when a signal, points or track circuit failure causes the train service an initial delay, followed by a period of through-running at reduced speed. As with the TDL, the incident can have significant knock-on effects, (including many of the following trains also being subject to the reduced speed), these effects are taken into account in the LCH values.</p> <p>Note: This category could be used for incidents where the root cause is not due to signalling equipment.</p>
SPR	Speed restrictions	<p>A section of track is operating at reduced speed, effecting journey times and the capacity of the line which can reduce the maximum number of trains that can be run through the affected area.</p>
TCN	Train cancellation	<p>A train is cancelled in a depot or sidings and does not enter passenger service.</p>
TDG	Train degradation	<p>Occurs where the movement of a single train is degraded due to issue such as loss of ATO, so it can keep moving (unlike a train delay where it is stopped) but the train has to operate at a reduced speed.</p> <p>Note: This category is no longer used, with delays being captured using other categories.</p>
TDL	Train delay	<p>Occurs when a train stops for longer than scheduled at any specific location as a direct consequence of an incident. A train delay will not only affect the passengers on that particular train, but also passengers waiting at later stations on the affected line and passengers on trains behind will also be delayed as a result. These effects can last longer than the duration of the initial delay whilst the service recovers.</p>
TWD	Train withdrawal	<p>A train is withdrawn from passenger service on the running line. This includes the impact of detraining customers and then running empty along the route until it can be removed from service.</p>