

Safety, Health and Environment Quarterly report

Quarter 2 2021/22

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Introduction and Executive Summary

This report summarises our performance in the last Quarter and identifies strategic trends covering the period from 27 June 2021 to 18 September 2021, unless specified.

It sets out ways in which we have continued to keep our customers and workforce safe during the coronavirus pandemic. This Quarter, our priority was to reassure them that we continue to operate safe services as London emerges from the pandemic. In parallel, we have continued to make progress towards our longer-term safety, health and environmental objectives.

During Quarter 2, we saw steadily increasing customer numbers, which sharply rose with the beginning of the autumn school term. However, our customer numbers have not yet reached pre-pandemic levels, which means that many of our key safety, staff and environmental performance indicators remain at different levels than they might normally be.

We have continued to implement measures to improve our short- and long-term safety, health and environmental performance. We have continued to perform well on most of our safety metrics. However, in Quarter 2 we did not meet our customer injury rate target, with a continuing incidence of slips, trips and falls driving the overall outcome.

Although we are moving forward, coronavirus remained the top cause of short-term absence in Quarter 2. Looking ahead, we have been supporting our head office workforce to return to the office with a presentation on 'Coping with Change', in an effort to address and assuage any anxiety they may be feeling about the transition to hybrid working.

The time to tackle the climate emergency is now. This Quarter, we published the Corporate Environment Plan (CEP) and the TfL Sustainability Report. The CEP details the environmental pillar of our sustainability approach and sets out how we plan to improve our environmental performance. The TfL Sustainability Report aims to capture the social, economic and environmental benefit that we deliver as an organisation.

About this report

This report explores and highlights the performance, trends and measures we are implementing to improve safety, health and the environment performance.

Throughout this report, our 'customers' refers to direct users of our services, and our 'workforce' includes our directly employed staff as well as people working in our supply chain. For both groups, we use data collected directly from our operational businesses. Some assault data comes from both our own internal reporting systems and the police.

When referring to people killed or seriously injured, the following causes of injury are excluded: an injury which results from an incident arising from a pre-existing medical condition; intentional self-harm resulting in a physical injury or death; criminal activities perpetrated by customers or members of the public on other customers or members of the public.

Unless otherwise stated, 'streets' refers to all of London's roads, including those managed by London's boroughs. Where we report safety data for streets, we use data collected by the Metropolitan Police Service and the City of London Police, in line with Government requirements. All road safety data is provisional and subject to review and assurance, with the final data published annually in line with Department for Transport requirements.

Reporting period

Most data covers the Quarter from 27 June 2021 – 18 September 2021, except for some work-related violence and aggression data which is reported 6 months in arrears. Some data is provisional and is subject to change.

Mayor's Transport Strategy and Scorecard

Our role is to enable London to move safely and sustainably, in line with the goals of the Mayor's Transport Strategy (MTS). This includes increasing the attractiveness of public transport and making cycling and walking easier and more convenient. We work with many partners, including London's boroughs, businesses, the police, local communities and consumer organisations to achieve the MTS objectives.

Scorecard

Our Quarter 2 scorecard targets are listed in the table below.

Quarter 2 2021/22 Scorecard			
Measure	Unit	Q2 Target	Q2 Actual
People killed or seriously injured in road traffic collisions per million journey stages	Killed or seriously injured per million journey stages	0.45	0.31
People killed or seriously injured in road traffic collisions in or by a London Bus (per million surface journey stages)	Killed or seriously injured per million journey stages	0.020	0.015
Customer all injuries per million passenger journeys	All injuries per million journeys	2.52	2.91
Workforce all injuries	Number of workforce injuries	427	296

The table sets out the relevant scorecard metrics, and accompanying targets and actual performance. Below are brief explanations of the performance of each measure. More detailed explanations, with accompanying graphs are set out in the relevant sections of this report.

Road safety measure

Working towards our Vision Zero ambition to eliminate death and serious injury on the roads, our aim in 2021/22 is to reduce the number to fewer than 0.45 people killed or seriously injured on the roads per million journeys. Our Quarter 2 result was 0.31 people killed or seriously injured on the roads per million journeys.

Bus safety measure

Our ambition is that no one is killed or seriously injured on, or by a bus. In Quarter 2, our aim was to have no greater than 0.020 deaths or serious injuries per million surface journey stages. In Quarter 2 there were 0.015 deaths or serious injuries per million surface journey stages. This is a positive result as we progress on our journey towards zero.

Public transport customer safety measure

Working towards our ambition to eliminate deaths and injuries on our public transport network, our aim in 2021/22 is to have fewer than 2.52 injuries to our customers per million journeys. In Quarter 2, the result was 2.91, unfortunately missing this target. Whilst customers continued to return to our network during Quarter 2, demonstrating confidence in public transport, pandemic-related behaviours remain such as concerns around holding on to handrails whilst travelling through our stations or on our services. Slips, trips and falls continue to be our most common cause of customer injury, both on stairs and escalators, and as a result of vehicles braking or manouvering.

Workforce safety measure

Our objective for our workforce is 'Everyone home safe and healthy every day'. There were 296 injuries to our workforce in Quarter 2, meeting our aim of fewer than 427 workforce injuries. This is a positive result, but a reminder we must strive for continuous improvement towards Zero Harm when it comes to the safety of our workforce.

Safety

This section summarises our safety performance across road safety, public transport, capital delivery activities and work-related violence. It provides an overview of key trends for the year and the areas we are targeting for improvement.

Road safety performance

Quarter 2 in 2021/22 involved very different circumstances to Quarter 2 2020/21. This year we have seen near normal levels of activity which meant more people were out on the network, whereas Quarter 2 last year was dominated by the initial easing of the first lockdown.

In 2020 we experienced significantly suppressed levels of traffic at key periods, but we have reached a point in 2021 where traffic is near normal, stabilising and becoming more predictable. It is helpful to keep this in mind when comparing Quarter 2 2021/22 results with 2020/21, and to look at Quarter 2 2019/20 as a more “normal” year for comparison.

Quarterly performance

Number of people killed	Q2 2019/20	Q2 2020/21	Q2 2021/22*
Pedestrian	17	12	8
Pedal cycle	2	1	2
Powered two wheeler	10	11	2
Car	4	1	5
Bus or coach	0	1	1
Taxi	0	0	0
Private hire	0	0	0
Goods vehicle	0	0	0
Other vehicle	1	0	2
Total	34	26	20

**Quarter 2 2021/22 figures are provisional and subject to change.*

The number of people killed in Quarter 2 2021/22 (20) decreased compared to the same period in 2020/21 (26), with the number of people seriously injured remaining similar. The majority of this reduction comes from nine fewer powered two wheeler rider deaths and a continued reduction in pedestrian deaths, conversely there were sadly more deaths in cars and 'other' vehicles.

Number of people seriously injured	Q2 2019/20	Q2 2020/21	Q2 2021/22*
Pedestrian	263	162	182
Pedal cycle	216	306	209
Powered two wheeler	273	199	217
Car	140	97	117
Bus or coach	25	6	21
Taxi	3	1	2
Private hire	3	0	1
Goods vehicle	8	2	2
Other vehicle	9	22	33
Total	940	795	784

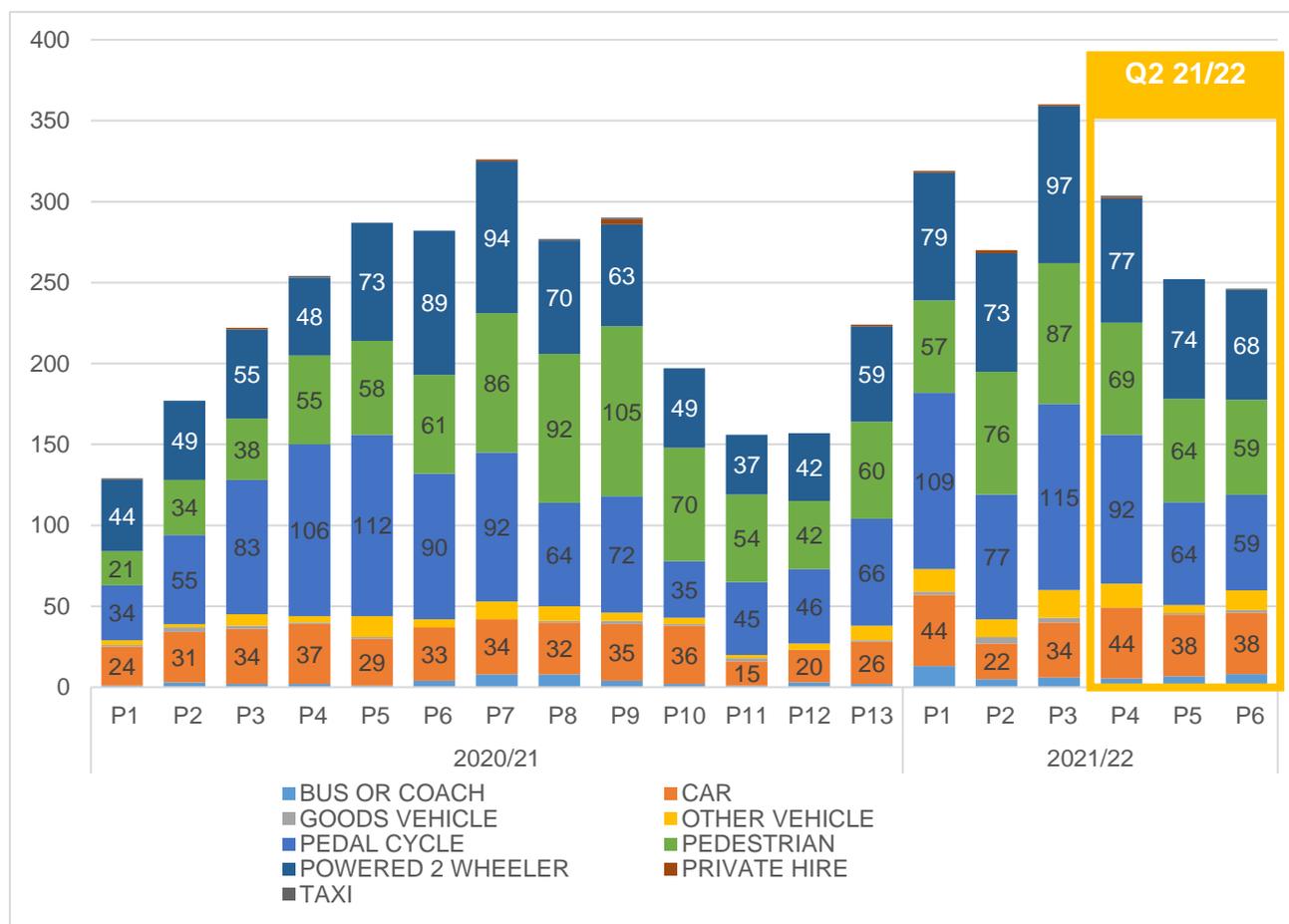
**Quarter 2 2021/22 figures are provisional and subject to change.*

The normal resumption of motorised journeys has changed the composition of serious injuries compared to Quarter 2 of last year. The number of people seriously injured increased across all modes except taxis, pedal cycles, and goods vehicles. This was largely driven by serious injuries occurring to people using powered two wheelers (+nine per cent), cars (+20 per cent), and bus or coach (an increase of 15 serious injuries). The increasing illegal use of private e-scooters on public highways (within 'Other vehicles') led to a 50 per cent increase in serious injuries. Taken as a whole, this was offset by a significant reduction in serious injuries to people cycling (from 306 injuries to 209 in Quarter 2 2021/22) meaning that overall there was a marginal improvement in Quarter 2 of this year compared to 2020/21.

There were some notable incidents which occurred in the period covered by this report. On 14 July 2021 when a bus pulled away from the bus stop, a man fell down the stairs. He very sadly died in hospital a few weeks later. On 4 August 2021 at the junction of Southampton Row and Theobalds Road in Holborn, a woman cycling was tragically killed in a collision with a heavy goods vehicle. On 10 August 2021 at Victoria bus station, there was a bus collision which resulted in the tragic death of a woman walking. We are currently working with the relevant authorities to investigate each incident and have supported the London Borough of Camden to introduce temporary safety improvements at Southampton Row/Theobalds Road in advance of a more comprehensive area-wide scheme, as described in more detail below.

It is useful to compare this to Quarter 2 2019/20 data, as that was more reflective of a “normal” year than 2020/21. Fewer people have been killed in Quarter 2 2021/22 than Quarter 2 2019/20 (a 41 per cent reduction), and fewer have been seriously injured (a 17 per cent reduction), with the most notable decreases in people killed or seriously injured cycling or riding a powered two wheeler. E-scooter usage has risen over the last year, which has led to more user injuries.

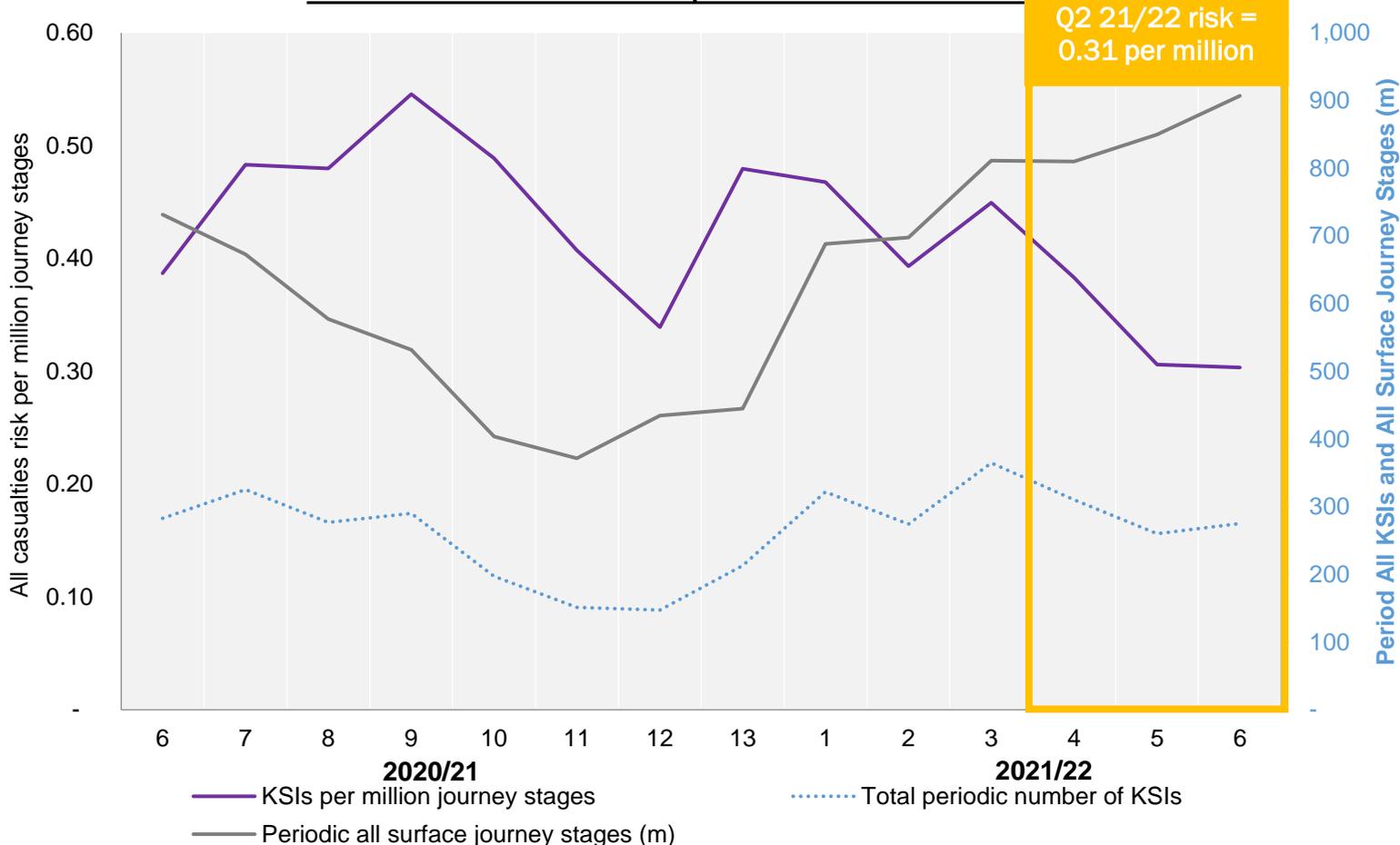
People killed or seriously injured on London’s roads in 2020/21 and 2021/22 (by mode travelled)



In Quarter 2 2021/22, 211 people were killed or seriously injured while cycling. This was a 31 per cent reduction when compared with Quarter 2 2020/21 and a 30 per cent reduction when compared to the previous Quarter. Before the pandemic, people walking were consistently the largest group of seriously injured people, followed by powered two wheeler drivers and then people cycling.

Scorecard measure: People killed or seriously injured in road traffic collisions 2021/22 (per million journeys)

All KSI Rate and Absolutes (P6 2020/21 to P6 2021/22)



Working towards our Vision Zero ambition to eliminate death and serious injury on the roads, our aim in 2021/22 is to reduce the rate to fewer than 0.45 people killed or seriously injured on the roads per million journeys. Our Quarter 2 result of 0.31 exceeds this target.

Scorecard measure: Rates of fatal or serious injury experienced by people in collision with buses

Bus involved KSI rate and absolutes (Period 6 2020/21 to Period 6 2021/22)



The risk of a bus being involved in a collision that kills or seriously injures either a bus passenger or someone else on the roads remains extremely low.

Our bus safety target is more stretching than the general road safety target, to reflect our ability to more directly influence bus services. Our Quarter 2 result of 0.015 deaths or serious injuries per million journeys exceeded our scorecard target (0.020).

Road safety updates

Police Activity to support Vision Zero

During this Quarter, from 26 July to 8 August 2021, the TfL-funded Roads and Transport Policing Command and local Metropolitan Police Service (MPS) Safer Neighbourhood Teams (SNT) intensified action to tackle speeding as London's contribution to the National Police Chiefs' Council 2021 campaign. The #StandUpForSlowingDown slogan was publicised on Twitter and other media outlets. A total of 2,732 Traffic Offence Reports and 14,512 Notices of Intention to Prosecute were issued during this period. 47 drivers were caught speeding at more than 100mph. Other action includes 103 drivers caught driving whilst using a mobile phone, 185 seatbelt offences and 86 drink- or drug-driving offences.

Exchanging Places, a programme to educate cyclists about the dangers associated with blind spots on HGVs using virtual reality headsets, was relaunched in Regent's Park on 21 August 2021, following a pause because of pandemic restrictions. The programme now makes full use of virtual reality headsets.

Operation Close Pass aims to address poor driving behaviour near cyclists. Operations took place in the London Boroughs (LB) of Barking, Barnet, Bromley, Camden, Enfield, Haringey, Redbridge, Richmond, Twickenham and Waltham Forest and led to 26 drivers receiving education about the need to give people cycling more space when passing. A further 33 traffic offences were reported, including three uninsured vehicles which were seized as a result.

Vision Zero and the Motorcycle Delivery Economy

We have continued to engage with companies in the gig economy on the need to improve safety standards and lower the risk of motorcycle riders being involved in fatal and serious injury collisions on London's streets. This work with the delivery, courier and servicing industry, particularly those within the gig economy companies, is designed to aid collaboration and harness their innovation and insight to improve safety standards for their riders.

Lowering Speed Limits Programme

Lowering the speed of vehicles in London is key to reducing both the likelihood of a collision occurring and the severity of the outcome. The Lowering Speed Limits programme plays a vital contribution to the Mayor's Vision Zero ambition to eradicate fatal and serious injury collisions from London's roads by 2041.

The second phase of the programme is underway, reducing the speed by 10mph on more than 140km of our roads. To date we have introduced a 20mph speed limit on 80km of TfL roads.

The following roads will see a reduction in speed limits to 20mph by December 2021:

- A13 Commercial Road between A11 Whitechapel Road and Butcher Row in the London Borough (LB) of Tower Hamlets;
- A10 between The Avenue and LB Hackney borough boundary and A503 Monument Way in Haringey;
- A107 corridor between the A10 and Cassland Road in LB Hackney;
- A23 London Road between Lambeth borough boundary and Thornton Heath Ponds in LB Croydon;
- A3212 Chelsea Embankment between Lots Road and Westminster Borough Boundary and A3220 Battersea Bridge.

We are also reducing the speed limit to 30mph on the A10 Great Cambridge Road between White Hart Lane and Great Cambridge Roundabout in LB Haringey and LB Enfield.

Subject to funding, by April 2022, we plan to reduce the speed limit on a further 15.5km of the TfL Road Network (TLRN), including across the remaining TLRN in Westminster, A205 Upper Richmond Road in LB Wandsworth, A4180 Ruislip Road in LB Ealing, and Gants Hill, Putney and West Wickham town centres.

This Quarter, on 6 September 2021, we briefed the emergency services (London Ambulance Service, London Fire Brigade and MPS) on the upcoming phase two Lowering Speed Limits programme. On 7 September 2021, we also hosted a 'Safe Streets for Everyone' webinar where we provided details of the programme to over 35 strategic stakeholders, community groups and boroughs. These were important opportunities to develop advocacy for our ambitious and accelerated programme and to enable smoother delivery of the programme as it progresses. We have launched a new Have Your Say webpage for local stakeholders to engage with the whole programme over the three year delivery period, helping us to develop the programme further. Our programme will be supported by two waves of marketing, including advertising and radio promotion, to coincide with the December 2021 and March 2022 launch dates.

New Technology for Safer and Smarter Roads

We'll shortly be starting to use innovative new technology from two UK start-ups to reduce road danger and disruption caused by roadworks and unplanned incidents on our road network.

To identify the successful innovators, we ran a two-stage Innovation Partnerships Procedure, making it the first time this procurement process had been adopted within our organisation. Working with RoadLab mentors, nine innovators were chosen and their proposed technology trialled and developed with the support of London's major utility companies and London Councils.

Following this highly competitive trial period, contracts were awarded to two successful companies, Immense and samdesk. Immense uses simulation technology that models roadworks to understand their impact on the road network before they take place. This information can be used to let people in London know about predicted impacts to their journey. Software from samdesk, available for use now, uses artificial intelligence and real-time anonymised social media data to detect emerging disruptions, giving our workforce a faster and more comprehensive insight into incidents unfolding across our transport network. RoadLab is funded by our Lane Rental scheme, which charges companies for carrying out roadworks at times and locations that cause the most disruption. This money is subsequently invested in tackling congestion and minimising the impact of roadworks and has saved £100m in lost travel time so far.

Holborn Gyrotory: Safety Improvements (Southampton Row/Theobalds Road Junction)

We are continuing to work with the London Borough (LB) of Camden in relation to interim steps that can be taken to improve safety at the junction of Southampton Row and Theobalds Road, as well as delivering a longer-term solution. In August 2021, a three-stage delivery approach to tackling safety for people cycling through this junction was proposed by LB Camden.

In the short-term, interim junction safety measures were delivered in early October 2021. These included:

- Changing the southbound Southampton Row approach to the junction from three lanes to two, to reduce the risk to cyclists of vehicles turning left from the current centre ahead-only lane;
- The central ahead-only traffic lane was replaced with a temporary island to separate vehicles turning left and vehicles going straight on;
- Amending the nearside left-turn lane so that people cycling and buses can travel straight ahead through the junction, while general traffic is only allowed to turn left;
- Adding cycle boxes (advanced stop lines) for people cycling at the traffic lights on Southampton Row to provide a safe space to wait in, at the front of queuing traffic.

In the medium-term, more permanent changes will be introduced, including potential kerb line and traffic signal infrastructure changes to help improve safety. Options are currently being worked on and a preferred option will be selected shortly. It is proposed that delivery of this phase will begin early in January 2022, subject to the necessary Government funding being available to TfL.

Our long-term aspiration is to resume large scale junction and area wide improvements, including an area-wide scheme in this part of Camden, led by LB Camden as part of its Liveable Neighbourhood Programme proposals (subject to our future funding agreements with the Government).

Electric Scooters

The London e-scooter trial began with 600 vehicles available over five boroughs. From 7 June to 26 September 2021, the trial grew to nine boroughs and 2,835 vehicles. Over this time period there was approximately 255,000 hire trips taken averaging a distance of 2.8km per trip. Operators have reported that there have been no fatalities and six serious injuries based on the STATS19 injury classification definitions used for road risk injuries.

Use of e-scooters outside the trial (privately owned e-scooters) is illegal on the public highway. We do not know the number of privately owned e-scooters being used on London's roads, but based on police data we have begun to build a picture of some emerging themes that may provide implications about the safety of the use of e-scooters on our network.

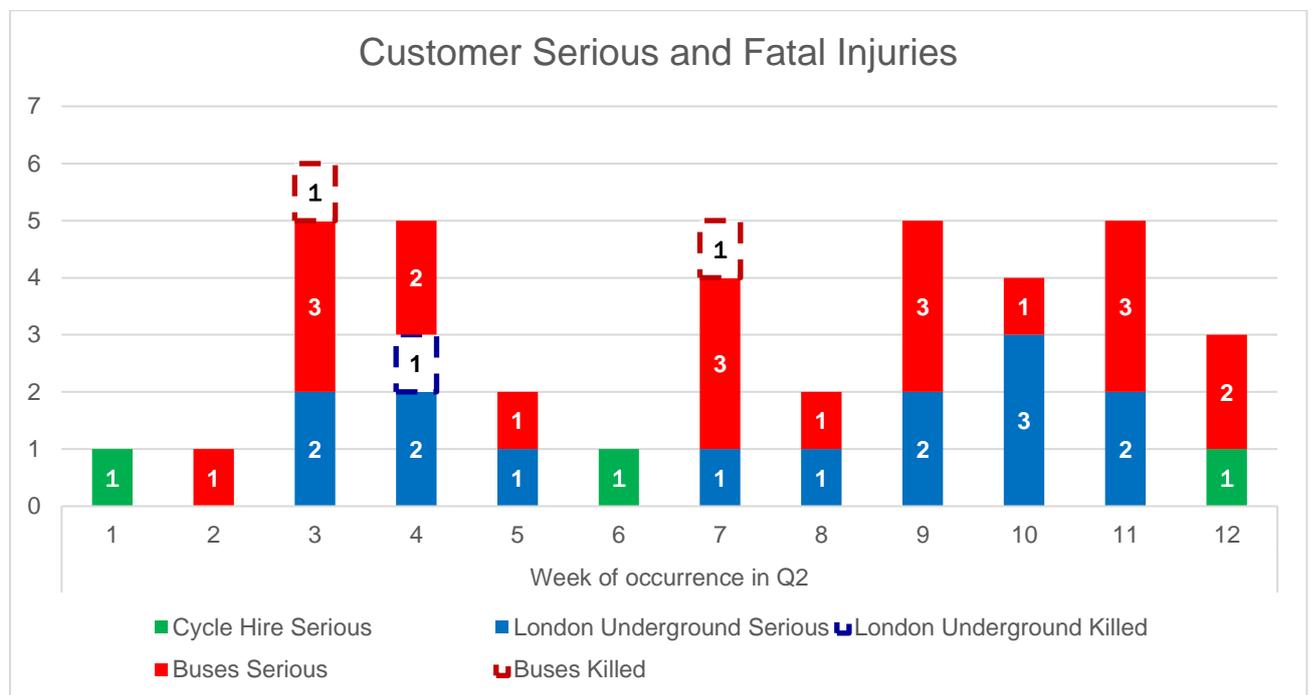
Collision data to the end of 2020 is finalised, figures from January to May 2021 are validated provisional data, and data from June 2021 onwards is raw police data.

So far, we have found that for the casualties attributed to privately owned e-scooters in London 0.8 per cent were fatal, 25.4 per cent were serious injuries and 73.8 per cent were slight injuries. For casualties attributed to cycling in London, 0.2 per cent were fatal, 16.7 per cent were serious injuries and 83.1 per cent were slight injuries. This implies that where collisions take place, riders of privately owned e-scooters in London are more likely to be killed or seriously injured than people cycling. We also estimate that in the period from 1 January 2021 to 18 August 2021, e-scooters made up 3.36 per cent of people killed or seriously injured in London, compared with 1.76 per cent of serious injuries for the period from 1 January 2020 to 31 December 2020.

Public transport safety performance

Quarterly performance

Customers killed or seriously injured per week in Quarter 2 (by mode)



Very sadly, three customers were killed on our public transport network during Quarter 2. These people were:

- A customer who fell from the top of the stairwell as a bus pulled away from the bus stop;
- A customer falling onto the track at Golders Green London Underground (LU) station which is being investigated by the coroner;
- A person walking into Victoria Bus Station who was hit in a collision involving a bus shunting a second bus forward.

There have been 37 customers seriously injured this quarter on public transport, bringing the number of people killed and seriously injured to 40. This is three more than Quarter 1, and the highest number of customers killed or seriously injured of any Quarter since the beginning of 2020/21, when the pandemic began. However, we have

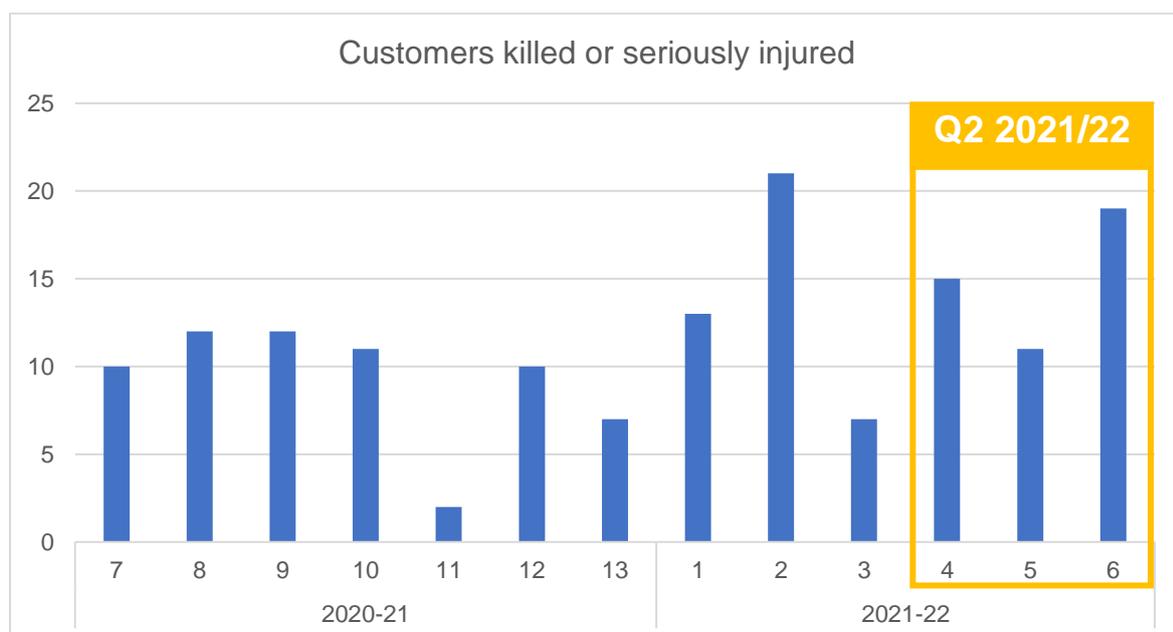
also seen a continued increase in passenger journeys this Quarter as we recover from the pandemic.

All serious injuries and two of the three fatalities on public transport in Quarter 2 relate to a slip, trip or fall. These are, by nature, a large and diverse category of injury and they continue to be our biggest challenge in improving customer safety.

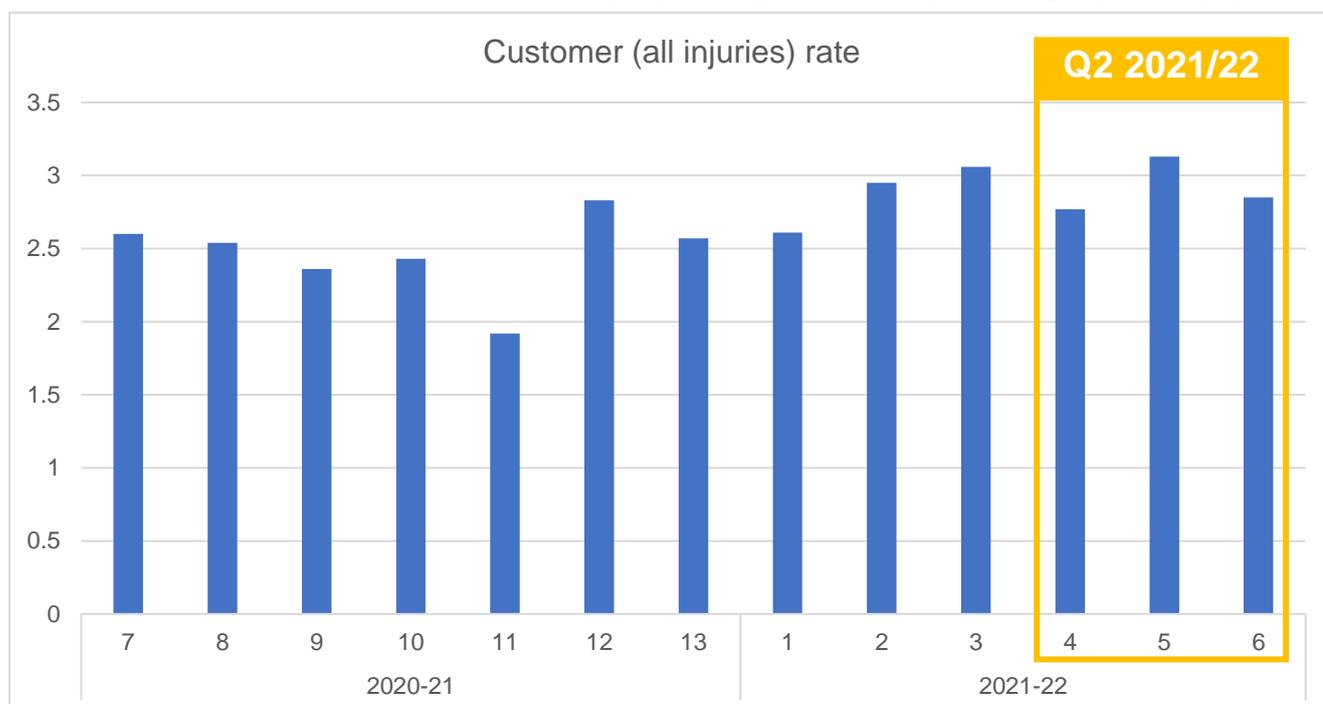
The causes of the serious injuries on LU included five falls on stairs, four falls on escalators, three trips or falls at the platform/train interface, one fall onto the track and one fall from a wall. Amongst falls on stairs, escalators and onto the track, intoxication was named as a contributory factor in five serious injuries, and carrying luggage and running contributed to one serious injury each.

The causes of serious injuries on Buses this Quarter mainly result from three key situations. These are bus drivers braking harshly to avoid collisions or from higher speeds (seven falls); trips or falls as customers are boarding or alighting (four falls whilst alighting); or falls when the bus pulls away and customers are not yet seated (three falls). Bus manoeuvres such as turning or pulling into bus stops also contributed to two falls, and there were two falls down stairwells on buses, one of which included intoxication as a contributory factor.

Customers killed or seriously injured per period this year (total)



Scorecard measure: Customer injury rate (per million passenger journeys)



Unfortunately, our customer injury rate has remained relatively high this Quarter, compared to pre-pandemic levels.

This has resulted in us missing our scorecard target, with 2.91 injuries per million passenger journeys, compared to a target of 2.52 injuries per million passenger journeys.

It is useful to compare this Quarter to Quarter 2 2019/20 data, as that was more reflective of a “normal” year than 2020/21. Whilst fewer customers have been injured in Quarter 2 2021/22 than Quarter 2 2019/20 (a 32 per cent reduction), the rate of customer injuries per million passenger journeys has increased by 12 per cent, in line with increased customer numbers.

Slips, trips and falls make up a large proportion of our public transport customer injuries, and we have seen increases in the rate of slips, trips and falls on Buses and LU since the pandemic began.

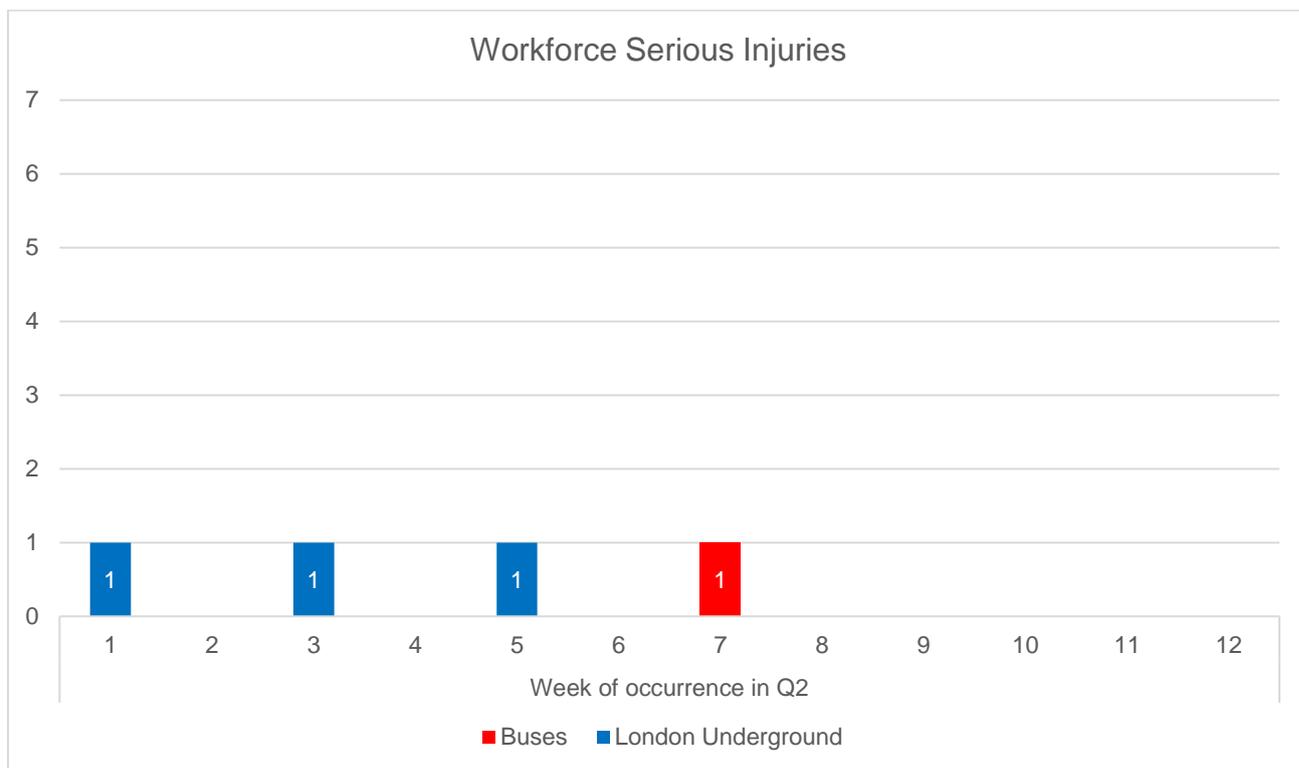
A simple yet effective way to control the number of slips, trips and falls is to influence our customers to hold on to handrails whilst travelling through our stations and on our transport modes. On buses, drivers use the pre-recorded announcement asking customers to hold on to handrails, and we have significantly publicised our deep

cleaning of buses (trains and stations), as well as encouraging customers to use hand sanitiser during their journey. Furthermore, the Customer Insight, Strategy & Experience team have established that despite Imperial College London finding no trace of coronavirus on surfaces on our network, customers are still hesitant to hold onto and keep hold of handrails because of the perceived risk of catching coronavirus from surfaces. Recent benchmarking work about slips, trips and falls on Buses suggests this is a challenge shared by other global transport operators too.

To combat this increased rate of incidents, we have:

- Ensured regularly touched surfaces are cleaned using effective anti-viral products, and have installed 200 ultraviolet (UV) light sanitising units to escalators in LU stations;
- Participated in a regular testing programme with Imperial College London to assure that surfaces and air samples are free of coronavirus;
- Continued to publicise the cleaning regime and test results so that passengers can be confident that our vehicles and stations are clean;
- Recorded new passenger announcements reinforcing the need to hold the handrail;
- Extended a trial of posters in the stairs area on double-deck Buses encouraging passengers to hold the handrail while ascending/descending.

Workforce injuries

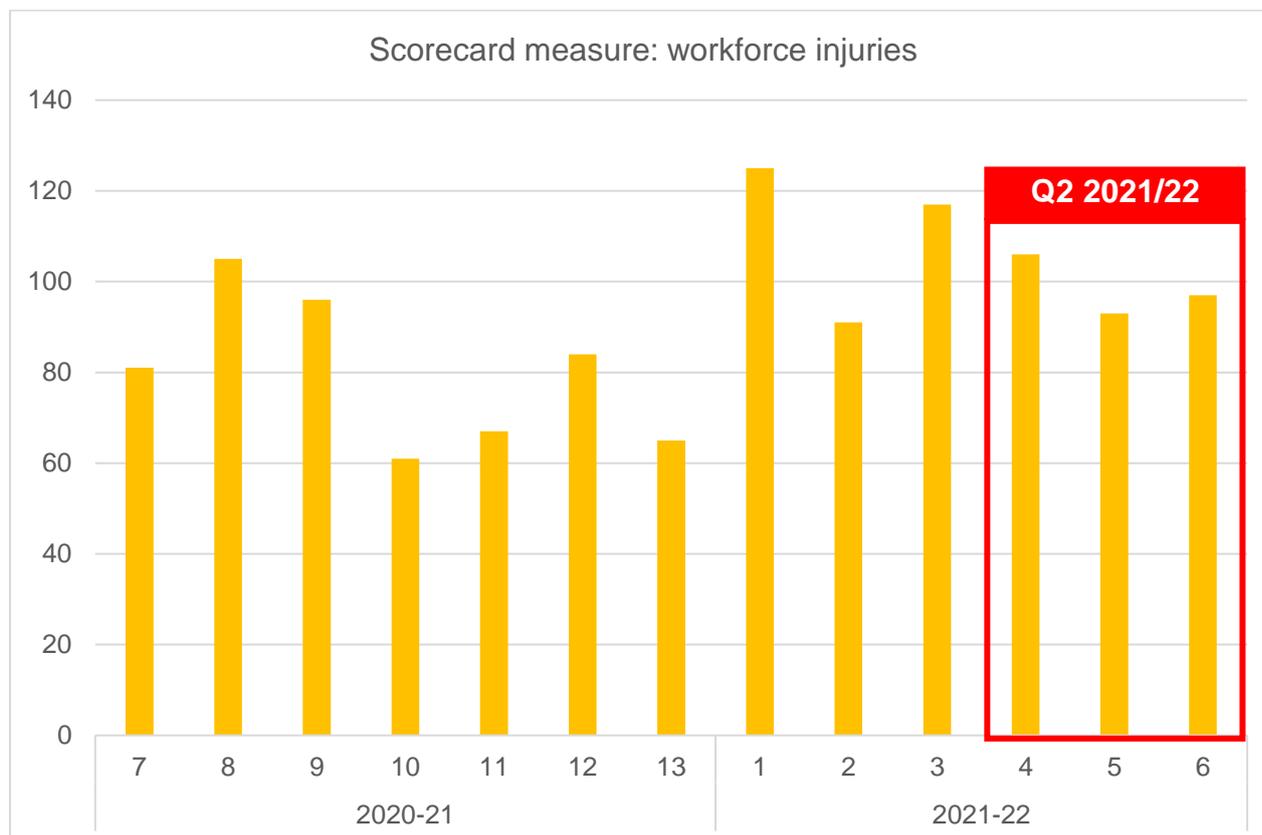


No one was killed whilst working on our public transport network in Quarter 2. Unfortunately, four members of our workforce were seriously injured, three in LU and one on Buses. This is three fewer serious injuries sustained by our public transport workforce in Quarter 2 of 2020/21.

Of these serious injuries, three involved trips. A LU Customer Service Supervisor tripped down stairs, a bus driver tripped as they alighted the bus to reposition the bus mirror, and a member of LU maintenance staff tripped over bollard fixings on the track.

The fourth serious injury to our workforce involved a LU Customer Service Assistant (CSA) being injured when a customer carrying a box accidentally collided with the CSA's hand, resulting in a fracture. All serious injuries are fully investigated to ensure lessons are learned and action taken to prevent a similar accident happening to anyone else.

Scorecard measure: Workforce injuries



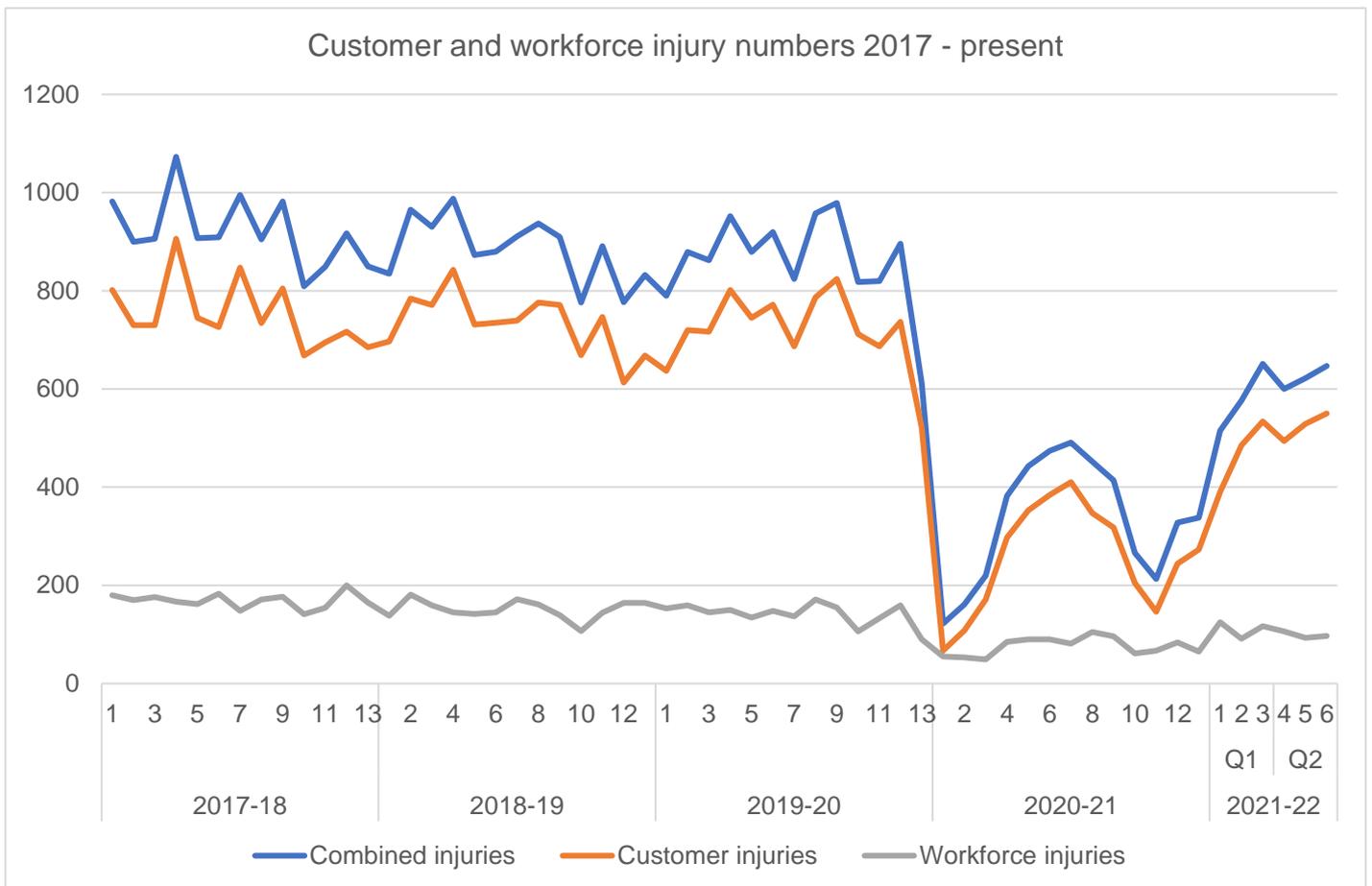
In Quarter 2 there have been 296 injuries sustained by members of our workforce. Whilst our ambition is for everyone who works for us to go home safe and healthy every day, this total represents a positive performance, with significantly fewer injuries than our scorecard target of 427 injuries.

This may reflect a continued suppression of workforce injuries since the pandemic began, however it is also 37 fewer injuries across our public transport workforce in Quarter 2 than the preceding Quarter.

Across Surface Transport, our top causes of workforce injury were collisions; slips, trips and falls; assaults, cuts and abrasions. Meanwhile on London Underground, our top causes of workforce injury were assaults; slips, trips and falls; and injuries relating to maintenance activity.

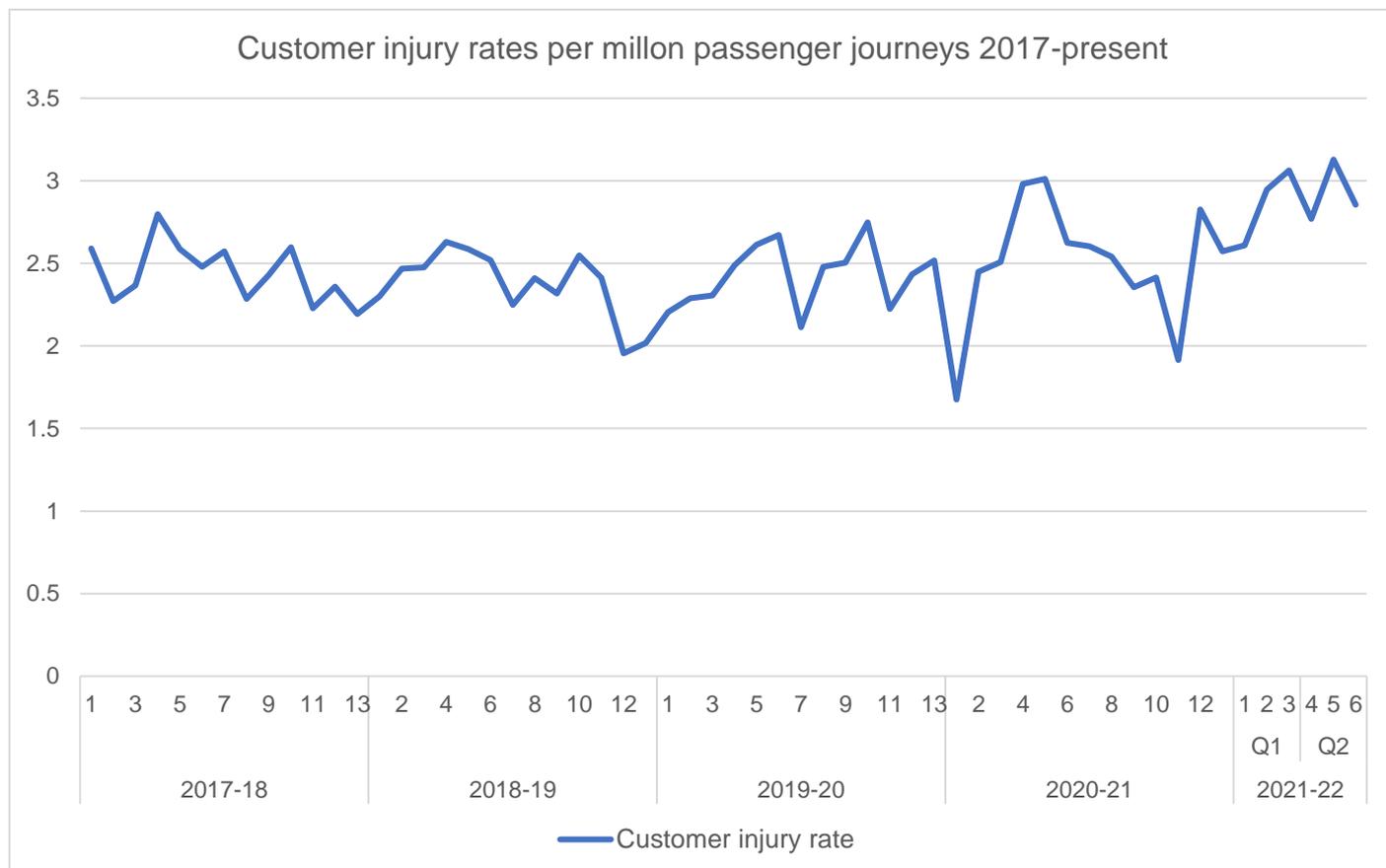
Long term trend

Customer and workforce injury numbers per period since 2017-18 (total)



This Quarter had the highest number of injuries since the beginning of 2020/21 and the start of the pandemic. Customer injuries are increasing mostly because more people are returning to our network for travel, but also because our rate of customer injury remains heightened compared to pre-pandemic levels. Workforce injuries are more stable and remain below pre-pandemic levels.

Customer injury rates per period since 2017/18 (total)



Unfortunately, our customer injury rate (injuries per million passenger journeys) is 20 per cent higher in Quarter 2 than the pre-pandemic average, between 2017/18 and 2019/20. Work is ongoing to better understand what is behind this increased rate, but it is highly likely that it is due to customer reluctance to hold onto handrails because of the fear of getting COVID-19 from those surfaces.

Public transport safety updates

Safe Track Access

The Safe Track Access (STA) Programme was set up in summer 2019 to deliver a number of initiatives to give our teams improved tools, training and approaches to safely access the track environment during Engineering Hours, to minimise the risk of

injuries to themselves and others working in this environment. This will be achieved through cultural and behaviour change and by building new infrastructure & technology to mitigate the two main risks when accessing the track:

- coming into contact with live traction current;
- being on the track before the passage of the last train.

The Programme is divided into three workstreams:

1. Infrastructure

- Track Signage: installation of signage on track at traction current gaps, adjacent to live roads in depots and sidings and at complex junctions (forecast completion date (FCD) of February 2023).
- PCRIDs: development and installation of new Permanent Current Rail Indicator Devices (PCRIDS) at platforms and traction current gaps across the London Underground network (including the replacement of existing PCRIDs on Jubilee, Northern and Piccadilly lines) (FCD of February 2025).
- Protecting Workers on Track (PWT) Safe Access System: development of mobile application used by the PWT that provides additional safety information when accessing track (FCD of July 2024).
- PWT Competency Management System (CMS) (FCD of April 2024): review the current processes for assessing PWT competence to enable the development of a new CMS standard. Design and development of a new database to manage CMS data.

2. Culture and Behaviour

A continuous improvement programme, looking at “Why people do what they do” when they are on the track, to reduce the number of incidents.

3. Governance and Reporting

Tracking of all work relating to Safe Track Access in one place including data metrics and reporting.

Bus Safety Standard

The number of buses fitted with all features required by the Bus Safety Standard continues to climb with over 500 now in the fleet. These vehicles feature intelligent speed assistance and better design features to help avoid or reduce casualties on the bus network. The latest buses to enter the fleet also feature second-generation technology such as better field-of-view camera monitoring systems in place of wing mirrors, and toggling to help distinguish the brake pedal. They also include other

safeguards like brake systems that prevent buses rolling away without a driver in the cab.

The standard will be tightened further in 2024 to harness the latest technology that can help eliminate deaths on or by a bus by 2030 and all fatalities and serious injuries on the Capital's roads by 2041. Of the buses that meet the first- and some second-generation requirements, 384 are equipped with the Acoustic Vehicle Alerting System (AVAS) to make vulnerable road users more aware of the presence of much quieter electric buses. AVAS has been designed to become louder in areas where there is more noise, like busy shopping areas, or quieter when vehicles pass through more open suburban neighbourhoods.

Suicide Prevention Programme

Year-on-year data comparison tells us that since 2018, our Suicide Prevention Programme has helped reduce the number of suicides by 44 per cent across the network.

We have trained 90 per cent of LU station staff in suicide prevention so far. Over the last few years, we have made more than 1,600 life-saving interventions at our stations. It is a reminder that, while vulnerable people still view our network both as a means of ending their life, they also see it as a place where they can find a friendly face and support when they have lost hope.

Capital delivery safety performance

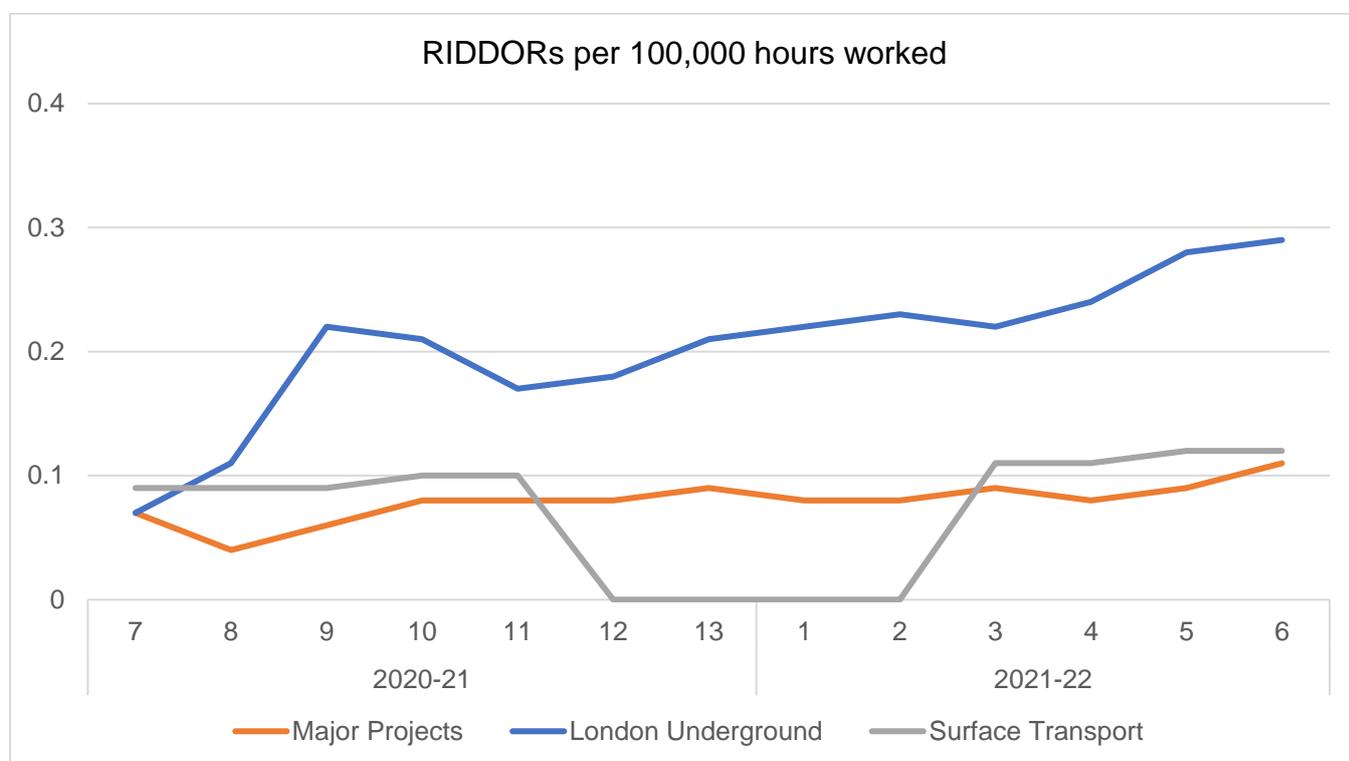
Within TfL, Capital Delivery works cover a broad range of activities across the Major Projects, Directorate (MPD), London Underground Capital Delivery and Surface Transport Project & Programme Delivery. Some are essential asset renewals and maintenance to keep our front line service operating efficiently. Other activities represent new and significant investments to improve the existing infrastructure. Within the Capital Delivery area, the teams comprise employees from both TfL and supplier organisations. Likewise, worksites may be managed by TfL or by suppliers acting as our Principal Contractor. We do not distinguish between TfL or supplier hours worked within this section of the report.

During Quarter 2, the capital projects area workforce completed 2.5 million hours of work, which gives an idea of the scale of works. Whilst this is slightly below the previous Quarter, hours worked are now beginning to stabilise as our sites return to a greater level of normality (COVID-19 risk reduction measures continue to be deployed across our sites) after the further relaxation by Government of coronavirus controls.

Quarterly performance

To enable accurate analysis of data, some of our key measurables are quoted as a frequency rate per 100,000 hours worked. Frequency rates are calculated using a moving annual average based on performance over the previous 13 periods.

RIDDOR accident frequency rate

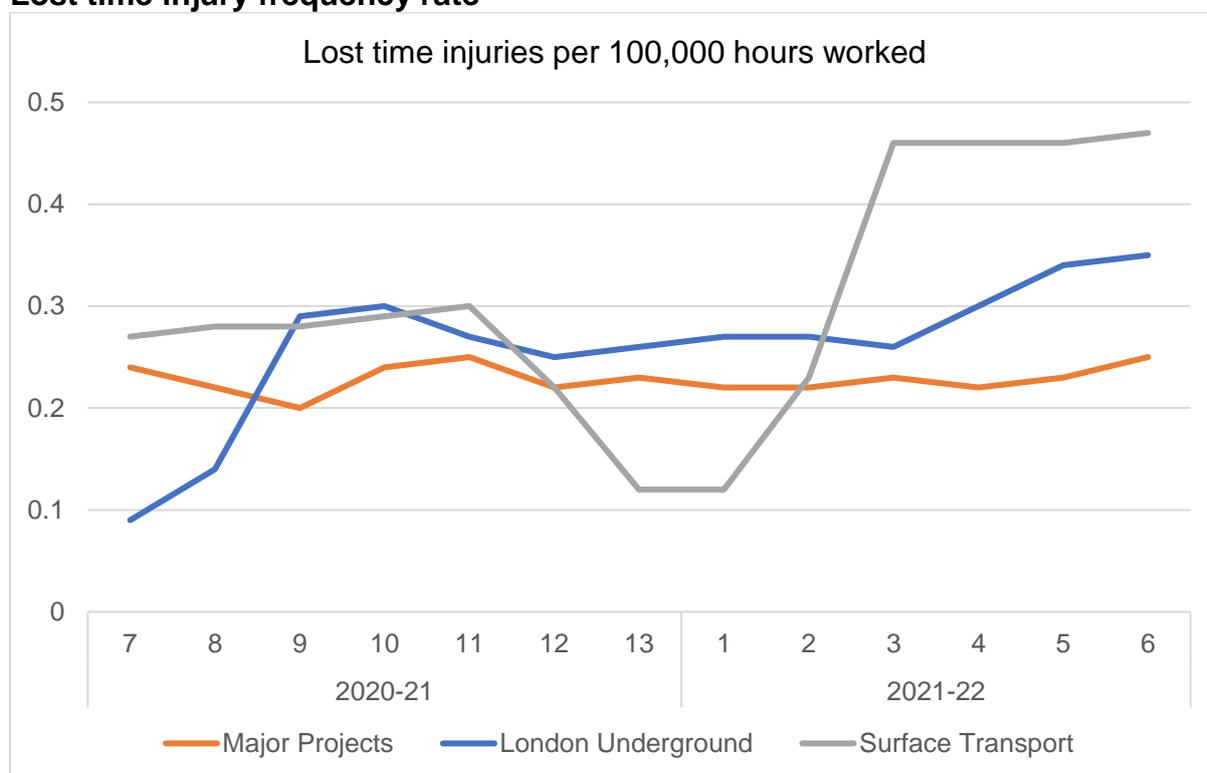


In Quarter 2, there were seven accidents reported under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) in our Capital Delivery teams. Three of these were in London Underground (LU), three in Major Projects, and one in Surface Transport. The increase in RIDDOR reportable accidents on the previous Quarter resulted in the accident frequency rising within LU and Major Projects against their respective thresholds of 0.15 and 0.10. Within Surface Transport, the accident frequency rate remained below the threshold of 0.15.

Work is being undertaken to address the root causes and concerns arising from incidents during the Quarter, in order to prevent recurrence. Following an ankle injury to a track operative at Embankment LU station, the LU team is working closely with the contractor to undertake a review of the variables influencing workforce

performance, including culture, chain of command and communications. After two RIDDOR reportable accidents at Barking Riverside, the TfL Major Projects team worked with the contractor to run a full site stand down focussed on safety behaviours, two-way communication and the importance of conducting detailed workplace risk assessments. As always, learning from recent incidents are shared across capital teams to both prevent harm and drive performance improvements.

Lost time injury frequency rate



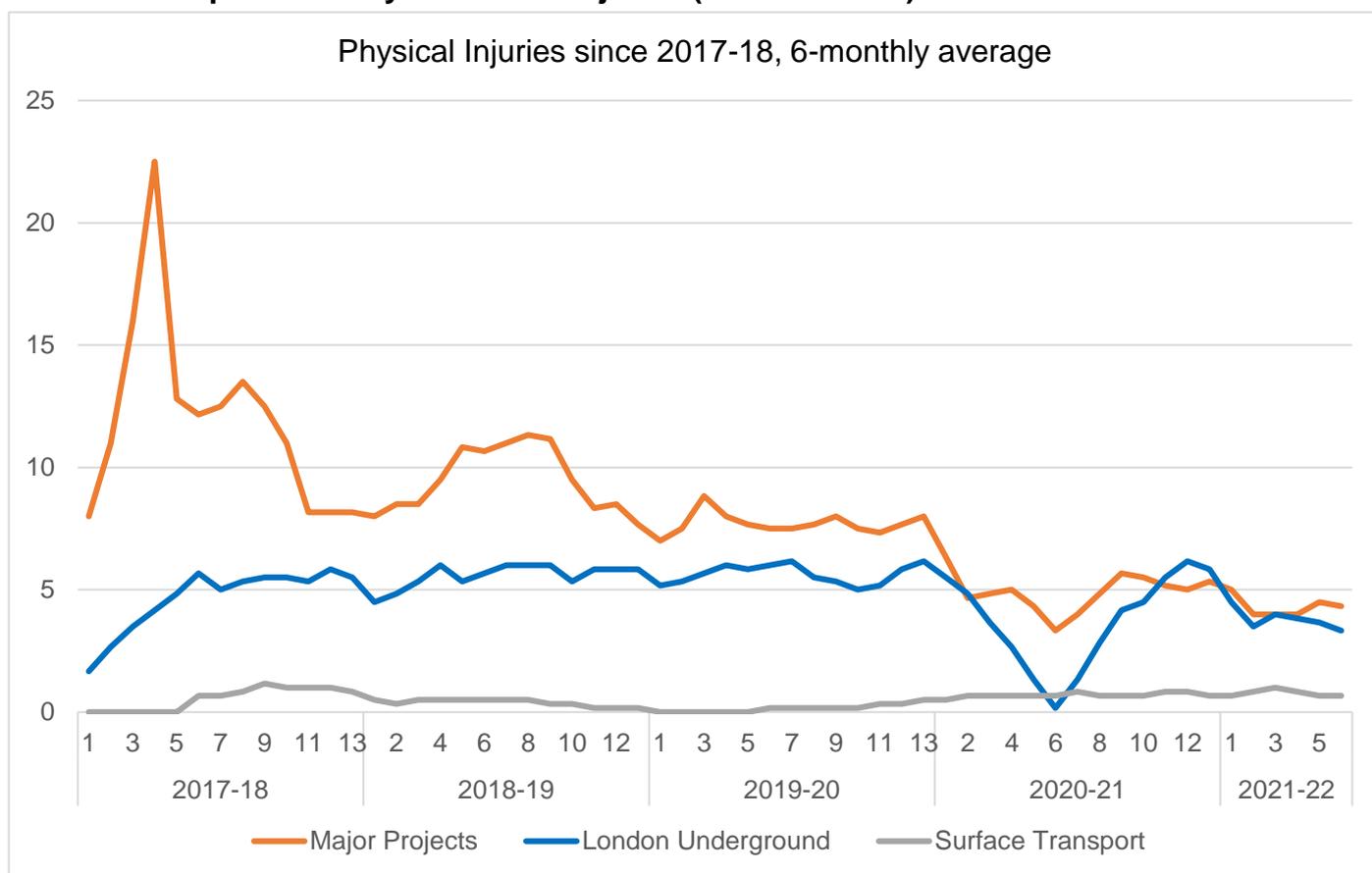
Lost time injuries (LTIs) are injuries which cause an employee to be absent for one or more shifts. There were nine LTIs in our Capital Delivery teams during Quarter 2, a slight increase on the previous Quarter. As a result, there has been a rise in the lost time injury frequency rate in LU and Major Projects against a threshold of 0.20. No lost time injuries were recorded in Surface Transport during the Quarter. However, the Surface Transport rate remains high due to lost time injuries which occurred in the previous Quarter.

The majority of lost time injuries that occurred were classified as minor injuries, resulting in cuts to fingers and muscle strains. Where injuries were classified as RIDDOR reportable accidents, they have been reported to the Health & Safety Executive or the Office of Rail and Road (ORR), as appropriate. All injuries have been

investigated to understand root causes and deploy any possible mitigations in place to prevent recurrence.

Long term trend

Total capital delivery workforce injuries (since 2017/18)



There were 26 injuries across our Capital Delivery teams during Quarter 2. While this is a small increase on the previous Quarter, injuries across our Capital Delivery activities remain well below pre-pandemic levels and continue the overall trend of long-term decline since 2017/18. This remains the case when hours worked are taken into context, which have seen a lesser decline over the same period.

The steady decline in injuries is positive news and reflects the hard work that has gone in to improving safety, health and environment (SHE) performance across our Capital Delivery programmes. However, data indicates that the number of injuries is beginning

to stabilise. As such, it is more important than ever that we continue to investigate all incidents to understand their root causes and identify any improvements.

To facilitate this, we are launching a data improvement programme across our Capital Delivery areas which aims to support better decision making and enable interventions. During the next Quarter, our Major Projects team will also be running an initiative focussed on the use of detailed analysis to inform future improvements and how our use of data aligns with our role as a construction client.

Capital Delivery SHE Improvement Initiatives

We place high value on embedding SHE knowledge within our delivery teams so that business as usual activities can be completed without harm to safety, health or environment. A key element in embedding this knowledge is educating people when to seek further professional support.

Within the capital projects part of the business it is particularly important for project teams to seek such advice and support at the early stages of a project, when decisions are made that can have long-term implications. The SHE department engaged a professional drama company to film a “typical” project team in our office environment. The short film clips tell a story which is designed to encourage the positive safety, health and environmental behaviours. The training package has been launched on ezone, TfL’s internal training platform, as a series of electronic learning modules, with the added flexibility that it can be absorbed individually, or facilitated with a group.

Following the launch of our SHE Capital Delivery & Maintenance Strategy in Quarter 1, we have developed a set of detailed programmes that aim to drive improvement activity across the organisation. We are now working with each of our Capital Delivery teams to ensure these are fully embedded so that all of our local initiatives are geared towards the aims and objectives of the strategy. Alongside this, we are launching a set of pan-organisational improvement activities that aim for a greater level of consistency within our processes and requirements. Current priorities include a data improvement programme and a detailed review of requirements within our procurement and supplier management activities. We will be measuring the success of our programmes and reporting on their progress to the Capital Delivery Improvement Group (CDIG).

Northern Line Extension

Following six years of construction, we successfully opened the Northern Line Extension (NLE) to the public on 20 September 2021. During the six-year construction

period, we maintained an impressive safety record which links to our overall Zero Harm objective. The NLE has delivered two new step-free Tube stations and a twin-tunnel running track. Major construction on the 3km twin-tunnel railway between Kennington and Battersea Power Station via Nine Elms began in 2015 and, despite the challenges of the pandemic, stayed on track for its opening.

The NLE required the excavation of 850,000 tonnes of waste material, 92 per cent of which was transported by barge along the River Thames to East Tilbury, Essex. Transporting the material in this way removed around 47,000 lorry journeys and saved more than 2,600 tonnes of carbon emissions.

Four Lines Modernisation programme

The Four Lines Modernisation (4LM) programme within the Major Projects Directorate (MPD), consists of multiple projects. This is a highly complex and technically very challenging project, and every night there are multiple teams working across our 4LM sites, on the re-signalling of the Circle, District, Hammersmith & City, and Metropolitan lines. During Quarter 2, the Four Lines Modernisation programme achieved the significant milestone of 3.5 million hours worked without a RIDDOR reportable accident, which has rightly been acknowledged as a tremendous team effort by all those on the 4LM programme.

Wimbledon Park step-free access

The Wimbledon Park step-free project was also completed in Quarter 2 by the Capital Delivery Enhancements portfolio, making it our 86th step-free Tube station. This was a complex project due to the restricted location, limited access for heavy equipment and the proximity of local residences to the work site, including the challenges of working in an operational station that saw thousands of customers travel through it to see the tennis at Wimbledon.

Acton Works Depot

Another major milestone was achieved in August 2021 with the arrival of the first train into the new train modification and maintenance facility at Acton Works Depot. It is a purpose built facility, enabling and supporting the Central Line Improvement Programme. This programme ensures the safety of our rolling stock assets.

The Capital Delivery Renewals portfolio successfully surveyed a c.100 year old tunnel ventilation shaft at Down Street disused station, and established this can be used to support the installation of new modern replacement fans to provide smoke extraction to the Piccadilly line. This work helps ensure the safety of our staff and customers.

Returning to a New Normal

MPD ran a SHE Quarter 2 improvement campaign focusing on returning back to a 'new normal', where TfL staff may be experiencing different emotions as we move to a new way of working in potentially challenging circumstances. It allowed people to take time to reflect on how they are feeling and share this with others.

The ultimate aim of the initiative was to provide staff with all the information and support required in relation to returning back and maintaining and enhancing their wellbeing.

Activities included:

- ✓ The development and launch of a SharePoint communication site to provide easy access to core information;
- ✓ Online learning sessions to give staff the tools and support they need in planning their return to our offices and sites (New Ways of Working briefing, Health and Wellbeing in a new normal, back to a new normal, sharing experiences);
- ✓ Produced a frequently asked questions document and bespoke guidance;
- ✓ Signposted health and wellbeing information;
- ✓ Recorded virtual office tours to build confidence for people to return to the office;
- ✓ A programme of regular communications around focused topics.

Future plans

Next Quarter, a pan-organisational review of lessons learned from the pandemic will be launched. In Capital Delivery, the coronavirus pandemic has had a significant impact on our approach to construction work, with our Capital Delivery Improvement Group and Covid Management Group instrumental to formulating our response to the coronavirus pandemic and adapting to the challenges faced. To support the review, the Capital Delivery teams will work together to share the learnings and innovations from across our projects, ensuring they are captured so that they can be incorporated into 'business as usual'.

The Major Projects Directorate (MPD) will continue to deliver its current safety, health and improvement plan and in Quarter 3 will focus on three themes (called the A-B-C of SHE). These will look at **Analysis** of data; **Beacon** – our process of excellence for both pre-construction and construction phases; and **Case Studies** – how we can use a case study to bring “lessons learned” to life. The themes will be delivered in line with the SHE Capital Delivery & Maintenance Strategy.

Work-related violence and aggression

Work-related violence and aggression (WVA) towards our people and those of our operators and contractors is unacceptable. Concerted action is underway to tackle it.

Triggers of WVA incidents

Fare evasion remained the biggest trigger for WVA during Quarter 2, resulting in 27 per cent of all WVA incidents on London Underground (LU) and 35 per cent on the Surface transport network. This is broadly similar to Quarter 1.

However, there was a noticeable increase of five per cent in WVA incidents on LU triggered by other disputes mainly around service disruption and station facilities.

WVA on the LU network on Fridays and Saturdays almost doubled during Quarter 2. There was also a significant rise – of 40 per cent – in incidents on a Monday. These increases were not replicated on the Surface networks. WVA still peaks during the late afternoons on both networks, but there has been an increase of three per cent in the volume and percentage share of incidents occurring between 10.00 and 14.00.

Reports of Hate Crime increased by 15 per cent on the Surface networks, between Quarter 1 and Quarter 2 (a total of 12 more reports). Hate Crime now accounts for 8.7 per cent of WVA on the Surface network. It has also increased on the LU network by 17 per cent, a 0.5 per cent increase from Quarter 1.

Overview of risk and harm

As part of the WVA strategy, we have improved the way we analyse incident data from across TfL, our operators and police partners to better understand the scale and nature of WVA incidents.

This change in the way we analyse data from different data sets was introduced in January 2020. As a result, we are unable to compare levels and trends before this date.

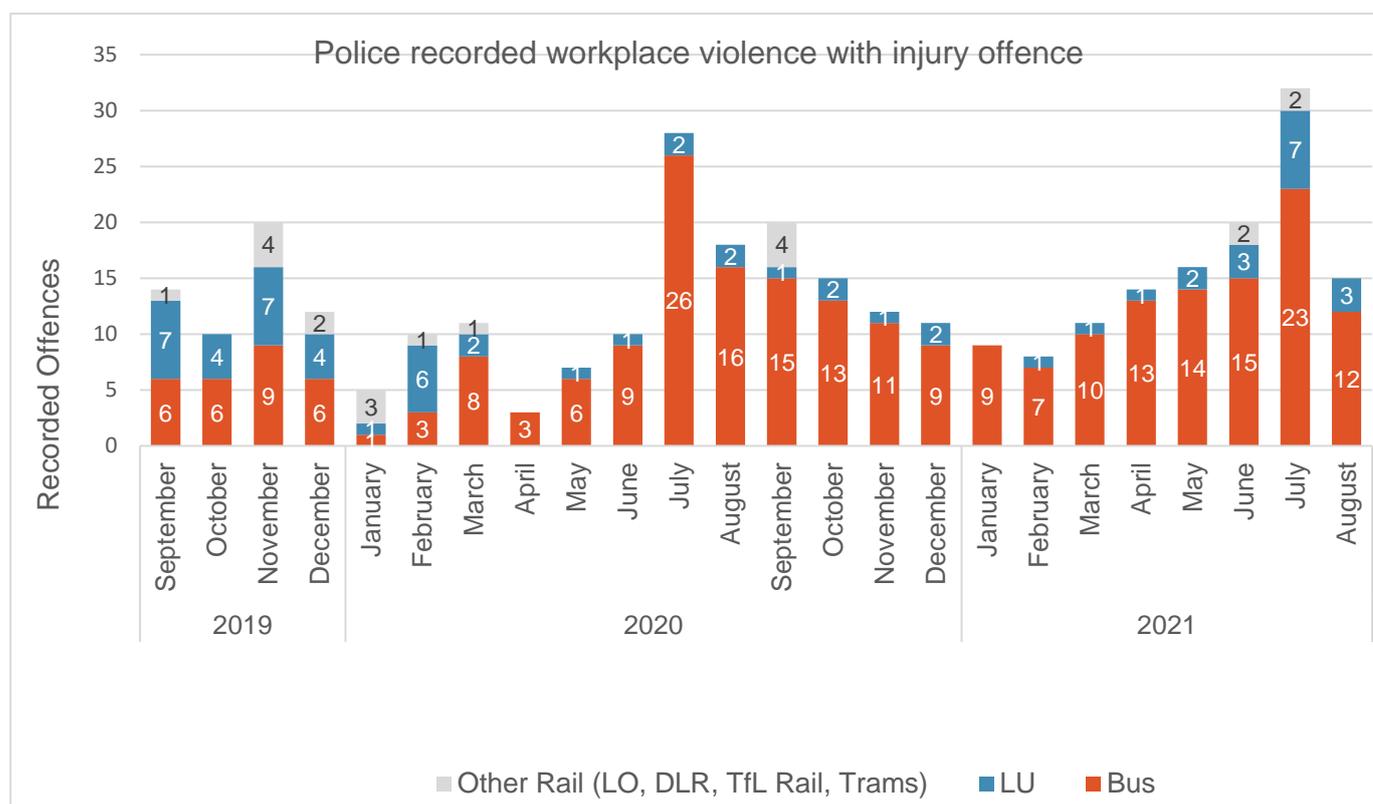
The following analysis compares data from different timeframes in 2020/21 and 2021/22. Due to the effect that reduced customer numbers had on work-related violence and aggression incidents, drawing comparisons and conclusions between the sets of data is difficult.

Volume of incidents in Quarter 2

In Quarter 2 2021/22, there were 972 incidents of WVA on the LU network. This is an 11 per cent increase compared to the previous Quarter (99 additional incidents), in line with this Quarter's increase in customer numbers on the network.

In Quarter 2 2021/22, there were 1,043 incidents of WVA on the Surface networks (including Buses, on-street, London Overground (LO), Docklands Light Railway (DLR), TfL Rail and Trams). This represents an 11.5 per cent decrease from Quarter 1 (136 less incidents).

Police recorded workplace violence with injury offence



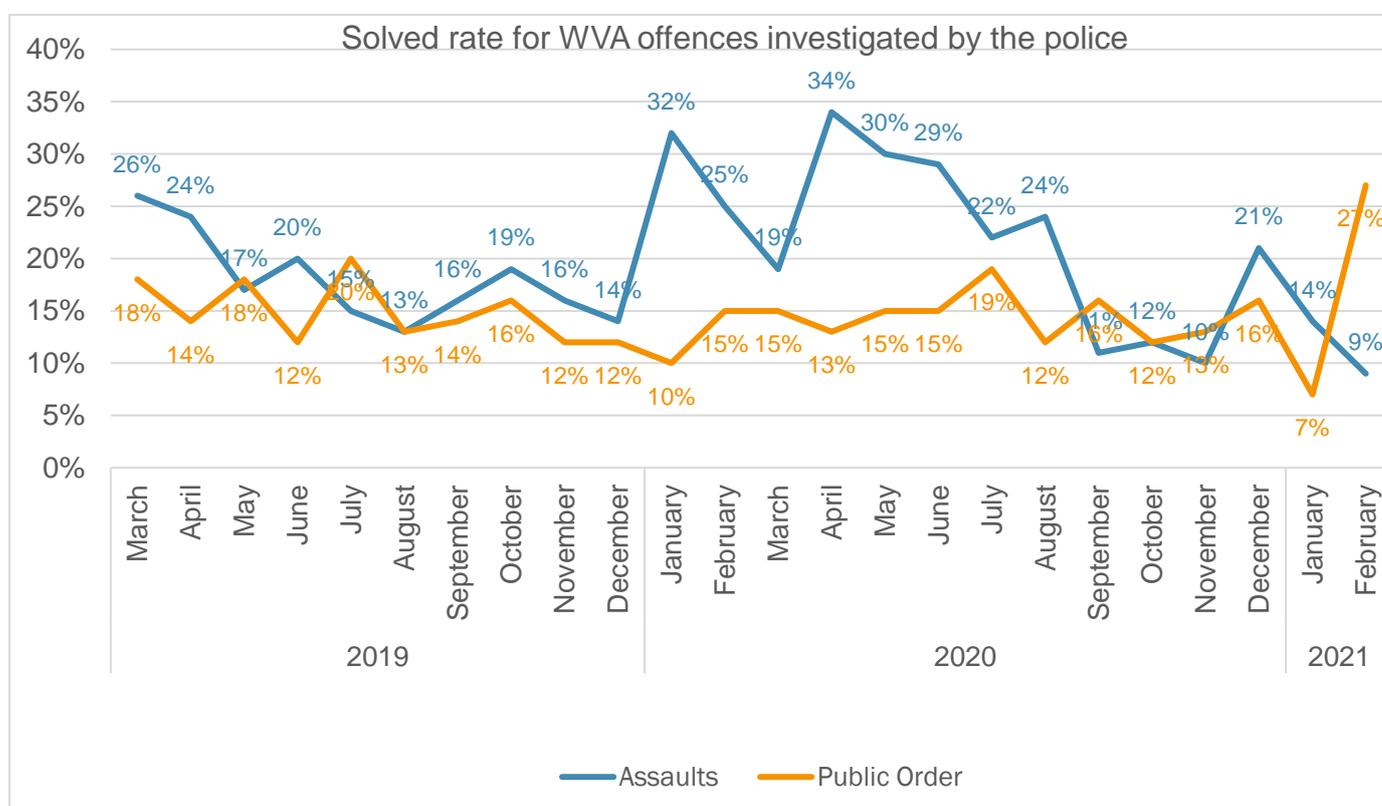
We know from feedback from our workforce and our trade unions that WVA is underreported, particularly verbal abuse. Changes in the reporting of incidents, compounded by the impact of coronavirus on overall crime levels, makes it difficult to draw clear conclusions about trends in offending. Our assumption is that violent offences that result in injury (actual bodily harm or grievous bodily harm) are more likely to be reported given that the staff member may require support, treatment or time off. Police data for violence with injury offences is a more reliable data source for monitoring trends. We have started a project to improve reporting of workplace related violence incidents to help our colleagues stay safe.

The level of bus violence with injury offences was 28 per cent higher comparing April to August 2021 (77 offences) with the same five months in 2020 (60 offences). The principal reason for this increase is that April to August 2020 was during the height of the first lockdown. In the same time period in 2021 crime levels are increasing in line with more passengers returning to the network.

Thirty two per cent of bus related physical assaults (including spitting) reported to the police are linked to road rage. Road rage volumes were lower in 2020/21 because of lockdown and fewer road users (20 offences in 2020 Year-To-Date; 37 offences 2021).

LU and other rail modes (LO, DLR, TfL Rail and Trams) combined had 20 violence with injury police reports between April to August 2021, compared with just six for the same five months in 2020. The lower offence numbers on the rail network in 2020 reflect the lower levels of passenger journeys.

Solved rate for WVA offences investigated by the police



We are working closely with the police to improve the solved rate of offences. This includes prioritising the investigation of WVA incidents, rolling out body-worn video cameras and continuing to support police investigations by providing Oyster card and CCTV information, victim statements and court support.

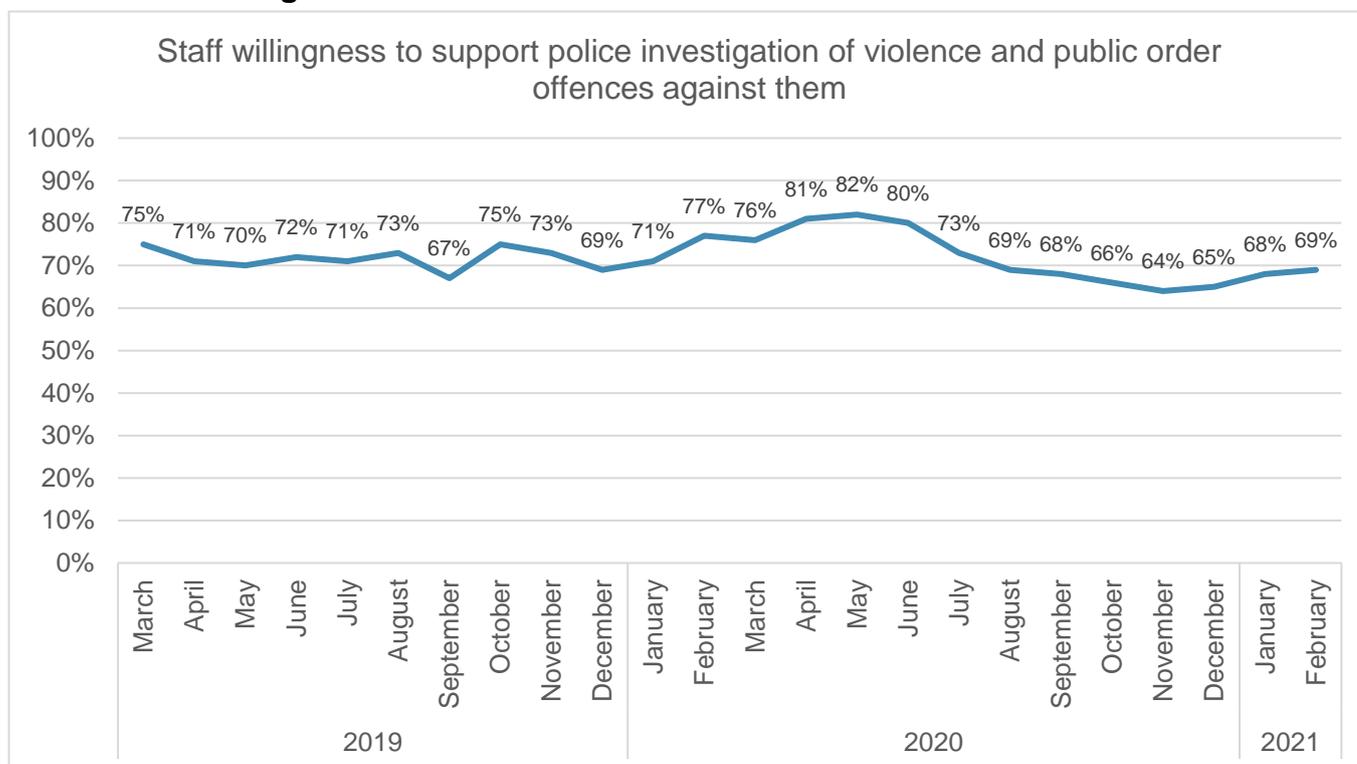
The solved rate is the percentage of offences being investigated by the police that have resulted in action against the suspect e.g. charged with the offence, summonsed to attend court or a restorative justice outcome. Figures are reported six months in

arrears to allow time for the police investigation to conclude and for cases to progress through the criminal justice process. This section therefore compares figures for the twelve-month periods, March 2020 to February 2021 (current), with March 2019 to February 2020 (previous).

During the current period the solved rate was 17 per cent for violence and public order recorded offences against our workforce – the same as the previous 12-month period.

The solved rate varied by mode during the current period, with a solved rate of 16 per cent for bus-related offences, 20 per cent for LU, and 17 per cent for all other rail modes combined. Across all modes, the solved rates increase in line with severity of incident. The solved rate is higher for violent offences (with or without injury) compared to public order (e.g. verbal abuse) as the police will allocate more resource to identifying and apprehending offenders e.g. media appeals for information for violent incidents. The solved rate in the current 12-month period for violence (with/without injury) offences was 20 per cent compared with 15 per cent for public order offences.

Staff willingness to support police investigation of violence and public order offences against them



A key factor in being able to bring offenders to justice is staff support for and consent to partake in the criminal justice process. As part of our strategy, we are working closely with the police to address staff concerns and improve the support that we collectively provide to them throughout the process.

Figures are reported six months in arrears to allow time for the police investigation to conclude and for cases to progress through the criminal justice process. This section therefore compares figures for the 12-month periods, March 2020 to February 2021 (current), with March 2019 to February 2020 (previous).

During the current period, the percentage of staff willing to support a police investigation was 77 per cent for violence and public order recorded offences against staff which is identical to the previous period.

Progress against 2021/22 annual action plan

The Safety, Sustainability & HR Panel (SSHRP) reports will now include updates against actions within the WVA annual action plan. The plan was approved by the SSHRP on 30 June 2021.

The safety of our customers and colleagues is our top priority and for many years we have been working with the British Transport Police (BTP) to tackle sexual offences and harassment – an issue that disproportionately affects women and girls and, that due to recent tragic events has been highlighted nationally. In October 2021, we launched a new customer-facing campaign in partnership with Rail Delivery Group and the BTP, sending a clear message of zero-tolerance and encouraging victims and bystanders – including our workforce - to report it.

Tackling the key triggers of WVA is essential if we are to eliminate WVA against our people. We are working with our partners and have problem solving activity underway to tackle aggressive begging at Canning Town station, antisocial behaviour by youths at West Croydon bus station, the risk of the impact of serious crime at Finsbury Park and Turnpike Lane stations, and are trialling a new engagement approach at the WVA hotspot of Stratford station.

We are also working with our partners on targeted policing activity. The BTP's Operation Steed has been running on the LU network since January 2021, with the aims of increasing both staff and public confidence, improving feelings of safety, and bringing offenders to justice. Operation Steed was initially due to be a three-month operation, however it has been met with such success and positive feedback it has been extended indefinitely. Deployment locations are decided in collaboration with industry partners locally, and locations include the LU stations West Ham, East Ham, Upton Park, Bow Road, Stepney Green and Canning Town stations and in Quarter 2

we incorporated Dagenham Heathway, Dagenham East and Becontree LU stations. To date the BTP has conducted: 692 deployments, made 45 arrests, 43 Stop and Searches and 160 other interventions, including community resolutions and Penalty Notices for Disorder.

Communication to our staff about WVA is ongoing. This Quarter, this has included working with our marketing team to distribute a targeted, customer facing 'Abuse Stops Now' poster as part of our Hands Up campaign to identify WVA hotspots across the network, and posters raising awareness of successful WVA prosecutions.

Our trial to improve judicial outcomes for public order offences against our staff launched in August 2021 with our first case being successfully heard at Lavender Hill Magistrates Court. The suspect was found guilty of face covering and public order offences and sentenced to pay fines and charges totalling £1,369.

Technology continues to play a key role in delivering our WVA strategy. Following the rollout of the first phase of body-worn video cameras to all frontline teams we have agreed we will look to increase the usage of these cameras by five per cent per Quarter. We have also now prioritised further teams who could also benefit from cameras or lone worker safety devices. Multi-disciplinary teams are in place to deliver these projects alongside a new case management system for our WVA team, to allow the tracking of cases and ensure consistent support is provided to staff.

Following several incidents of violence and aggression against our workforce on some of our construction sites, the Project & Programme Delivery team within Surface Transport has developed a crime hotspot map to highlight where incidents have occurred, enabling information to be shared during the pre-construction phase. Alongside this, a set of workshops has been organised with the supply chain to share best practice in terms of dealing with these incidents.

Building on this, we are launching a new Urban Safety training package to provide our non-customer facing staff working across London with the knowledge to be able to keep themselves safe and secure while at work. Topics range from walking through different types of conflict, to practical decision making and reducing personal risk.

Examples of Successful Prosecutions in Quarter 2

Assault on Transport Support & Enforcement (TSE) Officers at Harlesden LU station

Two TSE Officers were verbally abused and physically assaulted while deployed at Harlesden station in December 2020. They were there to address issues of antisocial behaviour and workplace violence and aggression whilst also engaging and enforcing

the wearing of face coverings. The suspect was found guilty of two counts of common assault by beating. Sentencing took place on 12 October 2021.

The magistrate sitting stated:

“TfL staff and all staff working for the public are entitled to work in a safe environment and at the time of the incident the country was again facing a peak in coronavirus infections and TfL staff were acting to protect the public in a health emergency. The defendant was shouting at TfL staff potentially increasing the risk to them of catching COVID-19 as well as to other members of the public. The public at large are grateful for all the efforts made by TfL to keep the public safe at what was a stressful time for everyone.”

Common assault on 280 bus

A bus driver on the 280 bus was assaulted in February 2021. The suspect was found guilty and a youth rehabilitation order applied along with an 18-month supervision requirement, a six-month curfew with electronic tagging and 100 hours of unpaid work.

Common assault on 432 bus

A bus driver was spat at on the 432 bus in April 2021. The suspect was found guilty and sentenced to 14 days in prison which was suspended for 12 months and ordered to pay compensation of £50.

Charing Cross LU station

Racist verbal abuse took place against a member of our LU team in December 2020. CCTV stills were obtained with a suspect identified at an identification parade. The suspect was found guilty of racially aggravated common assault and public order offences and sentenced to 10 weeks in prison.

Oval LU station

A member of our LU team was verbally abused and spat at in November 2019. The suspect was found guilty of Common Assault and sentenced to prison for three months, suspended for two years while having treatment for alcohol dependency. They were also ordered to comply with a curfew and electronic monitoring for 30 days and to pay compensation of £100.

Oxford Circus LU Station

Five members of our LU team were subjected to verbal and racist abuse in April 2020. The suspect was found guilty of racially aggravated common assault, and public order offences and was committed to prison for four weeks, suspended for 12 months. They were also ordered to undertake an unpaid work requirement along with total fines of £942.

Significant incidents

This section outlines significant incidents that have occurred during Quarter 2 and since the last report. It also provides an update to significant incidents of note.

Significant London Underground incidents

Two reports were published by the Rail Accident Investigation Branch (RAIB) this Quarter which were of interest in LU.

RAIB report: Signal passed at danger and subsequent near miss, Chalfont & Latimer station – Published August 2021

On Sunday 21 June 2020, a near miss occurred between a Chiltern Railways train travelling south and a LU train which was getting ready to depart from LU's Chalfont & Latimer station on the Metropolitan line. A few minutes earlier, a southbound Chiltern Railways train passed a signal displaying a red (stop) aspect (known as a signal passed at danger). This resulted in the train being automatically stopped by a safety system. Without seeking the authority required from the service operator (signaller), the driver reset the tripcock before continuing towards Chalfont & Latimer station, where the train was routed towards the northbound platform, which was occupied by a LU Metropolitan line train.

The Chiltern Railways train stopped about 23 metres before reaching the Metropolitan line train, which was stationary. There were no reported injuries, but there was minor damage to signalling equipment and a set of points. However, this was a significant near miss which could have been more serious.

The RAIB has made three recommendations and identified a learning point in the report published in August 2020. The first recommends that Chiltern Railways improves its driver management processes. The second recommends that Chiltern Railways and LU jointly establish an effective process for the management of safety at the interfaces between their respective operations. The third recommends that

Chiltern Railways, assisted by LU, reviews the risk associated with resetting train protection equipment applicable to Chiltern Railways' trains on LU infrastructure. The learning point concerns the importance of considering sleep disorders during routine medical examinations of safety critical workers. LU is working closely with Chiltern Railways to ensure all recommendations are addressed.

RAIB report: Fatal accident at Waterloo Underground station – Published September 2021

On 26 May 2020, at Waterloo London Underground station in London, a passenger fell into the gap between the northbound Bakerloo line platform and the train from which he had just alighted. A large gap existed between the train and the platform because of the track curvature at the location of the passenger's fall.

The RAIB made three recommendations to LU. The first relates to the need to recognise and assess location-specific risks so they can be properly managed. The second recommends that LU review its quantified risk assessment. The third recommendation relates to the need for effective delivery of actions proposed by internal investigation recommendations.

TfL carried out an internal investigation into this accident and the Formal Investigation Report (FIR) was published in January 2021. Many of the issues identified by the RAIB were addressed in the FIR and in actions taken by LU after the accident in response to an improvement notice issued by the Office of Rail and Road (ORR). The ORR monitors the completion of RAIB recommendations and LU responded to the ORR in Quarter 3 (on 19 November) setting out how LU will address the three RAIB recommendations.

The Coroner has opened an inquest into this matter and LU is an Interested Person. There have been two pre-inquest review hearings to date and a further pre-inquest review hearing will take place on 13 December 2021. A date for the inquest has not yet been fixed.

TfL FIR: Monument Signalling Near Miss FIR (19 March 2021) (ongoing)

A Formal Investigation Report (FIR) has been commissioned, following a high potential incident at Monument to Cannon Street, into the circumstances which led to errors within the Communication Based Train Control (CBTC) system. An interim report has been produced. The final report is due to be published in December 2021.

TfL FIR: Engineering train Movement not following published process – (16 May 2021) (ongoing)

A Formal Investigation has been commissioned into an engineering vehicle passing a signal at danger during a Test Possession Weekend. An interim report has been produced. The final report is due to be published in December 2021.

Significant incidents on the Surface transport network

Ongoing Formal Investigation: Victoria Bus Station Pedestrian Fatality

On 10 August 2021, two route 507 buses collided within Victoria bus station, one hitting the other from behind as it was moving a short distance within the bus stop. This caused the one in front to be shunted forward. In doing so, it collided with and fatally injured a woman walking who was using a designated crossing. Another person who had just boarded the front bus, and one of the bus drivers were also injured.

The bus operator has submitted their investigation findings and we are currently investigating the wider circumstances surrounding the incidents, as well as working collaboratively to assist the police, and the Health and Safety Executive with their ongoing inquiries.

London Overground Collision with Buffer Stop (New)

On 12 October 2021, a London Overground train, operated by Arriva Rail, hit the buffer stops at Enfield Town at slow speed causing damage to the infrastructure and the first carriage of the train to partially derail.

The driver of the train was treated for shock and one passenger for minor injuries, neither of which required hospital treatment. The RAIB and the Office of Rail and Road (ORR) were notified by Arriva Rail, and TfL is working closely with Arriva Rail, the ORR and Network Rail post incident. An investigation has commenced. The driver of the train had a positive drugs test post incident and has been suspended by Arriva Rail. He was arrested by the BTP on 27 October 2021 on suspicion of endangering the safety of the railway and being unfit to work on a transport system through drink or drugs.

Engagement with regulators

This section looks at how we have engaged with our regulators on safety issues over the past Quarter.

Engagement with the Environment Agency

We report our progress on environmental issues to the Environment Agency. Polychlorinated biphenyls (PCBs) are substances that are toxic to humans and animals. There is legislation in England and Wales, as well as an international agreement, which bans their use. Some of the thousands of different types of electrical capacitor used in signalling, power, fleet, tunnel telephone systems on London Underground (LU) predate this legislation and therefore sometimes contain PCBs. LU's programmes for identification, replacement and removal of components that may contain PCBs continued in Quarter 2; this has included removal of components from power rectifiers and testing of track circuit capacitors.

Engagement with London Fire Brigade

We meet the London Fire Brigade (LFB) every month to share progress of our Fire Safety Programme and to discuss any significant fire incidents in the previous months. As well as a joined up response to incidents on our network, the LFB carry out a number of detailed inspection visits to review our approach to fire safety. These collaborative discussions have allowed us to share the detail of our fire risk assessment programme and training with the LFB, as well as sharing detail on how we manage and maintain our fire assets with the LFB inspectors. It has also allowed us to identify areas where we can work more closely together to ensure that we manage the risk of fire on our network.

Engagement with the Office of Rail and Road

We continue to work closely with the ORR to ensure we manage health and safety effectively across our railway networks. We have regular discussions around our ongoing response to the coronavirus pandemic, as well as constructive open and honest discussions about any incidents on our network. We continue to work closely with them to identify opportunities for improving how we manage health and safety. During Quarter 2, we had a number of constructive discussions with the ORR on how

we manage issues ranging from long-term capital investment and asset management to customer and workforce safety. The ORR will be carrying out a number of site visits during Quarter 3.

Independent SHE Assurance Activity

A 'Safety, Health and Environment Assurance Report' has been submitted to the SSHRP this Quarter. This is the first of a regular report on assurance activity carried out by the Integrated Assurance Team for risk ER1 'Major safety, health or environmental incident or crisis'.

SHE is currently reviewing the report to:

- Identify any key trends that may provide additional context to the themes reported in this report;
- Ensure SHE assurance activities for ER1 are informed by the audit outcomes of this independent internal assurance function;
- Determine if any 'poorly controlled' or 'requires improvement' audit outcomes represent a wider strategic SHE concern;
- Determine if any 'well controlled' outcomes represent good practice that can be shared more widely.

Health

COVID-19

Since the start of the coronavirus pandemic, our focus has been to protect the safety and health of our customers and workforce.

Deaths in service

Our sincere condolences remain with the families and loved ones of the 103 members of our workforce who have sadly passed away from COVID-19 as of 22 November 2021. Everyone at TfL pays tribute to the vital role they played in our fight against the pandemic.

TfL's Commissioner, Andy Byford has worked closely with the Mayor of London, Sadiq Khan to design a memorial to commemorate these London transport workers. The new memorial will be created on a pedestrian plaza on Braham Street in Aldgate.

Our Employee Assistance Programme continues to be available to all employees and their dependants, and provides support, guidance and information on a range of topics, including bereavement. The safety of all our staff and customers continues to be our top priority, and we are absolutely committed to doing everything in our power to keep everyone safe on our network.

COVID-19 testing schemes

We continue to offer employees our rapid testing service at facilities in King's Cross and Baker Street LU stations as well our head office buildings: Palestra, Pier Walk and Endeavour Square. This has been a key initiative in our efforts to ensure workforce safety. By 11 October 2021 we had tested more than 6,700 employees, with the number testing positive averaging at less than 0.6 per cent. We have continued the expansion of the Work Collect scheme for the distribution of home test kits from all our testing sites, as well as at more than 25 other locations, including Victoria Station House, fleet and crew depots, stations, service control centres and track maintenance depots. As of 11 October 2021, more than 3,560 kits had been issued.

Throughout June 2021, we assisted the London Borough of Hounslow with its surge testing campaign in response to the concerning spread of the Delta variant in the borough. We distributed more than 1,500 PCR test kits to TfL workplace locations including bus garages and underground stations. We continue to work closely with the Department of Health and Social Care (DHSC) and the boroughs to help support them in any way during this pandemic.

For those who are not fully vaccinated, it remains a legal requirement to self-isolate for ten days from being contacted by NHS Test and Trace or the NHS COVID-19 app as having been in contact with someone who has tested positive. However, to enable those who are unvaccinated to continue to work while self-isolating, we have the TfL Daily Contact Testing (DCT) scheme. This scheme enables our workforce to undertake supervised daily lateral flow tests at one of our test sites, providing they do not have any COVID-19 symptoms. The scheme involves being tested over a seven-day period (two of which are rest days). When not at work, the individual must self-isolate apart from essential shopping, exercise and medical emergencies. This scheme is entirely voluntary.

Together with Westminster City Council, we are continuing to offer Pfizer vaccinations to our staff through a series of pop-up clinics. Since 28 July 2021, six clinics have taken place, at Victoria, Baker Street and Palestra. Those who attend can receive

either a first or a second dose of vaccine (but the requirement for an eight-week gap between doses remains).

Imperial College London sampling

Air and surface sampling of customer areas by Imperial College London continues, with no trace of coronavirus found on the public transport network. Our Occupational Health team continues to liaise with academic institutions to ensure our approach to safety remains at the cutting edge.

Living with Covid-19

We know that the pandemic presents us with a regularly changing situation and we will have to move to an approach where we are 'Living with COVID'. Throughout the pandemic our objective has been to ensure the safety of our workforce and our customers, which will allow us to continue to deliver our vital services for London.

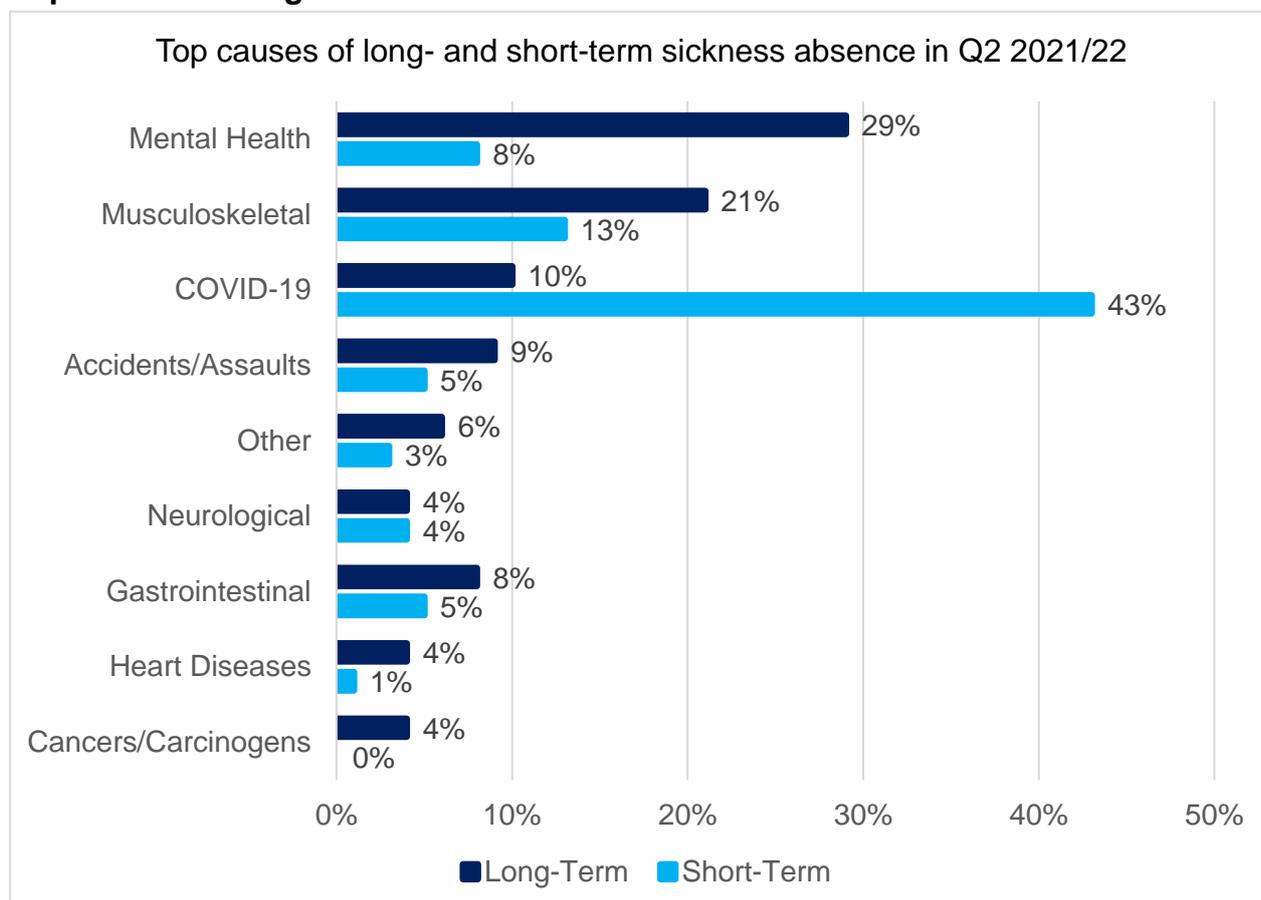
As we look to the future, we will maintain the controls we have put in place to protect the health of our workforce and our customers. While the changing pandemic situation may lead to future changes in our approach (in light of the scientific and medical environment), we will carry out appropriate health and safety risk assessments before we make any significant changes. We will also continue to communicate regularly, openly and honestly with our workforce and customers about how we will continue to manage this risk.

Sickness absence data

When looking at our sickness absence data, the definition of short-term absence is any absence lasting less than 28 days and the definition of long-term absence is of 28 days or more duration.

By looking at the underlying causes of absence in detail, we gain meaningful insight into where we can best target preventative measures. Around 60 per cent of absences at any time are caused by long-term sickness.

Top causes of long- and short-term absence in Quarter 2 2021/22



In Quarter 2 of 2021/22, mental health accounted for 29 per cent of all long-term absences and musculoskeletal related absence was the second highest cause at 21 per cent. These two categories typically account for the majority of long-term sickness absence in the UK. Our Occupational Health team has several initiatives aimed at prevention of ill health but also to support those who become unwell to return to work earlier.

In Quarter 2 of 2021/22, coronavirus remained the top cause of short-term absence at 43 per cent, a significant increase from the previous Quarter (34 per cent). This was largely caused by the NHS COVID-19 app notifying some of our workforce that they had been in contact with someone who had tested positive and therefore needed to self-isolate. This reduced in the last four weeks of this Quarter, but it had put us in the position of coronavirus-related absence being as high as in the second wave for a two-week period. Looking ahead to Quarter 3, following updated Government guidance, the NHS app will only advise to self-isolate if a person has been in contact with someone who has tested positive for COVID-19, they are over 18 years old and unvaccinated, which may lessen the impact of coronavirus on short-term absences.

Health updates

Coping with Change

As we followed the Government's roadmap out of lockdown and thoughts turned to a return and reoccupation of our head office buildings, the Mental Health and Wellbeing Manager gave a presentation on 'Coping with Change: reoccupation and return to the workplace'. The presentation included useful tips and advice to help manage anxiety. The presentation was recorded and shared for those not able to attend the live presentation. A dedicated 'Recovery & Resilience' SharePoint page was set up to share all the wellbeing resources available to TfL staff, including anxiety busting techniques, mental health support and a wellbeing toolkit. Line managers also have access to a wellbeing guidance document and a presentation to help their teams.

World Suicide Prevention Day

To recognise this important day on 10 September 2021, we invited a guest speaker from the Samaritans to talk to colleagues. They shared the facts and figures about suicide and how to spot signs of vulnerability in others and in ourselves. We also promoted our own Suicide Prevention training and mental health support available.

parkrun promotion

parkrun is an inclusive event which helps to encourage greater activity. parkrun resumed in July 2021 and we promoted the events with a poster campaign. A poster was designed that showed all the parkrun events which were located close to each London Underground line. The aim was to encourage greater participation in the event, by featuring members of our workforce on the promotional posters.

Know your Numbers Week

From 6-10 September 2021, we ran 'Know your Numbers' week, which focuses on encouraging people to know their blood pressure numbers in the same way that they may know their height and weight. During this week, our Health and Wellbeing physiologist visited a number of locations within TfL to offer quick blood pressure tests, with more than 100 staff dropping into one of these 'pressure stations' during the week to get a reading of their blood pressure.

Well@TfL

- The Well@TfL pilot began at the end of September. The pilot aims to examine how we can support our colleagues to improve their health and wellbeing. The pilot started with a project involving Acton depot and then expanded to mobile health checks across the business (including night shifts) and mobile occupational health medical assessments.

Acton Well@TfL pilot:

The Well@TfL project launched at Acton at the end of September, giving our workforce the opportunity to have an onsite health check, which measures cholesterol, blood glucose, body composition as well as exploring lifestyle issues such as diet and exercise. Each participant receives bespoke advice and a report on their health by the Health and Wellbeing Physiologist. In addition, they are offered follow-up appointments, to help track their improvements. We will use this information to understand the impact of bespoke health checks and advice. A health and wellbeing questionnaire will be offered to all staff at Acton in November 2021. Aggregated anonymised data from the questionnaire will be used to determine a depot based intervention to improve health. The questionnaire will be repeated a year later in order to establish the impact of the intervention. This will give us the opportunity to learn more about the wellbeing of our workforce and how best to support them.

Mobile Well@TfL Health Checks and Occupational Health Medicals

Next year, the Well@TfL bus will visit sites around the company, offering staff a health check and support on their wellbeing. The health bus will have the equipment necessary to allow onsite Occupational Health medicals, which will commence after the Acton Pilot and alongside the mobile Well@TfL Health checks.

At the same time using a grant from the Employer Health Innovation Fund we are working with the Design Council to look at how we can enable better uptake of the available health initiatives by operational staff.

Bus Driver Fatigue and Health and Wellbeing Challenge

There are ten projects included across eight bus operators.

1. Abellio and Tower Transit joint bid with Compass UK
 - Train bus operators' trainers to deliver three interconnected courses that get people talking, without shame or fear of negative consequences, about mental and physical health and feeling fatigued: (1) Managing fatigue, mental health and wellbeing for line managers, (2) Championing mental wellbeing and alertness for all staff, and (3) Promoting driver wellbeing and alertness for drivers (CPC supported).
 - Timescale: 10-12 months
2. Arriva and Tower Transit joint bid with DriveTech
 - Driver's Mate is a series of 90-second videos helping bus drivers learn about fatigue and their wellbeing, using nudge theory, so that people change their behaviour in the long-term.
 - Timescale: 15-18 months
3. Go Ahead bid with The Sound Doctor
 - The Sound Doctor will provide bus drivers with a groundbreaking programme of audio interventions that will help them fight fatigue and keep them alert during their shift.
 - Timescale: nine months
4. HCT bid with Hestia
 - Everyone's Business team at Hestia will train a cohort of Domestic Abuse Champions at HCT and upskill line managers so they can effectively support their employees.
 - Timescale: four-five months
5. HCT bid with MIND
 - Providing mental health support to managers and frontline staff, concentrating on improving manager awareness of mental health issues and knowing how to support themselves and their teams, and finding suitable volunteers to qualify as Mental Health First Aiders.
 - Timescale: three-four months
6. HCT and UNO joint bid with Tenshi Consulting
 - Senseye technology uses both published and proprietary in-house neuroscience research to associate quantifiable cognitive insights with

patterns of physiology within the eye that can detect and highlight any 'fitness for duty' issues at the point of driver sign-on.

- Timescale: three-four months

7. Metroline bid with DDM

- Gro Health is a digital behaviour change intervention that takes a holistic approach to health encompassing four therapeutic areas of mental wellbeing, sleep, activity and nutrition, using behaviour change activities, personalised resources, coaching, peer-to-peer support and health tracking.
- Timescale: 12 months

8. Metroline bid with The Rest Space

- Rest Space is a physical resting space combined with science-backed educational content to resting and internal communication content to support the change in culture in the workplace.
- Timescale: three-six months

9. Stagecoach bid with The Liminal Space

- Night Club is a transformational health and wellbeing programme that uses a unique interactive walk-in installation designed to communicate evidence-based sleep health information to shift workers.
- Timescale: six-nine months

10. Go Ahead bid with Viewpoint Feedback

- Employee feedback programme using in-the-moment feedback pods to capture information about driver wellbeing and providing managers with details in real time so that they can find solutions to issues that negatively impact drivers' wellbeing.
- Timescale: six-nine months

Bus Driver Health Kiosks

TfL will support bus drivers through the provision of self-service health assessment kiosks or comparable health assessment across all ten bus operating companies. TfL's commissioned UCL's Institute of Health Equity report into bus driver deaths as a result of COVID-19 highlighted the need to be more proactive in understanding existing health conditions of bus drivers, supporting better health, and identifying those most at risk. Accordingly, the health kiosk or assessment will collect information from drivers that could be indicators of conditions such as diabetes, hypertension and heart disease, and will include a lifestyle assessment.

The rollout of these health assessments to bus drivers began during winter 2021/22. TfL will collect aggregated data to define and inform further activities for the Bus Driver Health and Wellbeing Programme.

Employer Health Innovation Fund

The Impact on Urban Health and Design Council have offered TfL a grant of £110,000 to deliver health and wellbeing assessments of bus drivers. The Fund will be used to bring on an external health research consultant to gather insight on the standard benchmark for health assessments across other industries and in local bus operators in comparable countries. Although the research workstream will not be limited to health assessments as a solution, we are open to recommendations of other health and wellbeing initiatives that can be implemented to meet our aims. A broader piece of work will concurrently begin on researching the broader non-clinical services to establish a working definition for 'assessments' and 'wellbeing checks'.

Environment

July flooding events and Mayoral response

Brief summary of TfL impacts

With climate change, severe rainfall events like those London experienced on 12 and 25 July 2021 will become more intense and more frequent.

Two heavy downpours of rain in July led to widespread, severe flash flooding across London. Consequently, they caused significant damage to our assets and severely disrupted our services across the Capital. 30 London Underground stations had to be fully or partially closed. On the Surface road network, several roads and tunnels were affected, London Overground services were disrupted, experiencing severe delays, and Pudding Mill Lane DLR station had to be closed. Whilst the network recovered quickly from these events, assessment of climate related risks will be crucial part of the planning process to avoid similar impacts on the TfL network.

In response to the flooding events, the Mayor convened a series of roundtables (held on 27 July, 3 August, 20 August and 8 October 2021) attended by the Mayor, Deputy Mayors for Transport and Environment and Energy, together with representatives from London Fire Brigade, the Environment Agency, Thames Water, London Councils and

various London boroughs, as well as TfL. The purpose of the roundtables was to identify any joint learnings and actions from the flooding that could result in improved responses by authorities in future. One outcome has been the creation of a time-limited Task and Finish Group (including TfL representatives) to set out how London can best adapt to future flood events. The first meeting was held on 5 October 2021 and focused on developing the Terms of Reference.

Setting out our Sustainability agenda

In September we published our first ever Sustainability Report and Corporate Environment Plan, setting out our ambitions to address the climate crisis and support London's green and inclusive recovery so the capital can become an even more economically, environmentally and socially sustainable place to live, work and travel.

TfL Sustainability Report

The [TfL Sustainability Report](#) is a wide-ranging report aiming to capture the social, economic and environmental benefit we deliver as an organisation and to track progress. It provides an account of work to date and includes key metrics to measure performance. It is aligned with the reporting approach of a number of other large organisations and with the overarching [United Nations \(UN\) Sustainable Development Goals](#) through an approach that complements our London level strategic policy framework.

Everything we do contributes towards the three pillars of sustainability:

- **Society** – caring about our colleagues, customers and communities through safe, healthy and accessible transport services;
- **Environment** – operating in a sustainable way, to protect and regenerate the natural world;
- **Economy** – being financially sustainable and offering affordable services to help provide good quality of life for all.

The social impact of public transport is far-reaching - not only does it help people get around, but it helps the city grow and connects people to work, education and opportunities as well as friends and family. We want to build on the work already achieved to make our services more inclusive by continuing to bring in step-free access where possible to the Tube and Overground network, working to provide information in the most accessible forms possible and ensuring everyone feels safe when using TfL services.

Corporate Environment Plan

The Corporate Environment Plan (CEP) works alongside the Sustainability Report and is our plan for improving our environmental performance. It is a forward-looking plan providing more detail on our ambition, targets and plans on the environment.

The CEP has been developed around five key themes, which will help us become a zero-carbon London:

- **Climate emergency** – reduce carbon emissions from our activities and ensure we are ready for the impacts of climate change;
- **Air quality** – reduce emissions of harmful air pollutants from our activities;
- **Sustainable resources** – support a low-carbon circular economy;
- **Green infrastructure** – protect, connect and enhance our green infrastructure, including the biodiversity, habitats and ecosystem services on our estate;
- **Best environmental practices** – deliver our activities responsibly and be a good neighbour.

Accelerating our move to a zero emission bus fleet

All new buses entering the London fleet will be zero-emission to help us to decarbonise public transport and further enhance air quality much faster than planned.

This step change was announced by the Mayor of London at the Zero-Emission Bus Summit at City Hall on 17 September 2021, and puts us on the path of eliminating diesel along with its tailpipe gases and particulate matter from our buses by 2034 at the latest, which is three years earlier than planned. This will also contribute to the wider plans the Government has to cut CO₂ emissions in the UK by 68 per cent (compared to 1990 levels), by 2030.

London has more than 550 zero-emission buses in its fleet which is helping us reduce our reliance on conventional diesel, cut harmful emissions and reduce CO₂ in the capital. We are aiming for 10 per cent of our 9,000-strong fleet to be zero-emission by the end of 2022. However, supply chain disruption and shortages of components in the manufacturing sector may put this at risk, as well as the disruption caused by power upgrades at bus garages across London. The fleet includes 20 double-deck zero-emission hydrogen fuel-cell buses operating on route 7 from East Acton to Oxford Circus, launched by the Mayor on 23 June 2021, supported by a bespoke refuelling station at Perivale, Ealing. We have harnessed this technology in London before to help us reduce bus fleet emissions and, like pure electric buses, it ensures our buses emit nothing except water vapour. We will continue adding zero-emission buses as

quickly and affordably as we can so that we can make the entire fleet zero emission by 2034, with options for bringing this forward to 2030 if support for vehicles and infrastructure can be provided by the Government.

Improving London's Air Quality

Ultra-Low Emission Zone Expansion

In 2019, we introduced the world's first 24-hour Ultra-Low Emission Zone (ULEZ) in central London. This has had a transformational impact on air pollution, contributing to a 44 per cent reduction in roadside nitrogen dioxide levels within its boundary.

From 25 October 2021, the existing central London ULEZ was expanded up to, but not including the North Circular Road (A406) and South Circular Road (A205), creating a much larger zone that will help improve air quality for millions of Londoners. Cars, motorcycles, minibuses (up to 5 tonnes), vans (up to 3.5 tonnes) and other specialist vehicles driving within the boundary will need to meet the required ULEZ emissions standards or pay a daily charge.

The expanded ULEZ has the most stringent emission standards, operates for longer hours and covers the largest area of any charging scheme in Europe. Early indications show that 87 per cent of vehicles travelling in the zone already meet the ULEZ standards. This is a dramatic increase in compliance compared to 39 per cent in February 2017, when changes associated with ULEZ began. This means that Londoners are already experiencing the benefits of cleaner air. This is supported by new data, published in October 2021 by the Clean Cities Campaign, that London drivers are ditching diesel cars six times faster than the rest of the UK.

Scrappage Schemes

We have continued to operate the Mayor's scrappage schemes to help drivers scrap their older, more polluting vehicles to meet required emissions standards. To date, the schemes have supported the scrapping of nearly 10,000 vehicles, with more than £43.7m of grant payments issued. On 19 August 2021, a further £5m of funding was secured to enable the ULEZ car and motorcycle scrappage scheme to extend, which brings the total investment up to £61m. The availability of this important mitigation measure for those who are disproportionately affected by the ULEZ expansion will help to remove up to 2,500 additional polluting cars and motorcycles from London's roads.

Electric Vehicle Infrastructure Strategy

On Friday 15 October 2021, the Mayor of London, Sadiq Khan published a draft summary of his 2030 Electric Vehicle (EV) Infrastructure Strategy.

London's ongoing investment in electric vehicles is tackling the twin dangers of air pollution and climate change. This supports the Mayor's wider target of decarbonising the transport network and achieving a zero carbon London by 2030.

The EV charging infrastructure in London now accounts for approximately a third of the UK's total charge points and represents a 55 per cent increase in EV charging points delivered between 2019 and 2021.

Our own modelling that has just been carried out estimates that by 2030 London could need between 40,000 – 60,000 charge points, of which up to 4,000 will be rapid charge points that could fully charge a vehicle in as little as 20 minutes.

This means that there will soon be many more EV charge points across the capital, which will level up infrastructure access across inner and outer London. This will better support access for all users especially those whose travel is essential, those without off-street home charging, and those high mileage users whose regular recharging needs will be better served by the more geographically spread out charging points.

The 2030 EV Infrastructure Strategy is due to be published in full later this year.

Air Quality Education Campaign

The campaign continues to inform drivers about the contribution driving makes to poor air quality and to explain the need for the forthcoming ULEZ expansion. A range of air quality advocates feature in online videos, radio adverts and interviews including Choked Up, a group of young Londoners campaigning for cleaner air, Jonathan Grigg, Professor of Paediatric Respiratory and Environmental Medicine at Queen Mary University, Rosamund Adoo Kissi-Debrah and Sarah Woolnough, Chief Executive Officer at the British Lung Foundation and Asthma UK.

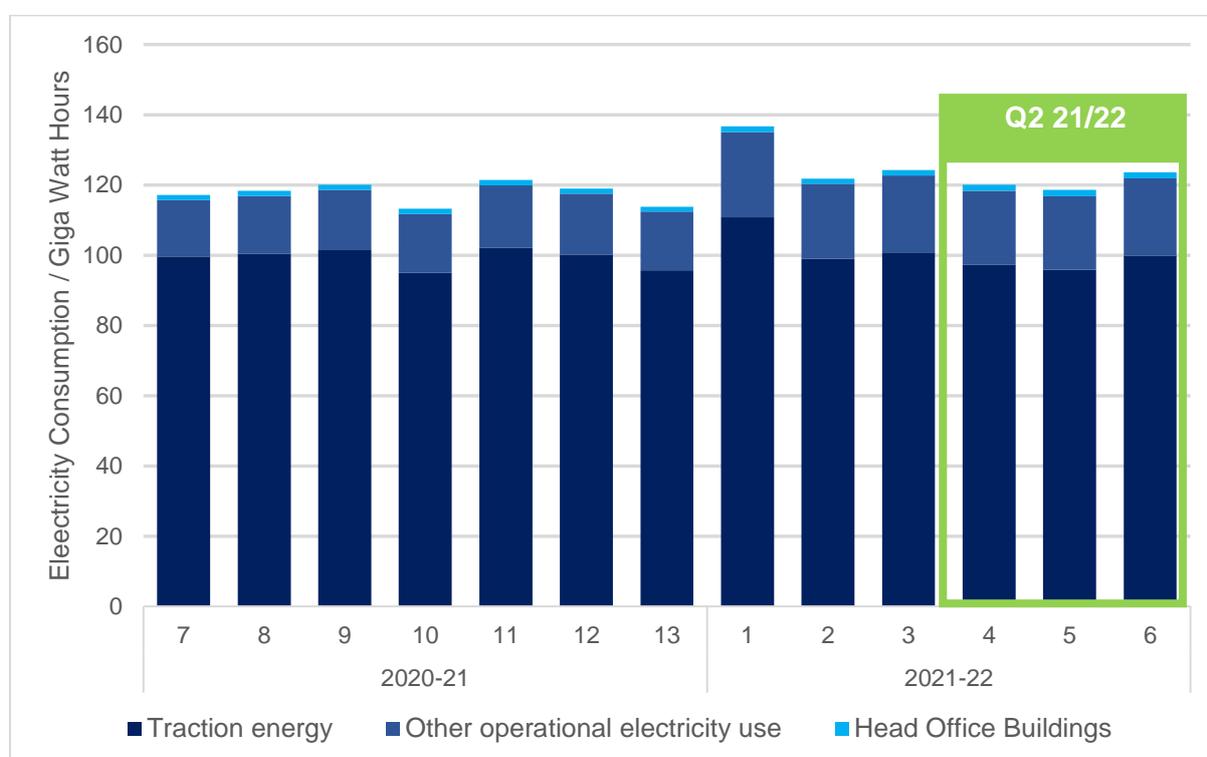
Energy consumption and carbon emissions from our operations

The coming years are crucial in our fight to prevent devastating climate change. The UK must make significant reductions in its carbon emissions if it is to meet its legally

binding goal of reaching net-zero carbon by 2050. In London, the Mayor has set an ambitious goal of London becoming carbon neutral by 2030.

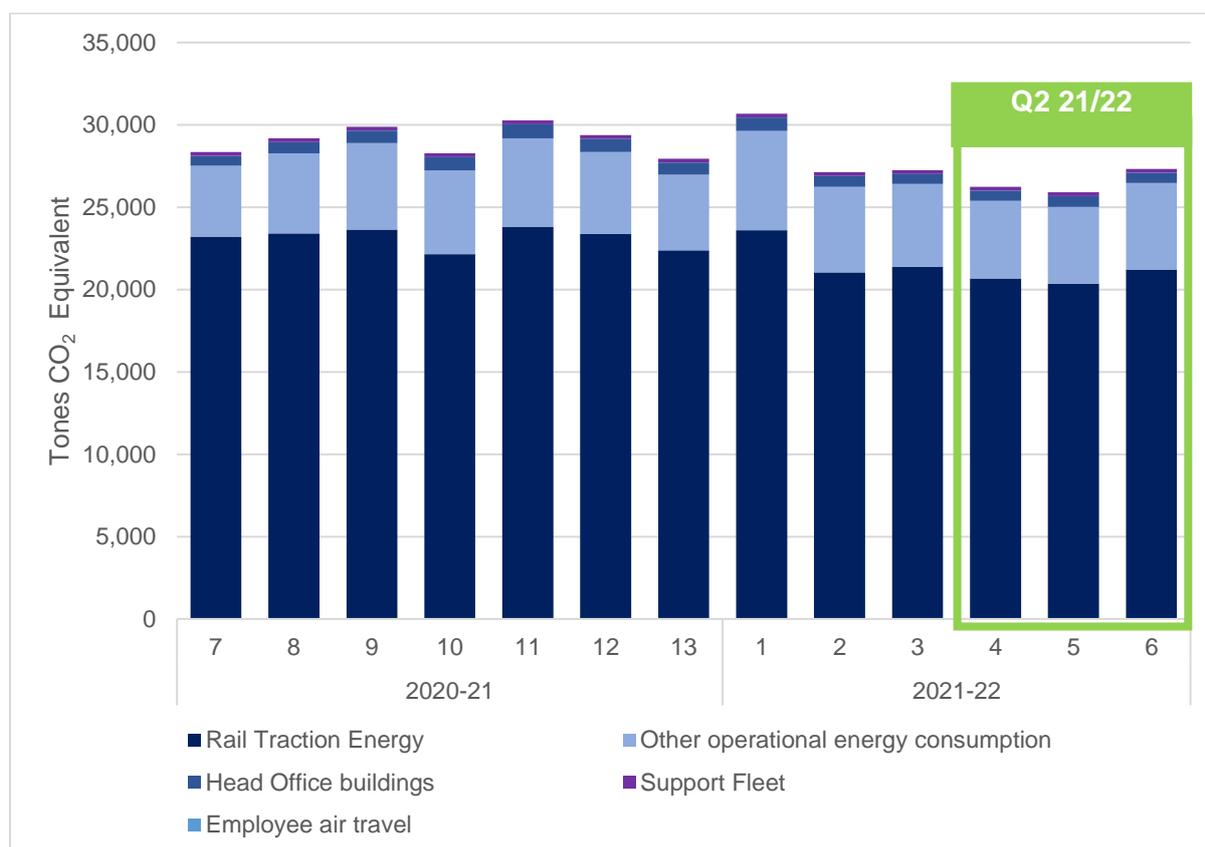
Transport is responsible for more than a quarter of London’s carbon emissions, and this is increasing as other sectors decarbonise. We play a vital role in providing low carbon public transport to Londoners and in promoting walking and cycling. However, we must also lead by example and reduce carbon emissions from everything we do.

Electricity consumption - provisional (giga watt hours) – 2020/21



Electricity consumption in Quarter 2 reflected the normal operation of our services. Total consumption for the first half of this year was 17 per cent higher than the equivalent period last year due to reduced service levels in that period as a result of the pandemic.

CO₂ emissions, excluding buses (tonnes) – 2021/22



Carbon dioxide emissions from operations, excluding buses, track closely to electricity consumption. Electricity consumption increased by 17 per cent for the first half of this year compared to last as rail service levels returned to normal. Carbon emissions were only 7 per cent higher than in the first half of 2021/22, partly offset by grid decarbonisation.

Switching to LED Solutions at Our Bus Shelters

As we maintain more than 12,000 bus shelter assets, switching to light emitting diodes (LED) solutions has the potential to provide significant cost, maintenance and associated carbon savings across the network. LEDs are energy efficient alternatives to conventional fluorescent and halogen lighting, providing on average 50 to 75 per cent more efficient lighting – delivering more lighting output per watt of electricity. Reducing our electricity consumption means we reduce our carbon emissions, which is the key aim of this work and is vital as we work towards a zero carbon London by 2030.

The team measures the light output from the proposed courtesy light (the passenger light that sits above the information panel) and advertising panel edge-lit solutions to see how they fair on street. There are currently two advertising panel trials and one courtesy light installed on shelters in Old Kent Road, with plans to install two more to be able to compare products. This will help inform how the team takes the project forward and rolls out sustainable lighting across our network to provide much-needed environmental benefits while at the same time keeping our customers safe and our advertising panels bright.