

# CENTRAL LONDON ULTRA LOW EMISSION ZONE – FIRST MONTH REPORT

May 2019



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## Key Findings

On 8 April 2019 the Mayor of London launched the world's first Ultra Low Emission Zone. One month on, initial data indicates the scheme is having a significant effect – although further data will be needed to fully assess the impact of the scheme.

It is important to note that there were a number of events in the first three weeks of the scheme that disrupted traffic volumes. To allow for this, data analysis has only included the 10 days that did not have disruptions or unusual travel behaviour ('typical' days). Given this small sample these are very preliminary results, and a better picture will be available in the coming months. A breakdown of data by day for the first four weeks is provided as an appendix.

Key findings from the first month of operation are:

- In the first month of operation the average compliance rate (excluding non-typical days) with the ULEZ standards was around 71 per cent in congestion charging hours and 74 per cent in a 24 hour period. This is much higher than 39 per cent in February 2017 and the 61 per cent in March 2019 (congestion charging hours).
- There was a large reduction in the number of older, more polluting, non-compliant vehicles: 9,400 fewer on an average 'typical' day, a reduction of over a quarter, compared to March 2019.
- There was a 16 per cent increase in the proportion of vehicles in the central zone that were compliant from March 2019 to April 2019 (excluding non-typical days).

To fully understand the impact of the scheme it is necessary to take into account pre-compliance (i.e. people and businesses preparing ahead of time for the start of the new scheme). As a result the changes between February 2017 and April 2019 were as follows:

- There was a large reduction in the number of older, more polluting, non-compliant vehicles: a reduction of 36,100 vehicles on an average typical day, or around 58 per cent.
- There was an 80 per cent increase in the proportion of vehicles in the central zone that were compliant from February 2017 to April 2019.

Further work will be needed to understand the full impact of the scheme especially given other factors that may have affected traffic in the central zone in April 2019.

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## Introduction

On 8 April 2019 the Mayor of London launched the world's first Ultra Low Emission Zone in central London. This report evaluates the impact of the scheme in its first month of operation. At this early stage it is not yet possible to determine the full impacts of the scheme on air quality concentrations and emissions. The best interim measures of success currently available is vehicle compliance data. Once the scheme has been in operation for a sufficient duration impact assessments for air pollution emissions and concentrations will also be published. As with all schemes of this type, our understanding of the impacts of the scheme will improve over time.

### What is the Ultra Low Emission Zone (ULEZ)?

The Central London ULEZ started on 8 April 2019 and operates in the existing central London Congestion Charge Zone. Figure 1 is a map of the area covered by the central ULEZ. Unlike the congestion charge the ULEZ operates 24 hours a day, every day of the year. Vehicles must meet strict emission standards to drive in the ULEZ area:

- Euro 4 for petrol cars and vans (less than 14 years old in 2019)
- Euro 6 for diesel cars (less than five years old in 2019)
- Euro 6 for vans (less than four years old in 2019)
- Euro 3 for motorcycles etc
- Euro VI for lorries, buses and coaches

Vehicles that do not meet these standards must pay a charge:

- £12.50 per day for cars, motorcycles and vans
- £100 per day for lorries, buses/coaches

All TfL buses operating in the zone meet the ULEZ standards. The ULEZ replaces the T-Charge in central London and is in addition to the Congestion Charge. To find out more about the ULEZ or to check if your vehicle is affected please visit:

<https://tfl.gov.uk/modes/driving/ultra-low-emission-zone>.

Alongside the ULEZ the Private Hire Vehicle exemption to the congestion charge was removed on 8 April 2019.

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# Ultra Low Emission Zone





-  Ultra Low Emission Zone (ULEZ)
-  Ultra Low Emission Zone boundary
-  Additional residents' discount area
-  Main roads within the ULEZ



Figure 1. Map of the central London Ultra Low Emission Zone

## Vehicle compliance and traffic data

The purpose of the ULEZ is to improve air quality in and around central London. However, air pollution concentrations are affected by many different factors including the weather and regional contributions from outside London and therefore require more than one month to assess trends. An interim/proxy measure of success of the scheme is the reduction in the number of older more polluting vehicles entering the central zone. This will translate into real world air pollution emission and concentrations reductions.

Vehicle compliance refers to the number of vehicles that “comply” or meet the ULEZ emission standards. Non-compliant vehicles do not meet the strict ULEZ emissions standards and have either:

- Paid the daily charge
- Been issued a penalty charge notice<sup>1</sup>
- Not been required to pay the daily ULEZ charge as they are eligible for a 100% discount or exemption

### Limitations of this analysis

#### *Time period of data available for analysis*

To assess the impact of the scheme we have compared the number of vehicles detected in the zone and compliance rates from February 2017, March 2019 and April 2019. In February 2017 the Mayor confirmed the introduction of the T-charge as a stepping stone for the ULEZ and this can be seen as the start of the accelerated change in the vehicle fleet as Londoners and businesses prepared for the new schemes. March 2019 is the month before the ULEZ was introduced and April 2019 was the first month of operation.<sup>2</sup>

The ULEZ is a 24 hour scheme, however, historic data was collected during congestion charging (CC) hours only – 07:00 to 18:00, Monday to Friday. When assessing the impact of the first month of ULEZ compared to historic months, comparison has been made based on CC hours to ensure the comparison is fair. 24 hour data for the first month of the scheme has also been provided.

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<sup>1</sup> TfL has issued warning letters during the launch period to those who have driven a polluting vehicle without paying the daily charge. This has been done for the first contravention to ensure the correct action is taken in the future and to allow for any genuine mistakes that may have occurred.

<sup>2</sup> April 2019 refers to 8 April 2019 – 5 May 2019 to capture the first full month of operation

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### *Disruptions to traffic flow in the central zone in April 2019*

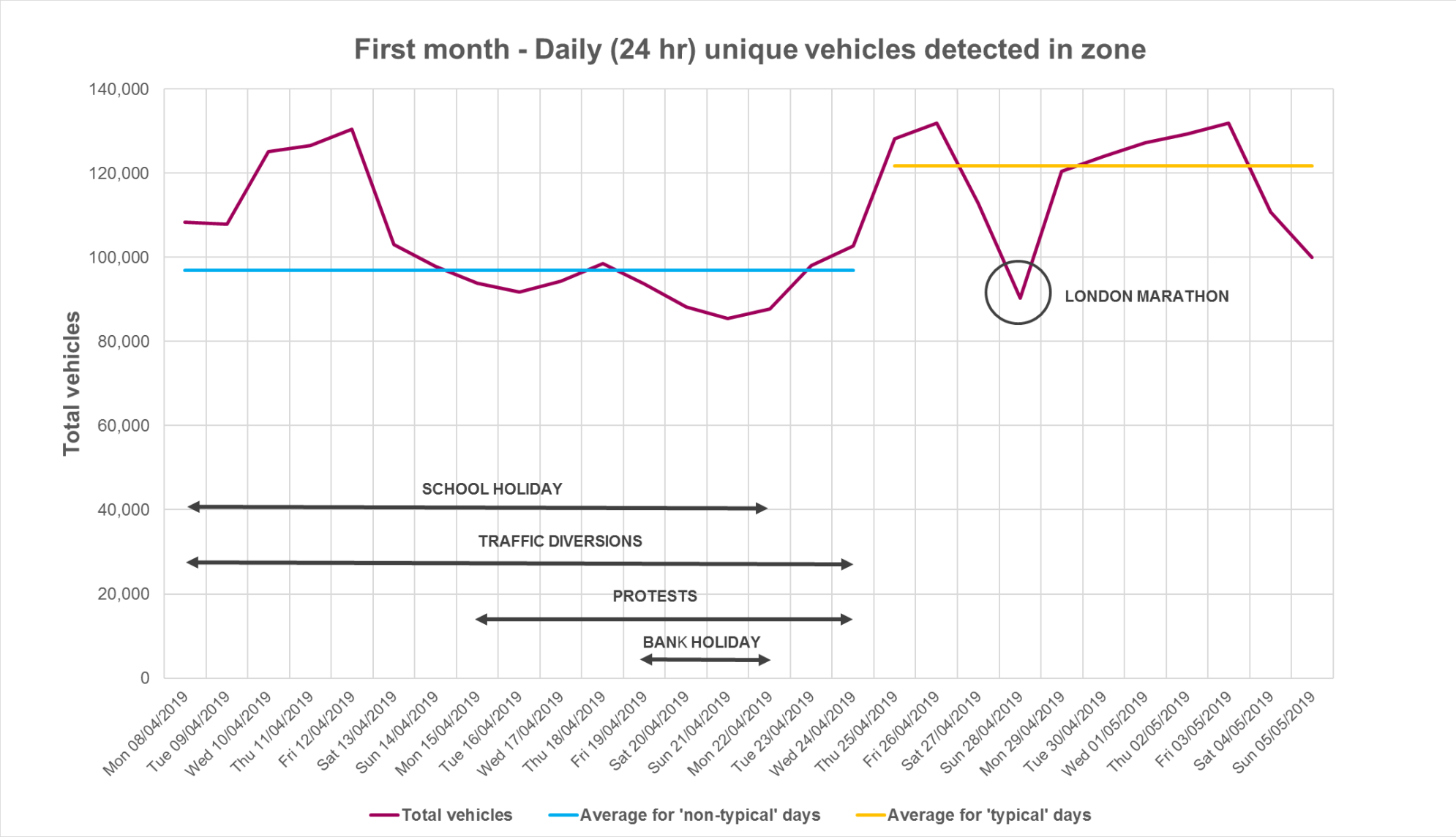
The analysis in the following section has excluded days when there were disruptions or unusual travel behaviour, including:

- Road works (leading to signed diversions into the ULEZ).
- The Extinction Rebellion climate protests, leading to further diversions into the central zone and an unknown impact on the number of vehicles choosing to drive in central London.
- Easter holidays and Bank Holidays. The timing of the introduction of ULEZ was specifically chosen to target a “quiet” week when there would be fewer vehicles in the zone.

As such, the first ‘typical’ week was the week commencing 29 April. Average daily volumes were significantly higher than the daily average seen during the first 3 weeks as more ‘typical’ travel behaviour resumed. The impact of these events is illustrated in Figure 2. Because of this the average data for April has only included ‘typical’ days. This is to avoid overstating the impacts of the ULEZ.

For transparency the daily totals for every congestion charging day have been included in Appendix 1, along with whether they were included in this analysis, and if not why they were excluded.

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**Figure 2. Daily (24 hour) total number of unique vehicles in the central zone in first month of operations with impact of disruptions highlighted**



## PRE-COMPLIANCE – changes in vehicle numbers and compliance (February 2017 – March 2019)

Table 1 below shows the change in the number of vehicles detected in the zone and the compliance level between February 2017 and March 2019. This data was released in April 2019 to coincide with the launch of the scheme.<sup>3</sup>

Date	Number of vehicles driving in the charging zone per day during CC hours			Proportions of vehicles driving in the charging zone during CC hours	
	Total number of vehicles	Non-compliant vehicles	Compliant vehicles	Non-compliant vehicles	Compliant vehicles
<b>Feb - 17</b>	102,493	62,310	40,184	60.8%	39.2%
<b>Mar - 19</b>	91,035	35,578	55,457	39.1%	60.9%
<b>Change</b>	-11,458	-26,732	+15,273	Decrease of 21.7 percentage points	Increase of 21.7 percentage points
<b>% change</b>	-11%	-43%	+38%	-35.7%	55.4%

**Table 1. Average number and proportion of compliant vehicles detected in the zone per day during CC hours Feb 17 – March 19**

As Table 1 indicates, the proportion of compliant vehicles in the Central London ULEZ zone rose from 39 per cent to 61 per cent since the Mayor confirmed the introduction of the T-charge in February 2017 to March 2019. This represented a 55 per cent increase in the proportion of compliant vehicles. This 55 per cent increase also reflects the fact that there had been an 11 per cent decrease in the total number of vehicles driving within the zone since February 2017.

<sup>3</sup> <https://www.london.gov.uk/press-releases/mayoral/ulez-launches-in-central-london>

## FIRST MONTH – changes in vehicle numbers and compliance (March 2019 – April 2019)

Table 2 compares vehicle numbers and compliance rates for the month immediately before the scheme was introduced (March 2019) and the scheme's first month in operation (April 2019). As explained above, this excludes non-typical days.

The changes below capture the more immediate effect following the launch of the scheme and does not take into account those who changed their behaviour ahead of time in preparation of the scheme, which is captured in Table 1, nor the other events referred to above.

Date	Number of vehicles driving in the charging zone per day during CC hours			Proportions of vehicles driving in the charging zone during CC hours	
	Total number of vehicles	Non-compliant vehicles	Compliant vehicles	Non-compliant vehicles	Compliant vehicles
Mar - 19	91,035	35,578	55,457	39.1%	60.9%
Apr – 19*	89,380	26,195	63,185	29.3%	70.7%
Change	-1,655	-9,383	7,728	Decrease of 9.8 percentage points	Increase of 9.8 percentage points
% change	-1.8%	-26.4%	13.9%	-25.0%	16.1%

**Table 2. Average number and proportion of compliant vehicles detected in the zone per 'typical' day during CC hours March 19 – April 19**

Key impacts of the first month of the scheme compared to the previous month:

- In the first month of operation (excluding non-typical days) the compliance rate with the ULEZ standards was around 71 per cent. This is much higher than the 39 per cent in February 2017 and the 61 per cent in March 2019.
- There was a large reduction in the number of older, more polluting, non-compliant vehicles: some 9,400 fewer on an average 'typical' day, a reduction of over a quarter.

- There was around a 16 per cent increase in the proportion of vehicles in the central zone that were compliant in the scheme’s first month of operation (excluding non-typical days). This is in addition to the 55 per cent increase in the proportion of compliant vehicles between February 2017 to March 2019 (see Table 1).<sup>4</sup>

### PRE- COMPLIANCE and FIRST MONTH – changes in vehicle numbers and compliance (February 2017 – April 2019)

Table 3 shows the change in vehicle compliance from February 2017 to April 2019, including the scheme’s first month of operation (excluding non-typical days). This is presented as an absolute change in the number of vehicles, the change in the percentage of vehicles that are compliant, and also the change in the proportion of vehicles that are compliant.

Date	Number of vehicles driving in the charging zone per day during CC hours			Proportions of vehicles driving in the charging zone during CC hours	
	Total number of vehicles	Non-compliant vehicles	Compliant vehicles	Non-compliant vehicles	Compliant vehicles
<b>Feb - 17</b>	102,493	62,310	40,184	60.8%	39.2%
<b>Apr - 19</b>	89,380	26,195	63,185	29.3%	70.7%
<b>Change</b>	-13,113	-36,115	23,001	Decrease of 31.5 percentage points	Increase of 31.5 percentage points
<b>% change</b>	-12.8%	-58.0%	57.2%	-51.8%	80.3%

**Table 3. Average number and proportion of compliant vehicles detected in the zone per “typical” day during CC hours Feb 17 – April 19**

Key findings for first month of the scheme (excluding non-typical days) compared to February 2017 are:

- There was a large reduction in the number of older, more polluting, non-compliant vehicles: some 36,100 fewer on an average ‘typical’ day, a reduction of 58 per cent.

<sup>4</sup> <https://www.london.gov.uk/press-releases/mayoral/ulez-launches-in-central-london>

- There was an 80 per cent increase in the proportion of vehicles in the central that met the ULEZ standards between February 2017 and April 2019 (excluding non-typical days). The proportion of vehicles that are compliant is the best way of comparing changes in the vehicle fleet, given the total number of vehicles in the zone has also changed.

### Comparison between congestion charge hours and 24 hour (excluding non-typical days)

To ensure fair comparison with historic data the previous section compares data for CC hours only. Table 4 below includes vehicles numbers and compliance rates for CC hours and 24 hour average daily vehicles detected in the zone for April 2019 (excluding non-typical days).

Time	Number of vehicles driving in the charging zone per day			Proportions of vehicles driving in the charging zone	
	Total number of vehicles	Non-compliant vehicles	Compliant vehicles	Non-compliant vehicles	Compliant vehicles
CC hours	89,380	26,195	63,185	29.3%	70.7%
24 hour	121,664	32,137	89,527	26.4%	73.6%

**Table 4. Comparison on average unique daily vehicles for April 2019 for CC hours and 24/7 (excluding non-typical days)**

The majority of vehicles detected in the zone (around three quarters) were detected during CC hours. There was a slight increase in compliance rate between CC hours and 24-hour data, this indicates that vehicles entering the zone in evening and weekends were less likely to be older more polluting vehicles.

## Charges and warning notices

On an average day (excluding non-typical days) in the scheme's first month of operation around 32,100 non-compliant, unique vehicles were detected in the zone (Table 4). Of these:

- Around 17,400 (54%) paid the charge (4,300 ULEZ web or call centre payments, 8,200 Auto Pay payments and 4,900 ULEZ Fleet charge payments).
- Around 3,000 (9%) were in contravention of the scheme and issued with a warning notice on the first offence.<sup>5</sup>
- Around 11,700 (37%) were not required to pay the daily ULEZ charge as they are eligible for a 100% discount or exemption.

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<sup>5</sup> Data for Penalty Charge Notices will be available next month

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## Appendix 1: Raw data CC hours April 2019

Date	Non-compliant ULEZ Vehicles	Compliant ULEZ Vehicles	Total Vehicles	% ULEZ Compliant	% ULEZ Non-compliant	% Total Vehicles	Events
Mon 08/04/2019	24,023	51,559	75,582	68.2%	31.8%	100.0%	School holiday, Diversions
Tue 09/04/2019	25,669	53,037	78,706	67.4%	32.6%	100.0%	School holiday, Diversions
Wed 10/04/2019	26,293	60,071	86,364	69.6%	30.4%	100.0%	School holiday, Diversions
Thu 11/04/2019	26,534	61,709	88,243	69.9%	30.1%	100.0%	School holiday, Diversions
Fri 12/04/2019	26,368	61,453	87,821	70.0%	30.0%	100.0%	School holiday, Diversions
Sat 13/04/2019							School holiday, Diversions
Sun 14/04/2019							School holiday, Diversions
Mon 15/04/2019	19,359	43,009	62,368	69.0%	31.0%	100.0%	School holiday, Climate protests, Diversions
Tue 16/04/2019	16,824	40,698	57,522	70.8%	29.2%	100.0%	School holiday, Climate protests, Diversions
Wed 17/04/2019	16,788	41,290	58,078	71.1%	28.9%	100.0%	School holiday, Climate protests, Diversions
Thu 18/04/2019	17,137	41,624	58,761	70.8%	29.2%	100.0%	School holiday, Climate protests, Diversions
Fri 19/04/2019							School holiday, Bank holiday, Climate protests, Diversions
Sat 20/04/2019							School holiday, Climate protests, Diversions
Sun 21/04/2019							School holiday, Climate protests, Diversions
Mon 22/04/2019							School holiday, Bank holiday, Climate protests, Diversions
Tue 23/04/2019	18,243	45,978	64,221	71.6%	28.4%	100.0%	Climate protests, Diversions
Wed 24/04/2019	19,070	46,790	65,860	71.0%	29.0%	100.0%	Climate protests, Diversions
Thu 25/04/2019	26,498	62,924	89,422	70.4%	29.6%	100.0%	
Fri 26/04/2019	26,309	62,502	88,811	70.4%	29.6%	100.0%	
Sat 27/04/2019							
Sun 28/04/2019							London marathon
Mon 29/04/2019	25,188	61,547	86,735	71.0%	29.0%	100.0%	
Tue 30/04/2019	26,214	63,188	89,402	70.7%	29.3%	100.0%	
Wed 01/05/2019	26,542	64,331	90,873	70.8%	29.2%	100.0%	
Thu 02/05/2019	26,706	64,354	91,060	70.7%	29.3%	100.0%	
Fri 03/05/2019	25,909	63,450	89,359	71.0%	29.0%	100.0%	

## Appendix 2: Raw data 24-hour April 2019

Date	Non-compliant ULEZ Vehicles	Compliant ULEZ Vehicles	Total Vehicles	% ULEZ Compliant	% ULEZ Non-compliant	% Total Vehicles	Events
Mon 08/04/2019	31,387	76,918	108,305	71.0%	29.0%	100.0%	School holiday, Diversions
Tue 09/04/2019	32,380	75,433	107,813	70.0%	30.0%	100.0%	School holiday, Diversions
Wed 10/04/2019	35,442	89,627	125,069	71.7%	28.3%	100.0%	School holiday, Diversions
Thu 11/04/2019	35,608	91,038	126,646	71.9%	28.1%	100.0%	School holiday, Diversions
Fri 12/04/2019	36,018	94,435	130,453	72.4%	27.6%	100.0%	School holiday, Diversions
Sat 13/04/2019	26,201	76,838	103,039	74.6%	25.4%	100.0%	School holiday, Diversions
Sun 14/04/2019	22,608	75,223	97,831	76.9%	23.1%	100.0%	School holiday, Diversions
Mon 15/04/2019	25,094	68,793	93,887	73.3%	26.7%	100.0%	School holiday, Climate protests, Diversions
Tue 16/04/2019	22,745	69,030	91,775	75.2%	24.8%	100.0%	School holiday, Climate protests, Diversions
Wed 17/04/2019	23,045	71,357	94,402	75.6%	24.4%	100.0%	School holiday, Climate protests, Diversions
Thu 18/04/2019	23,528	75,053	98,581	76.1%	23.9%	100.0%	School holiday, Climate protests, Diversions
Fri 19/04/2019	20,214	73,456	93,670	72.4%	27.6%	100.0%	School holiday, Bank holiday, Climate protests, Diversions
Sat 20/04/2019	15,944	72,289	88,233	81.9%	18.1%	100.0%	School holiday, Climate protests, Diversions
Sun 21/04/2019	14,349	71,187	85,536	83.2%	16.8%	100.0%	School holiday, Climate protests, Diversions
Mon 22/04/2019	18,069	69,650	87,719	72.3%	27.7%	100.0%	School holiday, Bank holiday, Climate protests, Diversions
Tue 23/04/2019	24,175	73,857	98,032	75.3%	24.7%	100.0%	Climate protests, Diversions
Wed 24/04/2019	26,787	75,992	102,779	73.9%	26.1%	100.0%	Climate protests, Diversions
Thu 25/04/2019	35,269	92,963	128,232	72.5%	27.5%	100.0%	
Fri 26/04/2019	35,853	95,973	131,826	72.8%	27.2%	100.0%	
Sat 27/04/2019	29,220	83,574	112,794	74.1%	25.9%	100.0%	
Sun 28/04/2019	20,355	69,923	90,278	77.5%	22.5%	100.0%	London marathon
Mon 29/04/2019	32,511	87,990	120,501	73.0%	27.0%	100.0%	
Tue 30/04/2019	33,876	90,123	123,999	72.7%	27.3%	100.0%	
Wed 01/05/2019	34,565	92,681	127,246	72.8%	27.2%	100.0%	
Thu 02/05/2019	35,099	94,268	129,367	72.9%	27.1%	100.0%	
Fri 03/05/2019	35,103	96,861	131,964	73.4%	26.6%	100.0%	
Sat 04/05/2019	28,098	82,622	110,720	74.6%	25.4%	100.0%	
Sun 05/05/2019	21,775	78,213	99,988	78.2%	21.8%	100.0%	

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