



# Our work to ensure a safe, sustainable transport network for London

Safety, health and environment annual report 2022/23



# Contents

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**3 About this report**

---

**4 Commissioner's foreword**

---

**5 Chief Safety, Health and Environment Officer's foreword**

---

**6 Key events from 2022/23**

---

**7 Our performance**

8 Our scorecard

9 Performance summary

---

---

**10 Safety**

11 Keeping our roads safe

15 Reducing road danger

23 Safety on public transport

25 Safety on our Capital projects

28 Workplace violence and aggression

---

**32 Health**

33 Supporting good health

35 Wellbeing for all

---

**36 Environment**

37 Delivering for the environment

38 Improving air quality

40 Best environmental practices

42 Tackling the climate emergency

47 Growing a greener city

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We use data from our operations to inform and improve our work

# About this report

## Evaluating our work to improve safety, health and environment outcomes in 2022/23

Throughout the report, 'our customers' refers to direct users of our services. 'Our workforce' includes 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 from the police. The tragic suicides that happen on our public transport network are not included in the data we collect.

Unless otherwise stated, 'streets' refers to all of London's roads, including those for which London boroughs are the legal authority. 'Our roads' refers to the TfL Road Network.

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 financial year from 1 April 2022 to 31 March 2023. Some data is provisional and is subject to change.

# Commissioner's foreword

Safety, the environment and health and wellbeing are at the heart of TfL's purpose

As we work to win back customers and rebuild our finances, it is critically important that we continually improve safety and act to improve London's environment.

In the values we embrace as an organisation and in the priorities I have set out as Commissioner, providing safe and sustainable transport is the absolute focus of Transport for London.

Our colleagues are at the core of our ability to serve London. Their safety, health and wellbeing must be central to the way that we operate as a business, ensuring that everybody gets home safe and healthy every day.

Safety is also fundamental for our customers. Building and maintaining trust with customers is based on providing a safe, reliable and affordable service. Safety is the foundation of the transport service we offer the capital, not just for those using public transport but equally for those walking, cycling and driving on the road network.

It is clear that for London to thrive in the future our transport services must be resilient to the changing climate and promote cleaner air by reducing carbon and pollution.

We must also play our part as an organisation in supporting the green regeneration of London, with initiatives such as wildflower verges beside our roads providing important habitats and corridors for plant and animal life.

This report sets out some of the successes and improvements we have made in the past year across safety, health and environment (SHE) but is also clear on the challenges and the areas where we need to redouble our focus and efforts.

I am pleased to see the progress that has been made, with longer-term strategic trends showing improvements in road safety, customer and colleague safety and our environmental performance. However, we must never be complacent, and will continue to focus on improving our safety, health and environmental performance.



**Andy Lord**  
Commissioner  
Transport for London



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'In the values we embrace, providing safe and sustainable transport is our absolute focus'

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# Chief Safety, Health and Environment Officer's foreword

## We are learning lessons from the pandemic and resetting our focus on longer-term objectives

This report reflects on the period from 1 April 2022 to 31 March 2023 when London had emerged from the immediate post-coronavirus pandemic period and began to return to a more normal way of operating.

In 2022, we reached a medium-term funding agreement with the Government to 31 March 2024. While this is more constrained than the position pre-pandemic and does not give long-term certainty, it has meant that we can refocus on vital investment in making SHE improvements for our customers, workforce and for London.

Our strategic analysis shows that while we have made good progress, we are not yet on track to achieve our Vision Zero goal of eliminating deaths and serious injuries from London's transport network. We will need to redouble our efforts and target our resources towards making London a city safe for everyone.

Perhaps the most pressing issue of our time is the change in the global climate. We are striving to minimise our impact and recognise that climate change is already taking place and has the potential to affect the safety and reliability of our services.

Consequently, in early 2023, we published our Climate change adaptation plan. This sets out a framework for action to help us make our network more resilient in the face of a changing climate and more extreme weather events, as well as work with other organisations to tackle this urgent issue.

While COVID-19 continues to cast a long shadow, the past year was one in which we were able to refocus on our longer-term objectives. I am truly proud of the progress we have made in all these areas, while adjusting to a new way of life. As we continue to move forward and London moves on, it is crucial that we stay focused on improving the quality of safety, health, wellbeing and the environment for all Londoners.



**Lilli Matson**  
Chief Safety, Health and Environment Officer



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‘While COVID 19 continues to cast a long shadow, I am proud of the progress we have made while adjusting to a new way of life’

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# Key events from 2022/23

Highlights from the past year



**June 2022**  
New analysis of the Direct Vision Standard shows a 64 per cent reduction in serious injuries involving an HGV since 2017



**July 2022**  
Campaign to raise awareness of rules around mandatory cycle lanes on the TfL Road Network



**August 2022**  
We announce that from September 500 e-bikes will be available for hire as part of the Santander Cycles scheme



**September 2022**  
The GLA Group launches its Responsible procurement implementation plan



**October 2022**  
Four Lines Modernisation safety week, with a series of events involving 200 TfL staff and 100 staff from our main supplier Thales



**November 2022**  
Rollout of body-worn video cameras to customer-facing teams is complete



**December 2022**  
The Mayor announces expansion of the ULEZ across all London boroughs from 29 August 2023



**January 2023**  
£110m scrappage scheme launches to support low-income and disabled Londoners, small businesses and charities before ULEZ expansion



**February 2023**  
Our first power purchase agreement tender launched to ensure our operations are net zero by 2030



**March 2023**  
We publish our Climate change adaptation plan on managing weather risks for safety and reliability on our network



**April 2022**  
Our final submission of the Adaptation Reporting Power sets out our strategy and measures for adapting to climate change



**May 2022**  
The Well@TfL health bus begins delivering on-site health checks, health surveillance and periodic medicals for colleagues

# Our performance

We aim to help people to move across London safely and sustainably, in line with the goals of the Mayor's Transport Strategy



# Our scorecard

Our performance scorecard is a key tool that we use in monitoring our annual progress on a range of agreed measures

Measure	Unit	2022/23 target	2022/23 actual	Status
People killed or seriously injured in road traffic collisions	Rate of people killed or seriously injured per million journey stages	0.33	0.29	Achieved
People killed or seriously injured in road traffic collisions in or by a London bus	Rate of people killed or seriously injured per million journey stages	0.020	0.018	Achieved
Customers – all injuries	Rate of all injuries per million journeys	2.58	2.48	Achieved
Workforce – all injuries	Absolute number of workforce injuries	1,348	1,550	Not achieved
Green - reduce carbon emissions	Carbon dioxide emissions from our operations and buildings (ktonnes CO <sub>2</sub> e)	845	814	Achieved

Our role is to ensure a safe, sustainable transport system for all Londoners, while delivering the goals of the Mayor's Transport Strategy.

This year, we continued to use a rate-based approach to target setting, to reflect fluctuating travel patterns during the pandemic. We will revert to tracking absolute numbers in 2023/24.



# Performance summary

We have made progress in many areas of our mission to deliver Vision Zero, but there is more to do



## Deaths and injuries reduced

In 2022/23 we met our scorecard targets for road safety and customer injuries. We narrowly missed our safety target for workforce injuries, but nevertheless achieved a reduction in serious injuries compared to 2021/22.

Road safety data shows that this year we achieved a 38 per cent reduction in deaths and serious injuries compared to our 2005-09 baseline, and a 54 per cent reduction in fatal or serious injuries on or by a bus.

While this is positive progress, it has fallen short of the strategic targets we have adopted as part of our progress towards Vision Zero, and shows that we must continue to focus our efforts in this area.

Performance in our Capital delivery area in 2022/23 was positive. The total number of injuries fell to 79, which was 25 per cent less than last year's total and included a reduction in more serious injuries.



## Workforce safety

To improve workforce safety, we have continued with our strategy to tackle work-related violence and aggression (WVA).

During 2022/23, there were more than 10,000 reported incidents of violent or aggressive behaviour by members of the public towards our staff. This included more than 1,400 physical assaults.

We have strengthened our prevention, support and investigation teams, and updated training for frontline managers on responding to WVA incidents and supporting colleagues.

We have supplied more body-worn cameras to our customer-facing staff, as well as 500 emergency communication devices.

We continue to work with police on targeted operations to tackle illegal and anti-social behaviour on the transport network and enforce our byelaws.



## Workforce health

This year, short-term absence and sickness among our people was dominated by COVID-19, reminding us that while the pandemic may be over, COVID-19 continues to circulate in the population.

Mental health and musculoskeletal conditions remain the largest cause of long-term absence, in line with the national average.

In 2022/23 our Occupational Health and Wellbeing teams progressed a number of initiatives, such as Well@TfL and the Roczen health programme.



## Environment initiatives

As part of our ongoing commitment to improve London's air, the Mayor announced the expansion of the Ultra Low Emission Zone London-wide on 29 August 2023.

In the effort to ensure Londoners can breathe fresher and cleaner air, another target is to aim for the transformation of our vehicle fleets to zero emission, as well as supporting broader efforts to clean London's air.

Our environment work has focused on delivering the commitments set out in our Corporate environment plan, challenging the culture and understanding of our people, particularly by promoting carbon literacy training.

We also published our Climate change adaptation plan in recognition of the effects of climate change that have already begun to affect our services.

52%

reduction in people killed in road traffic collisions



290km

of safer, high-quality cycle routes over the past five years

840

workplace health checks for staff



7,000

visits across the network by Enforcement teams

# Safety

We have worked to improve safety for our customers and workforce as travel patterns continue to evolve in the post-pandemic period



# Keeping our roads safe

Vision Zero aims to eliminate all deaths and serious injuries on London's streets by 2041

Every death or serious injury on our streets is devastating, bringing heartache and tragedy to all those involved. Our response must be to create a safe road system, with every component working together – safe speeds, safe streets, safe vehicles and safe behaviours – so that we can reduce road danger and protect Londoners from harm.

The Mayor's Transport Strategy sets out the overall Vision Zero 2041 ambition. Interim targets were set to reduce road deaths and serious injuries by 65 per cent by 2022 (against the 2005-09 baseline) and 70 per cent by 2030 (against the 2010-14 baseline).

The strategy sets even-more ambitious targets for our buses, including the 2022 interim target to reduce the number of people killed or seriously injured on or by a bus by 70 per cent against the 2005-09 baseline and a 2030 target of nobody killed on or by a bus.

While this is an ambitious goal, there are examples that prove it is possible, such as Oslo and Helsinki's achievement of zero road deaths in 2019.

In 2022, the reduction in deaths and serious injuries compared to our 2005-09 baseline was 38 per cent lower for all injuries and 54 per cent lower for those on or involving a London bus. While this is positive and welcome progress, we did not achieve our ambitious targets of a 65 and 70 per cent reduction, respectively.

Within the overall performance there were some particularly positive areas including:

- The number of people killed in collisions has reduced by 52 per cent and is the lowest on record, excepting the pandemic-affected years of 2020 and 2021
- The number of people killed in collisions involving London buses has reduced by 65 per cent
- The number of children killed or seriously injured has reduced by 63 per cent
- The number of people killed or seriously injured in collisions involving car occupants has reduced by 70 per cent

However, we must redouble our efforts and continue expanding our road safety programme so that we can meet our Vision Zero targets.

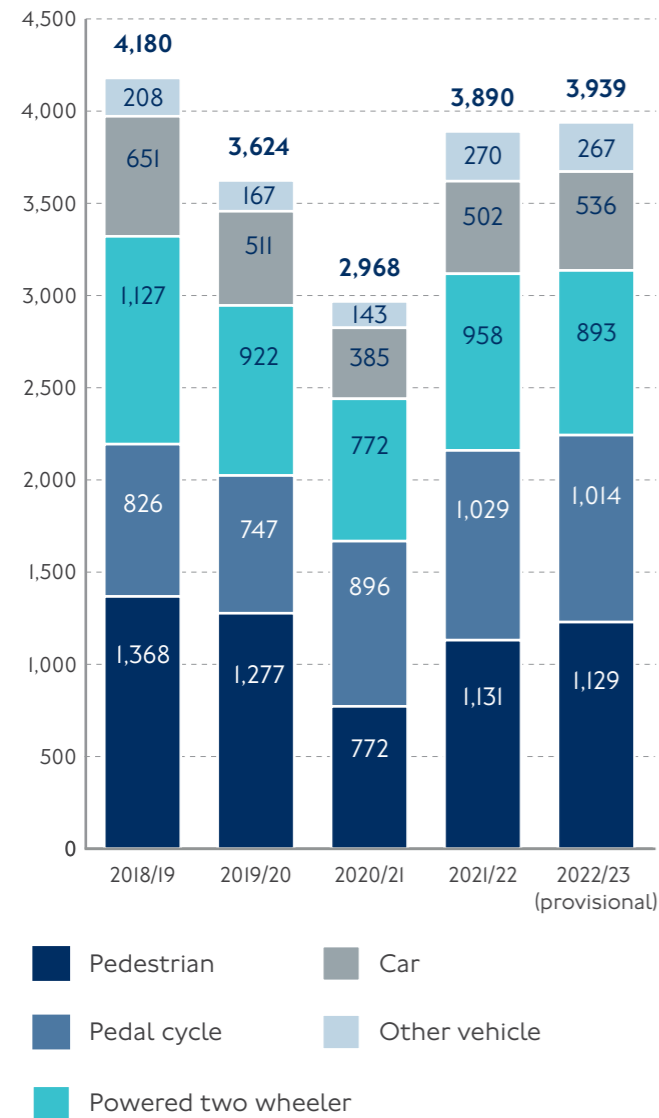
We must redouble our efforts and continue expanding our road safety programme so that we can meet our Vision Zero targets

80%

of people killed or seriously injured on London's roads were walking, cycling or riding a motorcycle



**People killed or seriously injured by mode from 2018/19 to 2022/23**



While the overall number of people killed or seriously injured in the last two financial years is broadly similar to the pre-pandemic period, the make-up of who is being killed or seriously injured has changed.

Our data shows that 3,939 people were killed or seriously injured on London's roads in 2022/23. Ninety-one people were killed and 3,848 were seriously injured. Approximately 80 per cent of people killed or seriously injured were walking, cycling or riding a motorcycle.

There have been increases in the number of people killed or seriously injured while cycling and those using 'other vehicles', including electric scooters. This partly reflects growth in travel by these modes over the pandemic period.

In contrast, the last two financial years show a reduction in the number of people killed or seriously injured while walking or using powered two-wheelers, compared to the 2017-19 pre-pandemic average. This most likely reflects continued changes in commuting travel patterns.

Considering the longer-term strategic trend against our baseline, serious injuries of people cycling have risen, but fatalities have fallen by more than half. The increase in serious injuries is lower than the increase in cycle journeys, indicating that cycling has become safer, but also requiring us to continue to roll out safety measures.

## Supporting victims and families

Lives of victims, their families and loved ones are changed as a result of a serious collision, but most are not getting the support they need.

We are exploring options for enhancing victim support through agencies that specialise in road trauma support.

We aim to increase the number of people supported and improve the offer of support to people who are bereaved or left with life-changing injuries.

We are working with the Metropolitan Police Service on a process for making a direct referral to support services in the aftermath of a collision, removing the burden from victims and bereaved families of having to seek out help.

Source: STATS19

Numbers for 2022/23 are provisional and subject to change

# Inequalities in road danger

## Some Londoners are more at risk than others of being involved in a collision

In April 2023, we published a report, Inequalities in road danger in London 2017-21, which showed that deprivation, gender, age and mode of transport all have a significant impact on a person's risk of being killed or seriously injured in a collision.

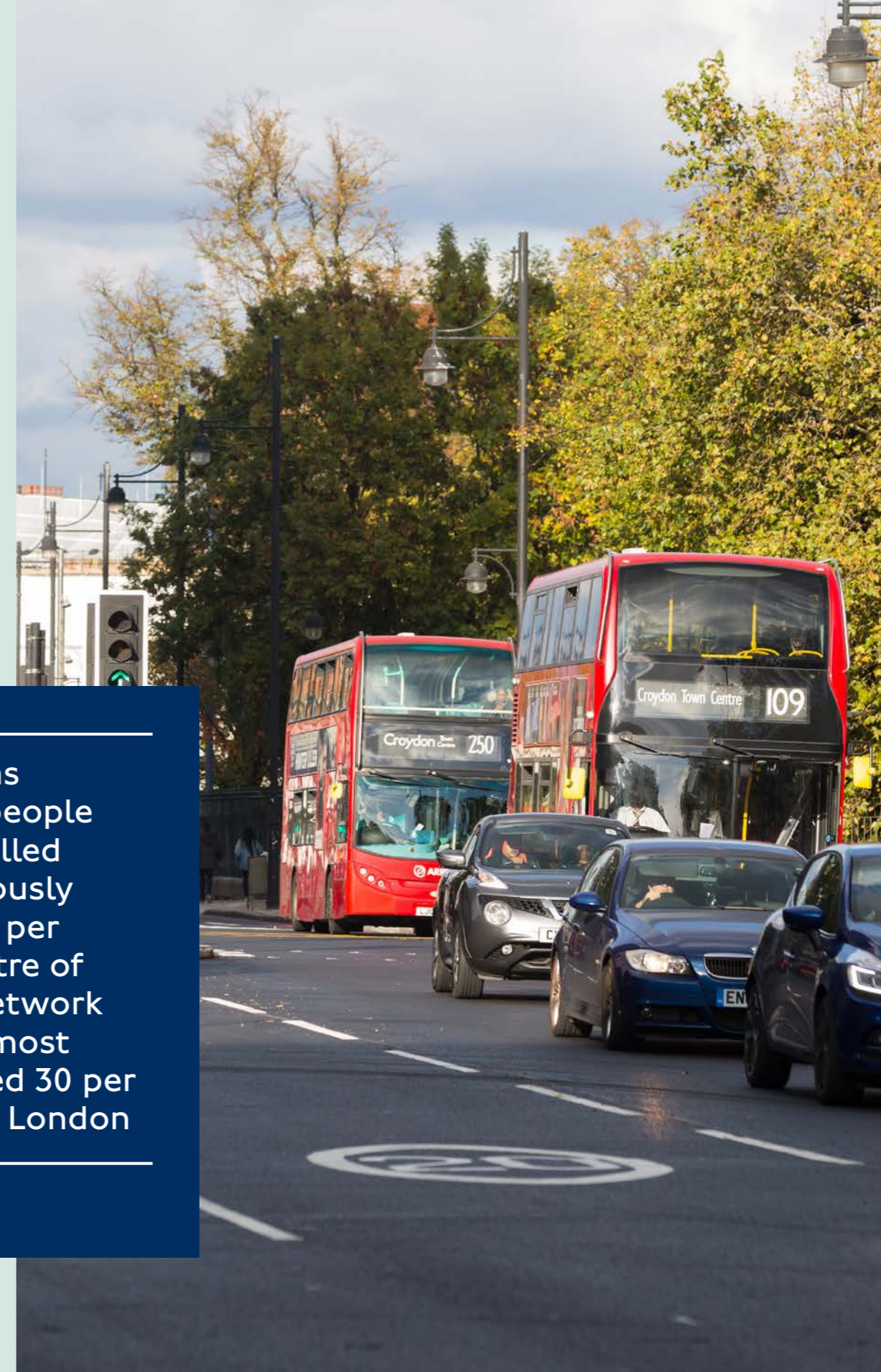
For the baseline average in 2017-2019:

- Deprivation: Twice as many people were killed or seriously injured per kilometre of road network in the most deprived 30 per cent of London, compared to the 30 per cent least deprived areas. In addition, almost twice as many people living in the most deprived 30 per cent of London are killed or seriously injured in road collisions, compared to people living in the least deprived 30 per cent per 1,000 resident population
- Gender: Per thousand people, more men are injured than women. This difference between the sexes increases with deprivation and injury severity. Men have more than double the rate of fatal or serious injuries per thousand residents than women living in the most deprived 30 per cent of London
- Age: The 16-30 age group has the highest casualty rate, followed by the 31-59 age group
- Higher-risk communities: Young men (aged 16-30) living in the most deprived 30 per cent of London and riding motorcycles have the highest rate of being killed or seriously injured, followed by young men (aged 16-30) living in the middle deprivation (IMD 4,5,6,7) 40 per cent of London, riding motorcycles.

We are working in partnership with the boroughs, police and other stakeholders to directly tackle road danger and continue to work on a number of major programmes to make London's roads and the vehicles using them safer. However, this research shows that continued action is needed to achieve the Vision Zero goal and to protect communities shown to be at higher risk of collisions.



Twice as many people were killed or seriously injured per kilometre of road network in the most deprived 30 per cent of London



We're taking action to reduce safety inequality on London's roads

# Safety on our buses

## Our work to prevent people being killed on, or by our buses

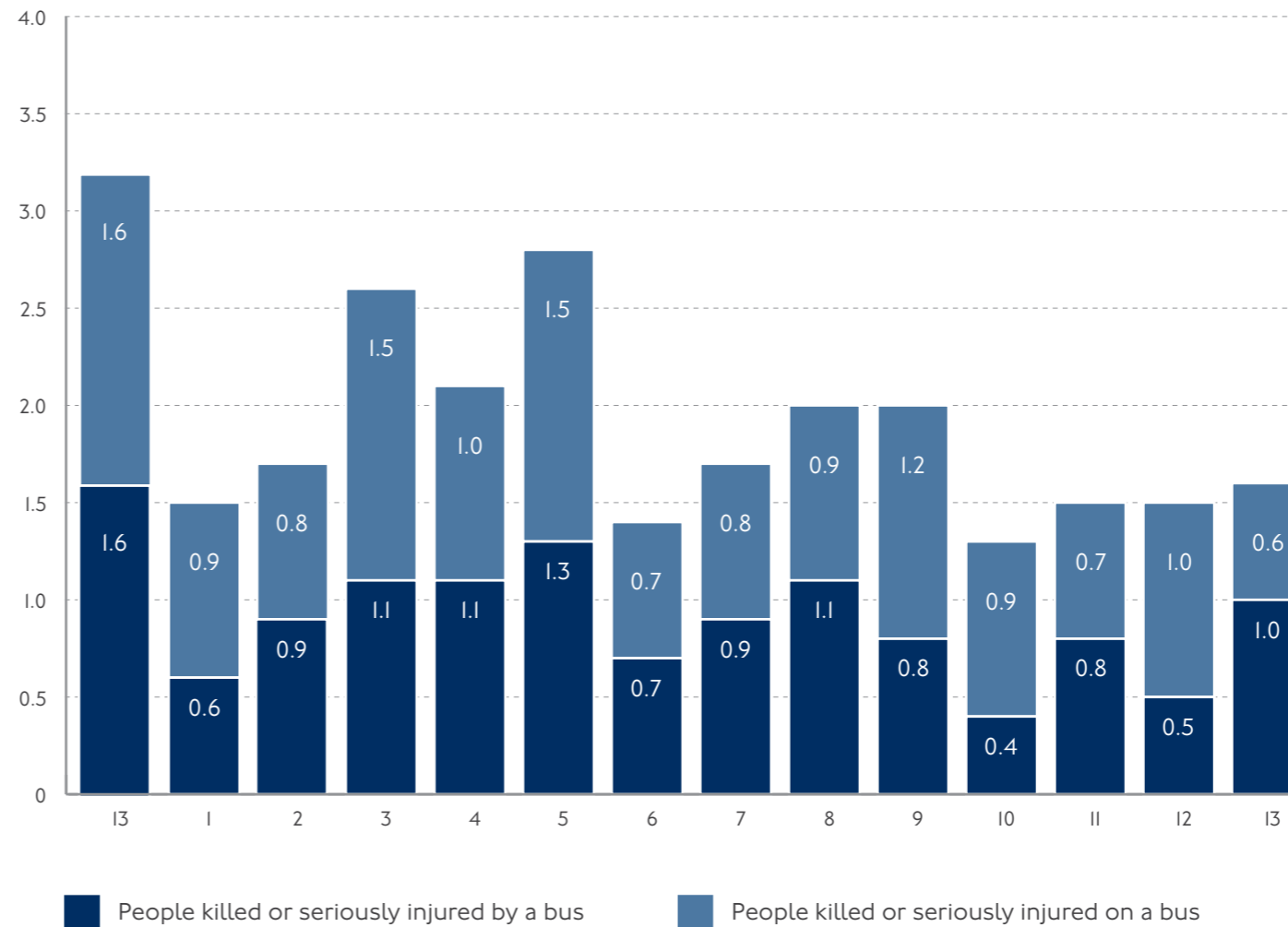
Overall, in 2022/23, we saw higher numbers of serious injuries involving a bus compared to the 2017-19 pre-pandemic average.

Our data shows that in 2022/23 there were 236 people killed or seriously injured on or by a bus.

There were unusually high numbers of bus passenger serious injuries, with slips, trips and falls being the most common type of incident.

The risk of a bus being involved in a collision that kills or seriously injures either a bus passenger or another person on the roads has fluctuated throughout the 2022/23 financial year but remains extremely low.

Rates of fatal or serious injury to people on or by a London bus from Period 13 2021/22 to Period 13 2022/23 (per 100 million journey stages)



# Reducing road danger

We are increasing our progress towards the interim Vision Zero target for 2030

## Tackling speeding

Lowering vehicle speeds in London is key to reducing both the likelihood of a collision and the severity of the outcome. At present, 20 of the 33 London boroughs (including the City of London) have committed to, or are consulting on, a 20mph default limit. More than half of London's roads now have a 20mph speed limit.

Results from Phase I of our programme to lower speed limits in February 2023 showed that since a 20mph speed limit was introduced to all our roads within the Congestion Charge zone in March 2020, collisions had reduced by 25 per cent. Collisions involving those walking, cycling or motorcycling had reduced by more than a third.

The second phase of the programme, to reduce the speed limit by 10mph on sections our roads, is progressing well. It aims to ensure that there is a 20mph speed limit on 220km of our roads by May 2024. As of March 2023, 142km is in place.

In the past year we also consulted the public on the next phase of our programme, where we propose to lower speed limits in late 2023. Detailed design is underway on proposals to lower the speed limit to 20mph on 65km of our roads in Greenwich, Hounslow, Kensington and Chelsea, Lambeth, Lewisham, Merton, Richmond, Southwark, Sutton and Wandsworth.

Construction of raised pedestrian crossings is complete on the A10 Great Cambridge Road in the London Borough of Enfield and will soon be started at eight locations in Westminster. Following speed-limit reductions at these sites in 2021, the aim of the raised crossings is to further reduce danger to people walking and increase compliance with the newly reduced speed limit, as well as making the crossing points more accessible for people with mobility impairments.

Design work is underway on selected roads in Enfield, Hounslow, Merton, Waltham Forest and Wandsworth. A new 40mph speed limit will also be introduced on A4 Bath Road in Hillingdon, to complement proposed pedestrian safety improvements. These projects are scheduled for delivery by May 2024.

More than half of London's roads now have a 20mph speed limit



## A 20mph speed limit across five north and east London boroughs

In March 2023, we introduced a 20mph speed limit on 28km of our roads in the boroughs of Camden, Islington, Hackney, Tower Hamlets and Haringey. Consequently, there is now a consistent 20mph speed limit on almost all roads within these five boroughs.



25

reduction in collisions after 20mph speed limit introduced

# Making streets safer for all

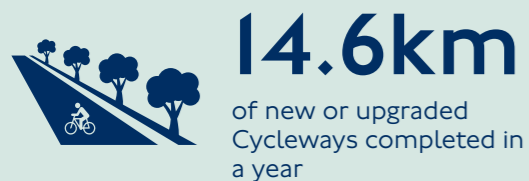
## More walking, cycling and use of public transport will help to reduce danger for everyone

Redesigning streets to reduce conflict between road users is at the heart of our Healthy Streets approach. We analyse road risk to target and prioritise locations for schemes to help people use cars less and walk, cycle and use public transport more.

Sixty-two per cent of all deaths and serious injuries on our roads in 2022/23 involved collisions with cars, so reducing car traffic by encouraging more walking, cycling and use of public transport is central to reducing road danger.

There has been record-breaking growth in London's cycle network over the past five years, with more than 290km of safer, high-quality cycle routes delivered with our borough partners.

Together with the boroughs we have completed 14.6 km of new or upgraded Cycleways since April 2022, with another 13.9km in construction. At the end of 2022, 22 per cent of Londoners live within 400m of the Cycleway network, up from five per cent in 2016.



## Low Traffic Neighbourhood

Low Traffic Neighbourhoods (LTNs) are designed to reduce traffic and road risk in neighbourhoods by preventing motor vehicles passing directly through the area, while retaining access for residents, businesses and emergency services. A review of data from LTNs introduced since 2020 by the University of Westminster Active Travel Academy and the charity Possible found that motor traffic decreased at 74 per cent of count sites within LTNs compared to previous traffic volumes.

## School Streets

Working alongside the boroughs, we have been introducing School Streets, which restrict access to motor traffic at drop-off and pick-up times. In 2022, we published Getting to know School Streets, which presents case studies of five schemes in the boroughs of Southwark, Ealing, Haringey, Redbridge, Southwark and Waltham Forest. Borough officers, school staff and parents all agreed that having a School Street was a positive step towards safer, calmer, cleaner and healthier local areas.



# Making junctions safer

## Our targeted programme is improving safety at collision hotspots

Our Safer Junctions programme, launched in 2017, targets the 73 locations where the greatest number of people have been killed or injured while walking, cycling or riding motorcycles. To date we have improved 43 junctions.

Up to December 2021, the Safer Junctions programme had delivered a 42 per cent reduction in cycling collisions and 19 per cent reduction in pedestrian collisions.

Design work continues on the remaining 30 Safer Junction locations. Construction has started at York Road roundabout in Wandsworth, due for completion in summer 2023. This will deliver safety improvements for motorcycle users in particular.

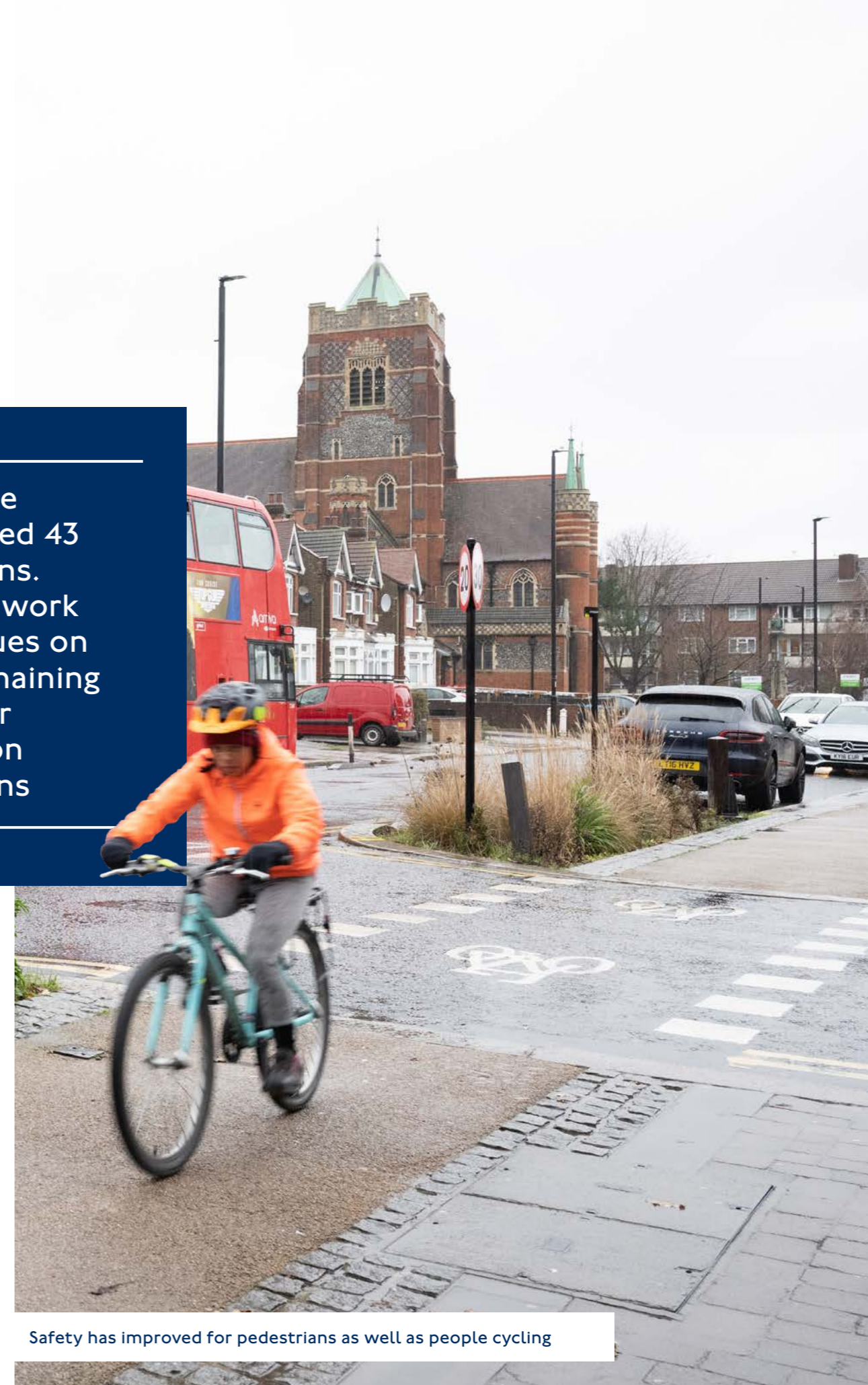
Consultation on proposals to reduce road danger for pedestrians and people cycling at the Battersea Bridge junction with Cheyne Walk ended in January 2023, and the consultation report was published in the spring. This is the second phase of the scheme, following the installation of a new pedestrian crossing over Battersea Bridge in December 2021.

In 2022 we began design work on improvements to pedestrian crossings at the Al Holloway Road / Drayton Park junction. Construction started in late April and is due for completion in spring 2024.

We have improved 43 junctions. Design work continues on the remaining 30 Safer Junction locations

42%

reduction in cycling collisions, thanks to Safer Junctions



Safety has improved for pedestrians as well as people cycling

## Improving bus safety

### Work to prevent people being killed on, or by our buses

Travelling by bus is the safest form of road transport in London. Despite this, our 2022 data shows that we did not meet our target of a 70 per cent reduction in the number of people being killed or seriously injured on or by a bus by 2022.

Progress has been impeded by the pandemic, but we have developed a new evidence-led strategy to ensure we are able to meet these challenges and get back on target.

Our existing Bus safety programme will continue to drive major safety improvements, helping us reach our target of no-one being killed on or by a bus by 2030. The new strategy sets out how we will further improve bus safety. The focus for the coming year will be improving customer safety and reducing injuries among our passengers, which will include a new bus safety innovation challenge.

The current Fatigue, Health and Wellbeing Innovation Challenge continues to successfully support and deliver projects to reduce fatigue and improve the health and wellbeing of bus drivers. We have also started a project to fit fatigue detection technology in some 450 buses across the London fleet over the next year.



**3,200**

buses fitted with intelligent speed assistance technology

**450**

buses to be fitted with driver fatigue detection technology in 2023/24



## Bus safety standard

**We continue to make our buses safer for all, with 942 buses (more than 10 per cent) already meeting either the 2019 or 2021 standards' safety measures**

By the end of 2024, safety requirements for new buses will include advanced emergency braking, changes to the front-end design of the bus and greater alignment with international General Safety Regulation measures.

Improvements delivered so far include:

- More than 3,200 buses fitted with intelligent speed assistance (ISA) technology, which limits their speed. We expect to fit half of all our buses with ISA by the end of 2024
- A total of 848 buses fitted with camera monitoring systems, helping to reduce blind spots and improve the quality of the driver's vision in poor lighting and weather conditions
- An acoustic vehicle alerting system (AVAS) for quiet-running buses, with 802 buses fitted so far. By the end of 2023, all electric buses will have AVAS fitted

## HGV safety

Since the introduction of the Direct Vision Standard (DVS), we have issued 244,693 permits. Of these, 146,725 were issued for zero-star rated heavy-goods vehicles (HGVs) that have now had safe systems fitted, addressing blind spots and warning other road users of the danger. We issued 122,641 penalty charge notices where HGVs entered London without a permit up to the end of the 2022/23 financial year.

In February 2023, we began a public consultation on the next phase of the DVS scheme, due for implementation on 28 October 2024. We have committed to expanding the scope of the permit conditions so that vehicles with a DVS rating of less than three stars will need to be fitted with the Progressive Safe System (PSS). The components of the PSS will take advantage of technological and regulatory developments over recent years.



Serious injuries involving an HGV have reduced by 64 per cent since 2017

## Intelligent speed assistance (ISA) in the TfL fleet

In January 2023, we published an evaluation of the ISA retrofit programme to our maintenance vehicle fleet.

The evaluation analysed approximately two years' worth of trip and safety incident data from June 2020 to July 2022 to determine how effective the technology has been in our fleet. It found a 62 per cent reduction in speeding incidents involving vehicles fitted with ISA, with reductions seen across all speed limits.

There was also, among other positive findings, no increase observed in the number of harsh braking, harsh cornering or harsh acceleration incidents in vehicles fitted with the technology. This alleviates concerns that ISA fitment may have unintended consequences in terms of driving style. The results from the evaluation are extremely positive and will help us continue to make the strategic case for the inclusion of ISA technology in our fleet and more widely in London.





## Road offences data published

### Publicly available enforcement data helps to monitor our progress

In March 2023 we launched our new Vision Zero enforcement dashboard tool, enabling the media and the public to find and interpret London's roads policing and enforcement data recorded by the police more easily.

The dashboard brings together data supplied by the MPS and the City of London Police. It contains data on arrests, notices of intended prosecution issued by the police for public reports of road traffic offences and for offences detected through London's safety cameras, traffic offence reports issued by police at the roadside, and letters to speeding motorists identified through Community Roadwatch.

The dashboard complements the existing Road danger reduction dashboard, which presents collision data in an accessible format. Information at borough level will be included in future releases when data is available from the police.



## Taking action to reduce road danger

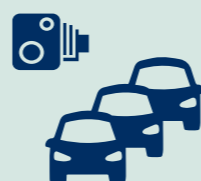
### Tackling illegal behaviour helps to prevent harm to others

The Metropolitan Police Service (MPS) is a key Vision Zero partner and undertakes significant and wide-ranging activity to reduce road danger and prevent harm to all road users. This includes prevention and intelligence-gathering activities, action to tackle the root causes of problems, community engagement and education initiatives, and actively monitoring and targeting high-risk vehicles and drivers.

The MPS dealt with 751,069 road traffic offences through enforcement action in 2022/23. Enforcement action includes traffic offence reports, which are issued by police at the roadside, and arrests or notices of intended prosecution for offences, enforced through safety cameras or evidence from members of the public (for example headcam or dashcam footage).

The MPS prioritises enforcement on the offences that cause the greatest risk and harm on London's roads. This includes speeding, mobile phone offences, driving under the influence of drugs and alcohol, red-light offences, careless or dangerous driving, driving without a licence or in an uninsured vehicle, or driving while disqualified. During 2022/23, 93 per cent of all road traffic enforcement action taken by the MPS was for priority offences.

In line with our commitments in the Vision Zero action plan progress report, we have been working with the MPS to increase the level of police enforcement to tackle speeding. In 2022/23, we enforced some 650,000 speeding offences (including 92 per cent through safety cameras, six per cent through mobile safety cameras, and two per cent through roadside enforcement). We are working towards having the capacity to enforce up to one million speeding offences by 2024/25.



# 650,000

speeding offences enforced

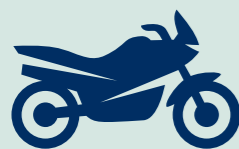
## Improving motorcycle safety

### Our new forum tackles common issues

Motorcycles are the highest-risk mode of transport on the road. In London, they make up one per cent of the traffic and are involved in 27 per cent of cases where people are killed or seriously injured. They are also disproportionately involved in collisions in which pedestrians are injured.

So far, we have engaged with meal and grocery delivery companies directly on Vision Zero and road safety. We have also set up a biannual Motorcycle road safety forum for these companies, the first of which was held on 8 November 2022.

We are using the forum to promote road safety, discuss common road safety issues in the industry and share best practice and information. Following discussions at the first forum and ongoing engagement, we are developing a road safety charter in partnership with the meal and grocery delivery industry.



**27%**

of cases involving death or serious injury involve motorcycles



Motorcycle delivery drivers are at high risk of serious injury

### Safety training for motorcycle delivery riders

The meal and grocery delivery economy is growing in London. Since 2020, UK food delivery app revenue has more than doubled and is predicted to grow further. An estimated 19,000 to 40,000 motorcycle riders are working for food delivery companies. Couriers most commonly use smaller-capacity motorcycles with an engine size of less than 125cc for work.

People riding these smaller-capacity motorcycles make up the majority of serious injuries and a large proportion of fatalities in motorcycle collisions taking place in London. Furthermore, riding for work can carry additional risk if not mitigated.

As such, we are giving beyond-compulsory basic training to motorcycle delivery riders and couriers. This is a one-day training course that we offer free of charge to anyone who wishes to develop their riding skills. Course content includes the Highway Code, maintenance, securing and riding with a load, and the safe use of sat navs.

We are also working with meal and grocery delivery companies to raise road-safety awareness and improve road safety culture in the industry.



## Our e-scooter trial continues

### We have selected operators to run the next stage of the trial

While privately owned e-scooters remain illegal to use in public spaces, they are widely available for purchase. We continue to work with the Roads and Transport Policing Command to ensure that all journeys across the road and surface transport network are safe, secure and reliable.

The Metropolitan Police Service (MPS) has developed a training pack on how to deal with the illegal use of private e-scooters under the Road Traffic Act. During 2022, the MPS seized 1,255 illegal e-scooters.

While private e-scooters remain illegal, the Department for Transport (DfT) has updated its guidance, allowing local authority rental e-scooter trials to continue until 31 May 2024. In response to this, we launched a competitive procurement for operators to run the next phase of the London trial.

Following this procurement we awarded contracts to Dott, Lime and Voi, which will begin towards the end of September.

The continuation of the London trial follows the recent Government announcement of plans to create a new vehicle category in legislation for low-speed zero-emission vehicles, which would include e-scooters. Continuing the trial of rental services will ensure we continue to learn about e-scooters and the role they can play in London's transport offer.

The safety requirements for vehicles in the trial will continue to exceed the requirements set by the DfT and are considerably more robust than those for the most common private e-scooters.

### Continuing our focus on safety

Ten boroughs are participating in the London rental trial, with more than 500 designated parking locations and more than 4,000 vehicles available for hire. Between 7 June 2021 and 9 April 2023, approximately 2.4 million hire trips were taken, averaging a distance of 2.5km per trip. During this time, operators reported no fatalities and 26 serious injuries, based on the STATS19 injury classification definitions.



**1,255**

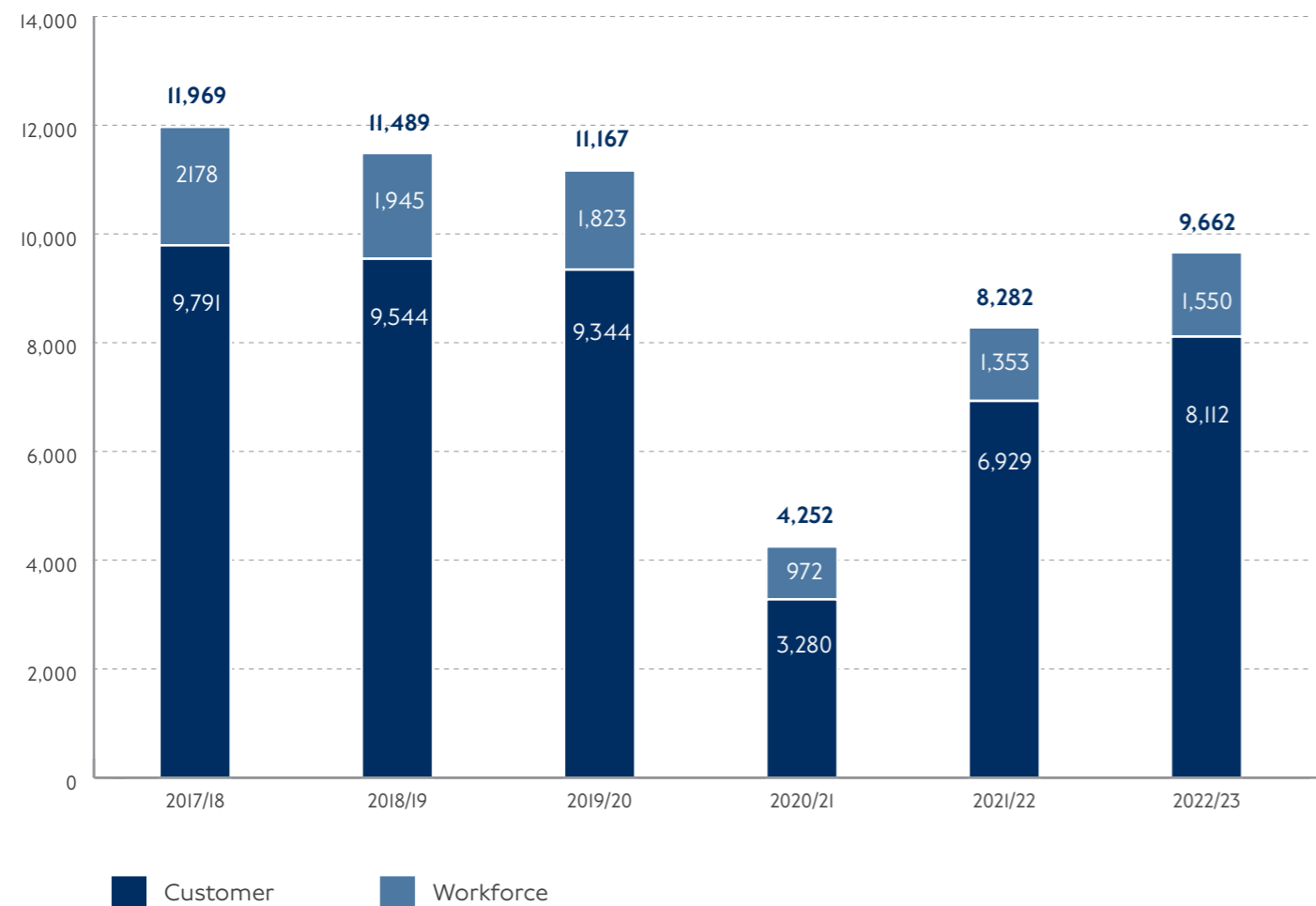
illegal private e-scooters seized by police in 2022



# Safety on public transport

We are continuing to improve safety for our workforce and customers

Customer and workforce injury numbers (all severities) since 2017-18 (total)



In 2022/2023 we had 8,112 reports of customer injuries and 1,550 among our workforce, both of which remain lower than before the pandemic.

Eighteen customers were seriously injured, and four customers were killed on the

public transport network in 2022/2023: two on London Underground, one on trams and one on buses. No-one working on our public transport network was killed.

In 2021/22 there were 19 serious injuries sustained by our workforce.

## Slips, trips and falls

We have held workshops with station colleagues and the Customer Experience team to understand the most common customer behaviours that contribute to slips, trips and falls happening.

This has resulted in a number of actions to reduce incidents, such as improved signage to encourage customers carrying luggage to use lifts.

On our bus network, we've started a pilot with several bus operators to gather additional information about slip, trip and fall incidents. This will help to create a more comprehensive dataset to help us understand the common factors that lead to an incident and take appropriate action.

We know that preventing slips, trips and falls has been a long-standing challenge on our network and have therefore extended the analysis conducted on buses to all our modes. We aim to build a shared understanding of why slip, trip and fall incidents happen and what further interventions are feasible.

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## Fatigue management

Workforce fatigue is an ongoing risk across our operations. In November 2022, we launched our fatigue management plan (FMP) across the organisation.

The FMP sets out 12 activity areas for managing fatigue risk, aligned with regulatory and industry best practice. These include guidance on developing fatigue-friendly rosters and tips for managing sleep.

We have continued to develop a programme to better support our night workers as part of our wider fatigue management activity. The programme will give shift workers advice on how to manage fatigue through physical installations and tailored sessions.

We plan to pilot the approach across different bus stations, maintenance depots and office control centres in 2023/24. Subject to this pilot being successful, we will consider rolling the interventions out further.

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## Track access safety

Safe access to rail-track environments is one of the greatest railway risks in the UK. An internal analysis has identified safe access to our track environments as one of our top SHE risks. However, we are sorry to report that in April 2022 a colleague was struck by a Tube train while carrying out a track patrol on the Metropolitan line. Despite the colleague being discharged from hospital the same day, this was a serious incident and we cooperated fully with a Rail Accident Investigation Branch investigation, as well as carrying out our own internal review.

We have begun a systematic, in-depth look at this key risk, which seeks to establish a holistic view of the causes and consequences of colleagues and members of the public accessing the track. We also aim to strengthen our existing control measures and ensure we take prompt action where possible. For example, we have significantly improved signage at several locations across the London Underground network, including depots and sidings, and in more complex areas, such as multi-track sites and major junctions and locations.

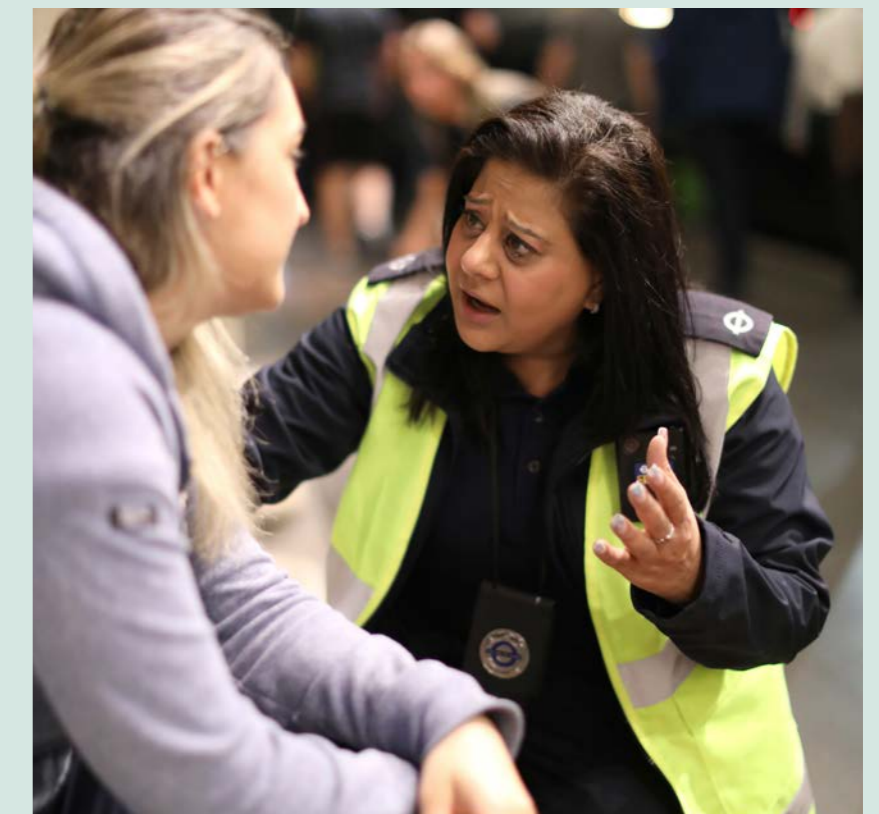
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## Tackling intoxication

Some customers use our network after drinking alcohol and we have an important role in helping to keep them – and our colleagues – safe from the impacts of intoxication. In autumn 2022, as we approached the World Cup and festive season, we launched our first strategy across all modes of transport to tackle intoxication.

As part of this, we worked with the London Ambulance Service to record passenger announcements, reminding our customers to take care when travelling if they've been drinking, which were played on the London Underground and London Overground networks.

We also worked with external organisations to offer customers help and support to make safe travel decisions and adopt safer travel behaviours at hotspot locations. This included working with Westminster Council's Night Stars, and partnerships to deploy trained medics to engage with customers before they encounter harm to themselves or others.





# Safety on our Capital projects

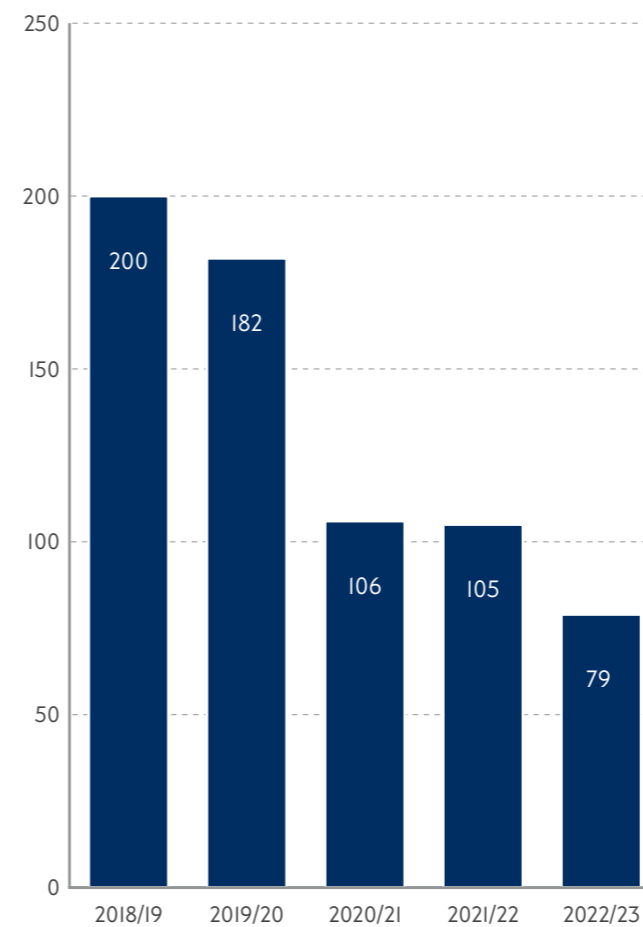
## Injuries to our workforce were down by a quarter

2022/23 was a year of positive safety performance for our Capital teams. The total number of injuries fell to 79, a reduction of 25 per cent on last year's total. Significantly, this included a reduction in more serious injuries, such as those reported under the Reporting of Injuries Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR) and Lost Time Injuries (those that cause a colleague to be absent for one or more shifts).

Notably, the hours worked by our Capital teams also fell this year, as a result of a number of major projects, such as the Northern line extension, Bank station capacity upgrade and Barking Riverside extension, reaching or nearing their conclusion. However, even when the reduction in hours is taken into account, we continue to see a year-on-year improvement in our performance, progressing towards zero harm.

Manual-handling incidents were the most common type of injury to our Capital workforce over the year, closely followed by slips, trips and falls. Among the causes identified, insufficient task planning, inadequate risk assessments and issues with the working environment were particularly prevalent.

Capital delivery workforce injuries (all severities) since 2018-19 (total)





Integrating SHE requirements into our procurement and supplier management processes enables us to manage risks more effectively

We manage risk closely with our suppliers on all projects

## SHE Capital delivery improvement planning

Our Capital delivery and maintenance strategy, published in 2021, aimed to achieve a more coordinated approach to managing and improving SHE across our construction activities. This year, following the introduction of a new Capital team under the Chief Capital Officer, the focus has been on establishing greater consistency in the way we conduct improvement activities to ensure that learning and expertise can be shared across Capital teams.

To enable this we have introduced a new improvement framework with four key areas of priority: people, assurance, environment, and learning and innovation. This enables teams to share best practice, as well as build structured plans to address local needs and priorities. The priority areas will continue to be a focus during 2023/24, as we continue working towards achieving zero harm.

### Managing SHE with suppliers

The majority of our Capital projects are delivered in partnership with the supply chain. To ensure we achieve excellent SHE performance, we have robust procurement and supplier management processes that clearly set out objectives, responsibilities and requirements for how SHE must be managed.

This year, we have been running the Managing SHE with suppliers project, which has involved embedding our SHE requirements directly into our new internal management framework for commercial activities, improving our SHE management system guidance, enhancing governance arrangements and producing a new set of contract requirements for our construction works.

Better integrating SHE requirements into our procurement and supplier management processes enables us to manage risks more effectively and realise opportunities, building a strong foundation for good SHE performance when working with the supply chain.

### Supplier engagement

Working with such a well-established supply chain also gives opportunities to learn and promote the sharing of best practice across the industry. This year, we ran a series of Keeping in touch events with our suppliers, on topics relating to safety, health, environment, sustainability, wellbeing, social value, responsible procurement, and diversity and inclusion.

Building on our successful Zero Harm conferences, which now take place annually, the events allow us to share experiences more frequently when things go well, and to be open and honest when things do not go as planned, so both we and our supply chain can learn from each other. Topics so far have included temporary works, health surveillance, work-related road risk and non-road mobile-machinery emissions, with more to follow in 2023/24.

# Improving our SHE capability

## Measuring and improving our SHE culture

The culture in which we work is fundamental to improving our performance and ensuring SHE is at the heart of everything we do.

To build a more positive and proactive SHE culture, we have been developing a programme that focuses on the way colleagues across the organisation think, feel and act in relation to SHE, in line with our vision and values and wider organisational objectives.

To improve our SHE culture, we must be able to measure our cultural maturity. This enables teams to assess strengths, weaknesses and opportunity areas that can be used to plan improvement activities.

This year, we piloted our SHE culture assessment across a number of teams. In 2023/24, we will start making local assessments using the model, enabling teams to build plans for cultural change.

### SHE management system

Our SHE management system sets out all the policies, instructions and guidelines for managing SHE across the organisation. Last year we began a complete overhaul of the system, to make it simple and easy to use.

This has included streamlining the system onto a more easily searchable digital platform and simplifying and tailoring content to individual roles. There are also digital tools and links to training and education material to support colleagues.

### Auditor

SHE assurance and monitoring is the process of systematically checking that we are complying with the requirements set out in our SHE management system. To make this simpler and more transparent, and to generate data that can support new insights, we have begun digitising all our SHE assurance checks.

This will allow checks to take place using any web-enabled device and capture richer information such as photographs. It will enable us to confirm that all necessary checks are taking place and identify patterns and trends in the types of observation being made.

Both these programmes are scheduled to be completed in 2023/24

## Health and safety toolkit

Taking care of the health of our colleagues is a top priority for us. In April 2022, we reviewed and updated our approach to health surveillance (HS) following a visit by the Health and Safety Executive to one of our depots.

We introduced a new HS action plan to ensure all our colleagues who work with certain chemicals, dusts or fumes have the right checks, so that we can be confident we are protecting their health.

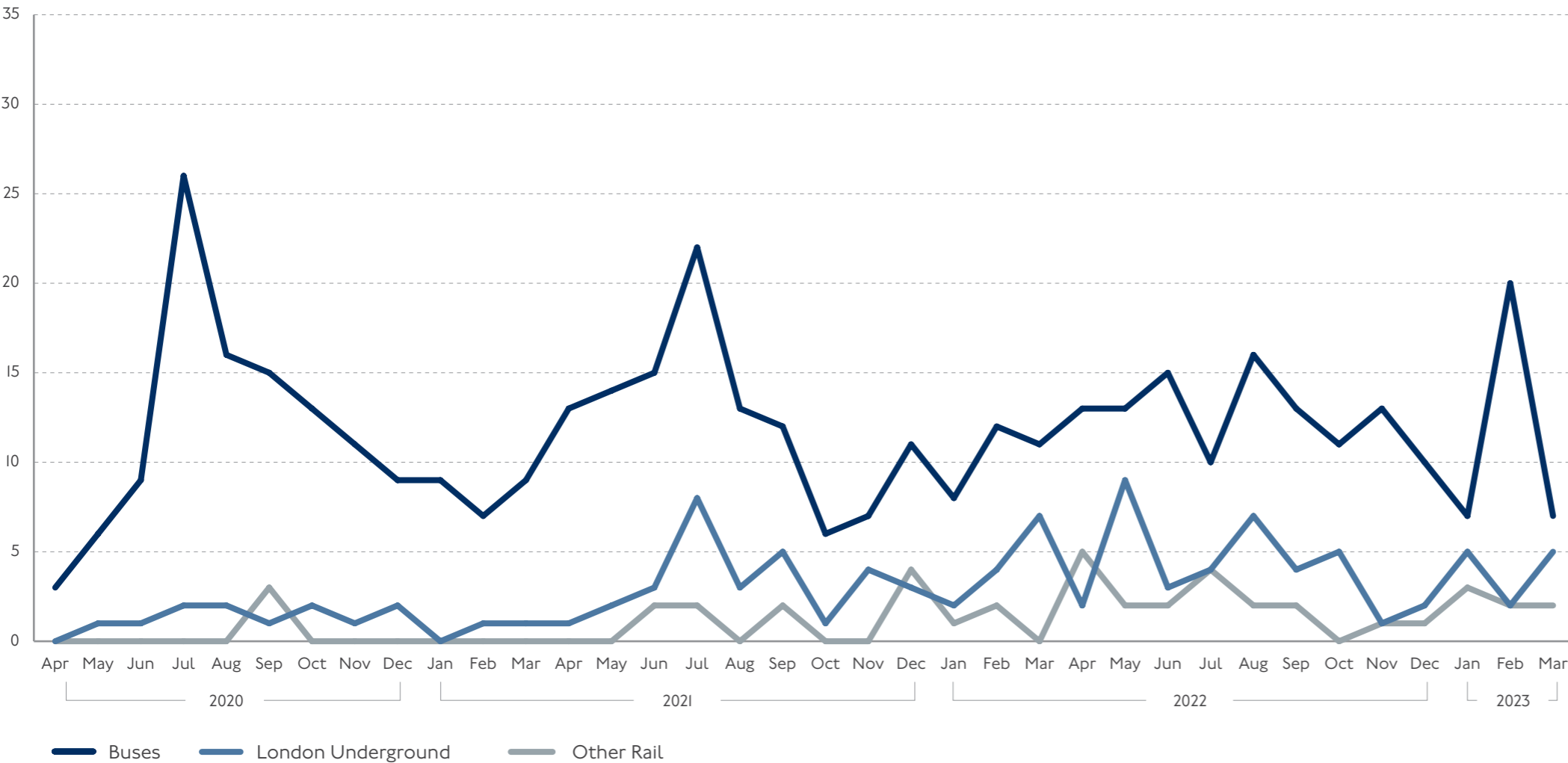
In March 2023 we launched a new, comprehensive 'hearts and minds' communication toolkit. This offered several tools that various operational teams could choose from, so as to provide the best approach for their teams, ranging from posters to toolbox talk information packs and supporting materials.



# Work-related violence and aggression

We are committed to keeping our workforce safe from work-related violence and aggression and supporting colleagues who experience it

**Police recorded work-related violence with injury offences**  
(per number of incidents)



Work-related violence and aggression (WVA) from customers towards our colleagues is both a safety and a wellbeing issue. We know that WVA is under-reported, particularly verbal abuse. Police data for violence with injury offences is a more reliable source for monitoring trends.

Bus-related violence with injury (VWI) offences were three per cent higher in 2022/23 (148 offences) than 2021/22 (144 offences). On rail modes 75 VWI offences were reported to the police, 34 per cent more than the previous year.

Between November 2021 and October 2022 the solved rate for violence and public order recorded offences was 14 per cent – five per cent lower than the previous 12-month period. Solved rates were higher for violent offences (18 per cent) compared with public order offences (nine per cent). The rate varies by mode, with a solved rate of 13 per cent for bus-related offences, 15 per cent for London Underground, and 14 per cent for all other rail modes combined.

The lower solved rate is a result of a combination of factors. An increase in reported WVA offences has resulted in increasing demand on investigative resources. For public order offences there has been a decline in victims wanting to participate in the criminal justice process, particularly buses.

The percentage of colleagues willing to support a police investigation was 67 per cent for violence and public order recorded offences, down from 70 per cent in the previous 12-month period.

Where contributory factors are recorded, 44 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 due to COVID-19 restrictions and fewer road users (36 offences in 2020/21, 62 offences 2021/22).



## Incidents of workplace violence and aggression

### The number of incidents continues to be a cause for concern

During 2022/23, there were 10,004 reported incidents of WVA.

Type of offence	
Physical assaults	1,417 (14%)
Threats	2,589 (26%)
Verbal or gesture abuse	5,996

Incidents by mode	
London Underground	4,605
Buses, Elizabeth line, Rail and other Sponsored Services, CPOS colleagues)	5,399

Triggers, where identified	
Fare evasion	2,967
Dispute over means of payment	857
Customer aggression / antisocial behaviour	2,235
Poor customer behaviour following staff involvement	942
Following a dispute or customer complaint	960
Road rage	274
Unprovoked	145

Of all reported WVA incidents, 801 were aggravated by hate (eight per cent). Of these, 385 were reported by London Underground staff and 416 by staff working across the other modes. Racial hatred was the most common form of hate crime towards colleagues, representing 92 per cent of these reports.



**10,000+**

reported incidents of violence and abuse towards our staff in 2022/23

**2,235**

incidents triggered by violent or anti-social behaviour from members of the public



## Responding to WVA

### We aim to prevent violence and aggression by tackling its causes

Our WVA strategy lists 23 commitments on how we will eliminate WVA and support colleagues who experience it.

#### Doubling our WVA team

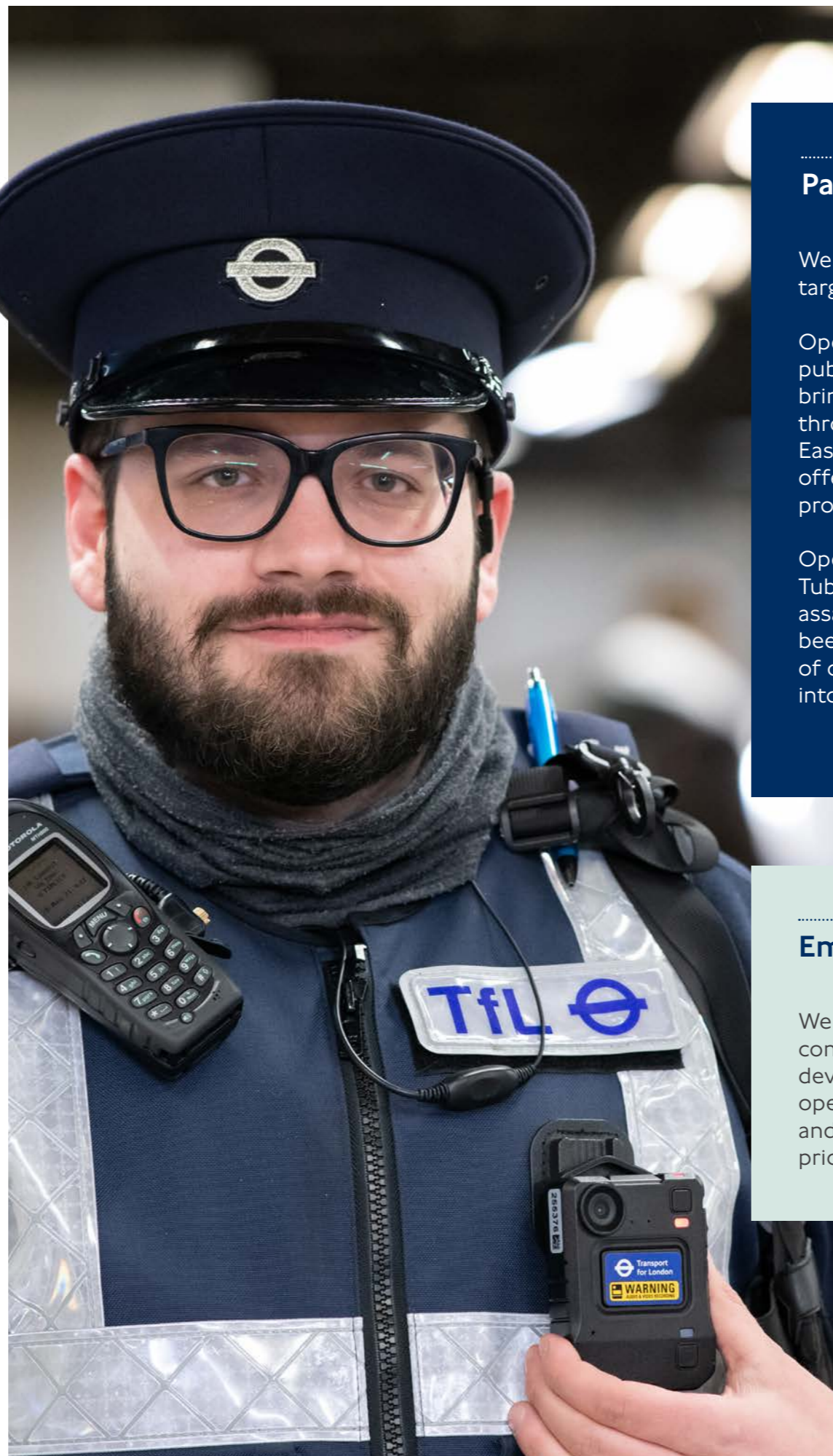
We have doubled the size of our WVA team since January 2023. We now have six people dedicated to prevention, and an integrated cross-organisation support and investigation team to assist those who experience WVA, including providing investigation services to the police.

#### Body-worn video

Ensuring our workforce has up-to-date safety equipment is an essential part of our strategy to prevent WVA and bring offenders to justice. Following the success of the initial introduction of body-worn video cameras, these have been supplied to River Services, Woolwich Ferry, Dial-a-Ride and a number of other teams undertaking customer-facing activities. There are now 4,777 cameras in use, available for 7,829 unique users based at 323 locations.

#### Updated staff training

Care immediately following a WVA incident is critical to our colleagues' recovery, participation in criminal proceedings and engagement with us as an employer. We have updated training for London Underground frontline managers so that they can provide a proper duty of care following a WVA incident, including correct reporting procedures and ensuring staff get the support they need.



Body-worn video cameras help to deter anti-social behaviour

### Partner operations

We continue to work with the British Transport Police on targeted operations to improve workforce safety.

Operation Steed aims to increase both staff and public confidence, improve feelings of safety, and bring offenders to justice. Deployments took place throughout the year at West Ham, Plaistow, Upton Park, East Ham and Camden Town, with arrests for a variety of offences and a number of safeguarding interventions to protect young people.

Operation Roster has been targeting locations on our Tube and Rail network with a high incidence of staff assaults and public order offences. Deployments have been arranged depending on the time and locations of offences occurring, along with key triggers such as intoxication and rough sleeping.

### Emergency communications

We have supplied our workforce with 500 emergency communications devices. These small, portable keyring devices connect directly to an emergency services operator, opening a two-way communication channel and giving all the information needed to dispatch a priority response.

## Enforcement

### We take action to tackle anti-social behaviour and law breaking

Our Transport Support and Enforcement (TSE) officers play a key role in tackling WVA by dealing with anti-social behaviour and enforcing TfL byelaws.

In 2022-23, our officers carried out more than 7,000 station/network visits, dealing with more than 8,400 non-compliant individuals.

Officers gained compliance through advice and guidance in more than half of these cases. Where this was not possible, 1,682 individuals were directed to leave our network or premises, 1,276 individuals were refused entry or to travel and 162 individuals were physically guided/removed from our services for anti-social behaviour. Officers reported 996 individuals for prosecution. Officers also dealt with 355 safeguarding incidents, providing support for vulnerable customers.

### Action at Stratford

Taking action at WVA hotspots with a high number of incidents or particularly harmful incidents occurring, is a core part of prevention.

In September 2022 we launched a year-long project at Stratford station, a consistent hotspot for WVA.

We are working with the local team, specialists from across the organisation and external stakeholders, including our policing partners, coordinating activity to tackle the causes of behaviour and better support colleagues who experience it.

We have also enhanced reassurance, enforcement and problem-solving at the station with a team of TSE officers. The officers are part of a hub team dedicated to Stratford station and support all our modes to prevent WVA and tackle anti-social behaviour.

### Tackling fare evasion

Fare evasion remains the biggest trigger for WVA. We use all available data to ensure that deployments are intelligence-led and that combined enforcement resources are used to maximum effect.

In November 2022, we introduced Operations officers on the bus network with TSE powers. They enforce TfL byelaws, provide a visible deterrent against aggressive behaviour on the network and work closely with our policing partners to help focus our activity at hotspot locations.

This team complements the existing 105 TSE-accredited officers who work across all modes on our network.

### Supporting students on our network

As students returned to school in September 2022, we helped them use our network safely and respectfully. We identified key locations across our Bus and Tube network and co-ordinated engagement activity with frontline colleagues, TSE officers and policing partners. Officers focused on talking to students and educating them on safe and responsible travel behaviours, including using a Zip Oyster card to make their journeys.



# Health

We have continued to support the mental and physical health of our colleagues, with new initiatives for the post-pandemic period





# Supporting good health

We support the health and wellbeing of all our people

## Managing staff sickness

### Supporting our colleagues in their health assessments

Absence/attendance data has been included on this year's TfL scorecard, highlighting the importance of reducing sickness absence and promoting wellbeing.

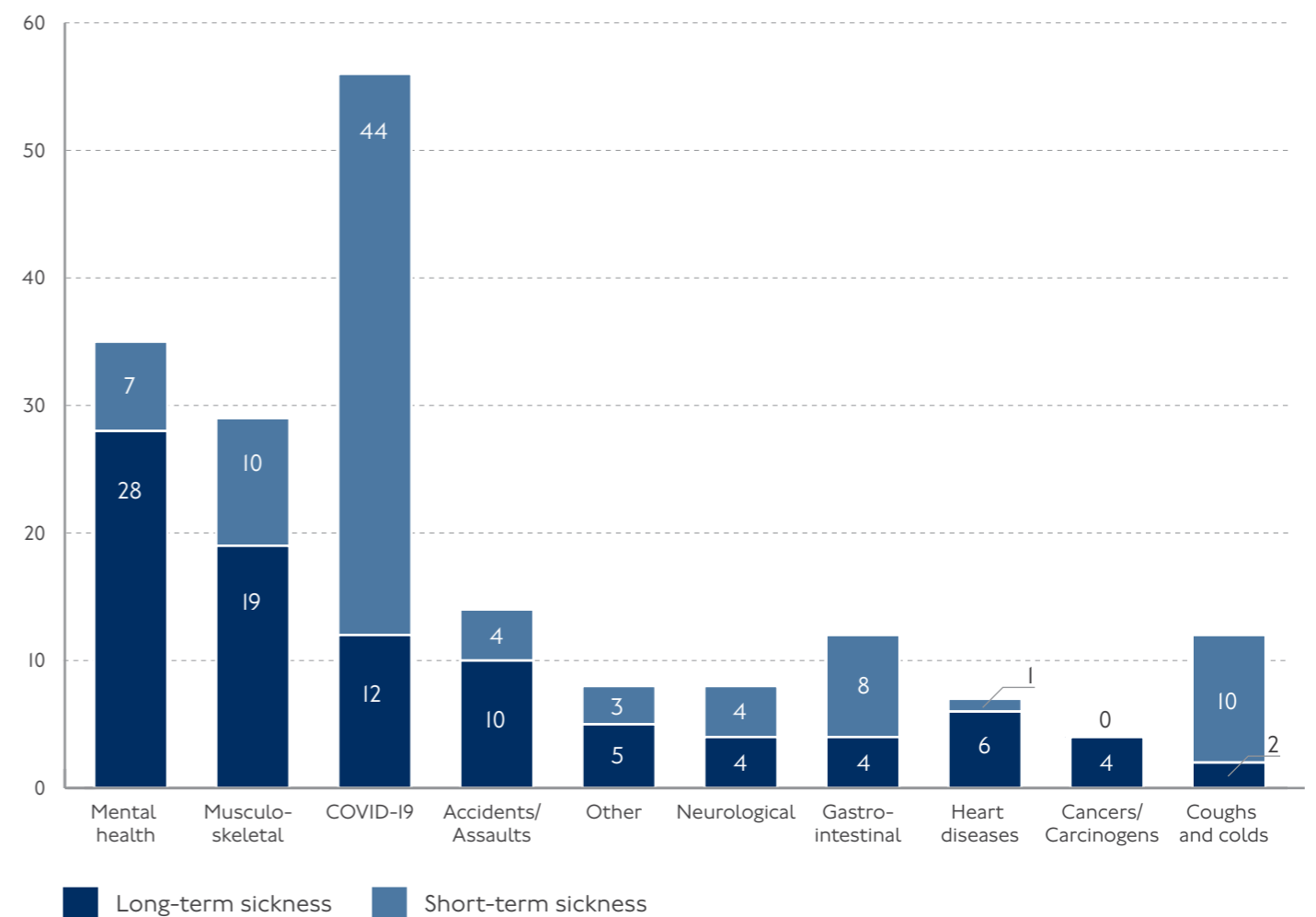
In 2022/23, Covid-19 continued to be a significant cause of short-term absence. We are continuing to monitor and track the prevalence of COVID-19 and influenza in the general population using Office of National Statistics data.

Longer-term sickness, defined as a single absence of four weeks or more, and subsequent referrals to our Occupational Health and Wellbeing (OHW) team are broadly reflective of nationally available data, with musculoskeletal (MSK) and

mental health issues the most common reasons (mental health 30 per cent, MSK 20 per cent). There are many support measures in place for individuals who develop mental health and MSK issues, but more can be done to explore whether it is possible to prevent them from arising.

Our people leaders play a key role in this and we are working to equip all managers with the tools and training to manage mental health at work. Once we are able to obtain more sophisticated data from new occupational health IT software, we will be able to identify particular hotspots where we can target preventative interventions.

Top causes of long- and short-term sickness absence 2022/23



To support the business in managing sickness absence, our OHW team has:

- Increased both the number of clinical practitioners (which will improve timely access) and the level of occupational health expertise, with the appointment of senior clinicians
- Outsourced delivery of treatment services to enable easier access for colleagues with MSK and trauma-related mental health symptoms across a wide geographical area
- In 2022, referred 46 colleagues to the medical assistance programme, an early intervention programme which sits alongside our attendance at work procedure. Thirty applications met the eligibility criteria, enabling these colleagues to obtain treatment promptly to facilitate a faster return to work
- Improved our ability to benchmark our health and wellbeing with other comparable organisations by developing the systems to participate in the Rail Safety and Standards Board (RSSB) health dashboard
- Offered training for line managers on the role and function of OHW
- Provided clinical advice and expertise in a variety of settings

Our Well@TfL bus visited 16 sites and conducted 840 individual health checks for staff. These are focused on risk factors associated with major public health issues, such as heart disease and diabetes.



## Drug and alcohol treatment

In 2022, of the majority of colleagues supported by our drug and alcohol treatment service (DAATS) made a successful return to work.

Of those undergoing unannounced testing for drugs and alcohol, 99 per cent were negative, which matches the average reported by RSSB via their health dashboard.

The DAATS team has also extended addiction services to those with gambling problems. Clinicians have been trained to identify colleagues with a gambling problem and appropriate treatment pathways are being developed.



# Wellbeing for all

Ensuring the wellbeing (as well as the health) of colleagues is important to us

## A sense of wellbeing is at the heart of making TfL a great place to work

In 2022 we adopted a definition of employee wellbeing: 'Creating an environment to promote job satisfaction, which allows an employee to flourish and achieve their full potential for the benefit of themselves and their organisation'.

The definition reflects our vision and values as we put wellbeing at the heart of what we are striving to create, reflecting our colleague roadmap and focusing on making TfL a great place to work and thrive. If our staff feel their wellbeing is important to the organisation, this is of mutual benefit.

To maintain this focus, we are appointing a new Head of Wellbeing in 2023/24 to lead the development of a new health and wellbeing strategy.

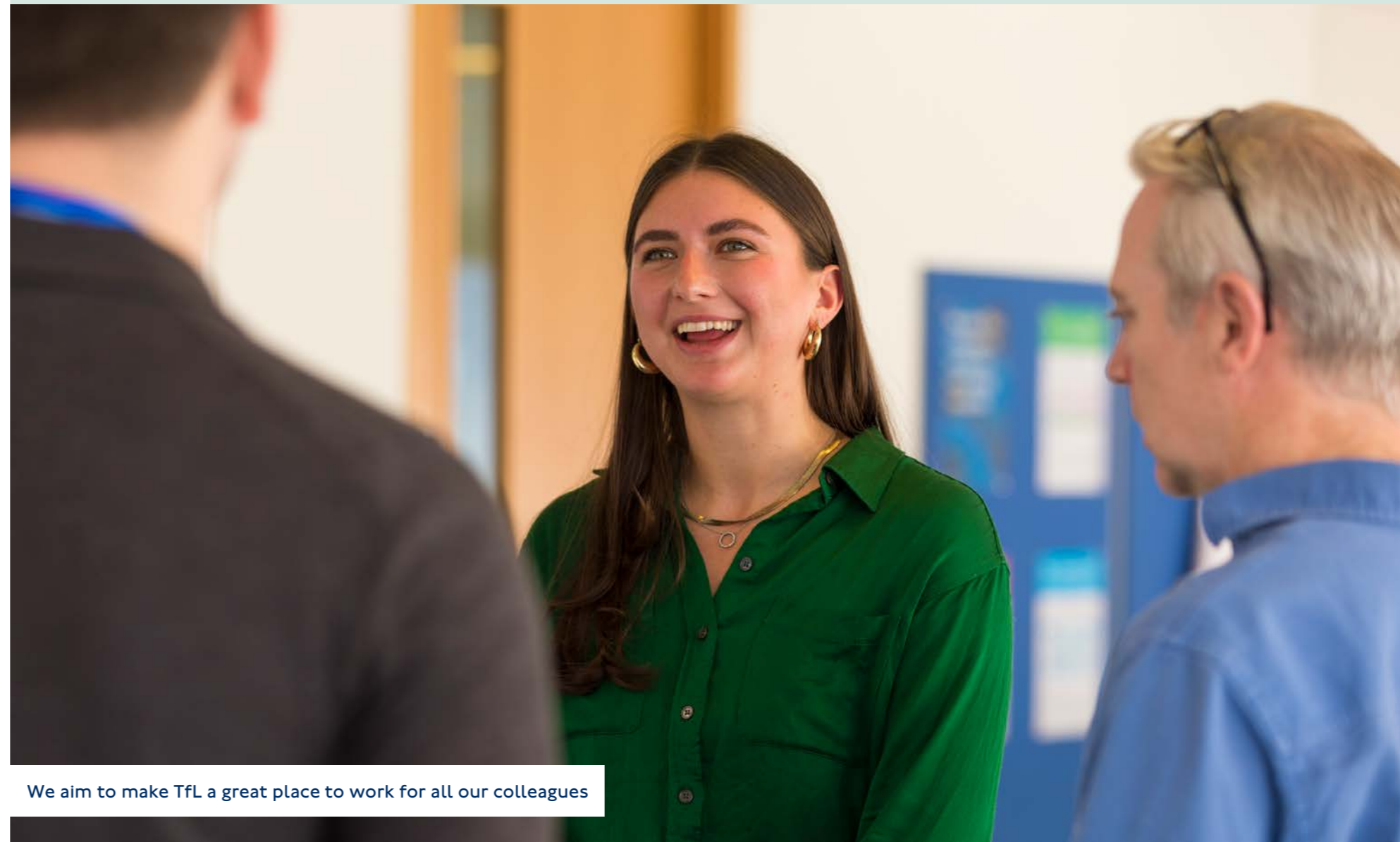
## Improving general health

To assess the health of colleagues and assist them in managing their health, several initiatives were introduced in 2022:

- A free 12-month programme run by Roczen (formerly Reset Health) to help reverse metabolic conditions for two cohorts of 50 colleagues. The programme focuses on obesity and diabetes, which are risk factors for significant health issues such as heart disease and stroke. The first cohort completed their programme towards the end of 2022/23 with a number of positive outcomes

- Our Trauma risk incident management (TRiM) pilot project is an evidenced-based approach to providing peer support for people who have experienced a traumatic event at work. Twelve TRiM practitioners and four TRiM managers have been recruited and trained and the project will be reviewed mid-2023.

The findings from some of these programmes have helped us to understand what the prevailing health issues are for our colleagues.



We aim to make TfL a great place to work for all our colleagues

# Environment

We are working to deliver the goals of a greener capital and cleaner air for all Londoners with a transition to zero carbon emissions by 2041



# Delivering for the environment

We are challenging ourselves to go further and faster

In 2022/23, we focused on implementing and accelerating delivery of our Corporate environment plan. In autumn 2022, we published a One year on report detailing our progress. Since then, we have continued to challenge ourselves to go further in building our capability and capacity, recognising the enormity of both the challenge and opportunity ahead.

## Environment metrics at the end of 2022

Theme	Measure	2019/20	2020/21	2021/22	2022/23
Climate emergency	Operational carbon emissions (thousand tonnes per annum)	1,040	862	832	813
Air quality	Percentage of bus fleet that is zero emission	3.5%	5.4%	8.9%	10.8%
Air quality	Percentage of support vehicles that are zero emission	2.6%	2.5%	2.3%	2.3%
Sustainable resources	Percentage of commercial and industrial waste recycled	42%	40%	47%	49%
Green infrastructure	Number of trees on our road network	24,234	24,103	24,581	24,795

\* Results for 2021/22 are provisional and subject to change

# Improving air quality

We will transform our vehicle fleets to zero emission and support broader efforts to clean London's air

## London-wide Ultra Low Emission Zone

The Ultra Low Emission Zone (ULEZ) will be expanded London-wide on 29 August 2023, ensuring five million more Londoners can breathe cleaner air. Installation of signage and enforcement camera infrastructure to support ULEZ expansion is underway.

The Mayor launched a £110m scrappage scheme on 30 January 2023 to support low-income and disabled Londoners, small businesses and charities in the run up to ULEZ expansion. More than 5,000 applicants have submitted successful applications, with more than £19m paid out or committed by the end of April.

Four outer London boroughs (Bexley, Bromley, Harrow and Hillingdon), together with Surrey County Council, launched a legal challenge to the London-wide ULEZ expansion in February 2023. The judicial review will take place in July.

## TfL support fleet

In November 2022, we secured the necessary funding to decarbonise our support fleet. We will produce a delivery strategy and a single preferred option by end of 2023.

We are also looking at opportunities to accelerate the fleet replacement and are currently working with the West London Alliance development programme to introduce a batch of zero-emission vehicles and charging points at the reconfigured Acton works depot in 2024.

11%

of our bus fleet (970 buses) now operates with zero emissions



5,000

successful applications to the scrappage scheme as part of ULEZ expansion

The ULEZ will be expanded London-wide, ensuring five million more Londoners can breathe clean air



## Decarbonising our buses

Eleven per cent of our fleet now operates with zero-emission buses (970 zero-emission buses in total), helping us reduce our reliance on diesel, cut harmful emissions and reduce carbon dioxide in the capital.

The majority of the zero-emission bus fleet is electric, but also includes 20 double-deck zero-emission hydrogen fuel-cell buses. This technology helps us reduce emissions and ensures our buses emit nothing except water vapour from their propulsion systems.

## Tube dust

### The quality of air on the London Underground is a key focus

We have a robust, three-pillar programme of work to tackle Tube dust: funding of world-leading research, cleaning and monitoring, and using the latest advances in innovation.

We've increased the track-cleaning budget from £1.5m to £2m per year and targeted cleaning at priority locations to cover at least 130km/year (40 per cent of a total network of 330km of tunnels). Since March 2023, we have begun monitoring air quality from within the train operator's cab every three months.

We have issued an open innovation tender to improve Tube air quality by identifying methods of actively and passively reducing dust levels. We expect to select a partner later this year, with funding from our air quality innovation and research budget.

We have commissioned two studies from Imperial College London to independently examine the possible health impacts experienced by London Underground workers (such as train operators and station staff) exposed to tunnel dust.

The short-term study investigating sickness absence in relation to dust exposure is currently underway. Dust monitoring on the network began in 2021 and results are due to be published later in 2023.

The longer-term study is looking at pensions data to see if historical exposure to Tube dust is associated with deaths due to lung or heart disease. This is due to be published in 2024/25.

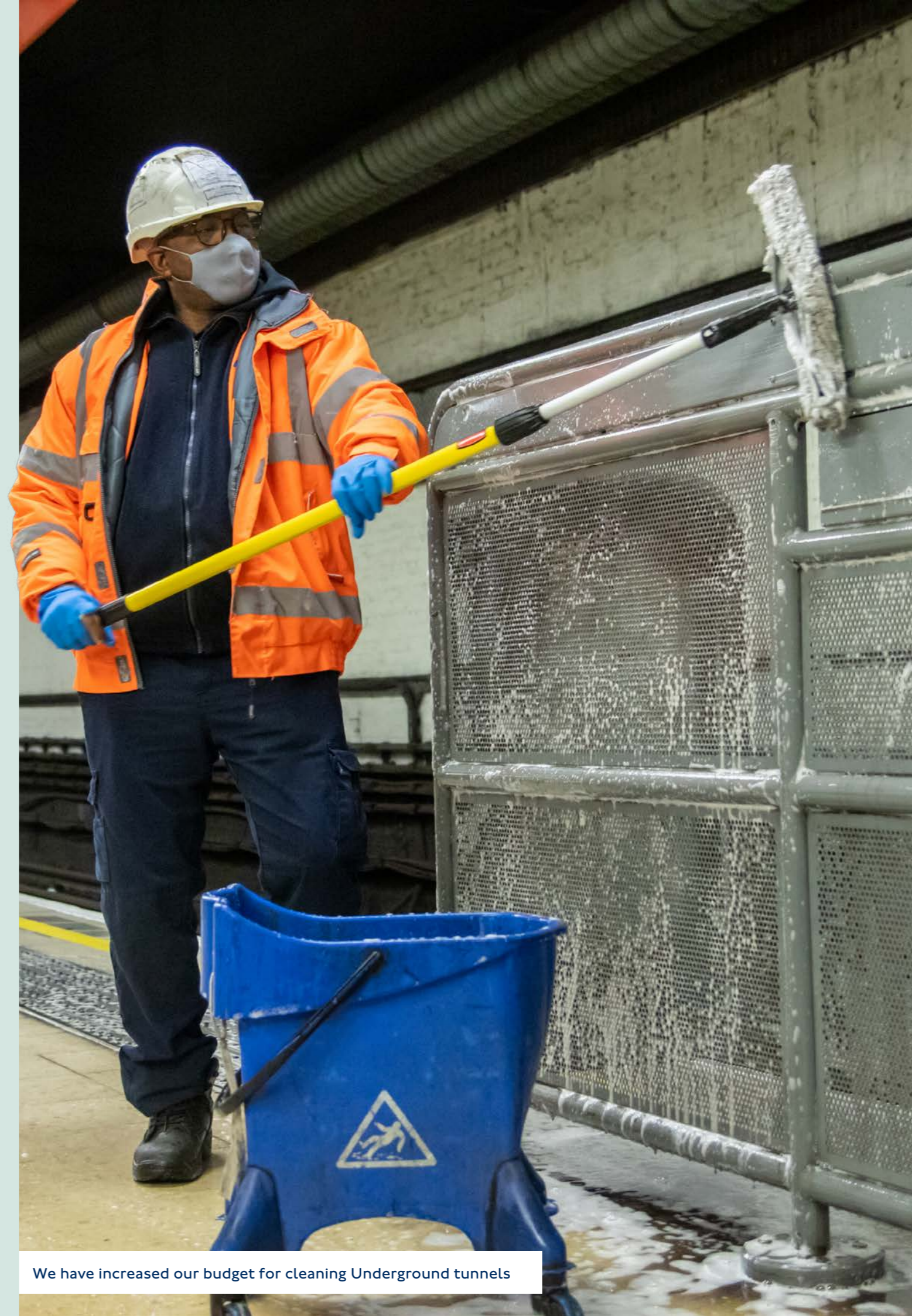
We are also collaborating with Imperial College London on a further study looking at the health effects of fine particulate matter (PM2.5) on passengers with chronic lung disease. This study began with volunteers on the Tube in early 2022. It involves volunteers with pre-existing lung disease travelling with the research team while being monitored for dust exposure and health outcomes. The outcome of the study will be available in 3-5 years, as it forms part of a PhD project.

Although our monitoring shows that dust levels on the Tube consistently fall below HSE regulatory levels for workplace exposure, we continue to explore ways to further reduce these levels. Monitoring and enhanced cleaning continues, and we are exploring innovative ways to remove dust from the network.



**£2m**

each year spent on cleaning to remove Tube dust and improve air quality



We have increased our budget for cleaning Underground tunnels

# Best environmental practices

We aim to be a good neighbour, going beyond our minimum obligations to apply environmental and sustainability best practices

## Managing our impact

As part of the SHE improvement workstream, we are updating our existing environmental evaluation process, which is used to assess a project's environmental risks and opportunities.

We are also supporting efforts by the Department for Environment, Food and Rural Affairs (Defra) to update their noise modelling, which will result in interactive and accurate noise maps that can be used to better target interventions.

## Environmental risk

In early 2023, we agreed to specifically manage environmental risk as part of our overall enterprise risk management framework. This enables greater detail beyond the overarching SHE risk level to ensure we are not only managing our legal obligations but also progressing our statutory obligation to progress policy ambitions in the Mayor's Transport Strategy, and challenging ourselves to demonstrate leadership and improve industry-wide knowledge and collaboration.

It will include risks associated with our impact on the environment and the changing climate's impact on us and our ability to serve London. We have identified key representatives from all business areas and are working to ensure adequate management of these risks.

## All business cases must consider environmental impacts

In December 2022, we implemented a revision to the business case template to consider environmental impacts. It includes how any business case helps the network adapt to climate change and offers the guidance and methodology necessary to support this focus. This includes assessing all impacts, defining outcomes, and ensuring environmental considerations are aligned and complementary with other key considerations such as safety, health and cost.



We consider the environmental impact of all our developments



### Executive Committee sustainability sub-group

In September 2022, we established a sub-group of our Executive Committee that focuses on accelerating our transition to becoming a more sustainable organisation. The group is attended by a senior representative from areas across the business and meets every six weeks to chart progress of key actions, such as those set out in our Corporate environment plan and the GLA Group Responsible procurement implementation plan.

It ensures relevant and timely scorecard targets and reporting, the progress of a strong pipeline of green initiatives, building capability and capacity, identifying, monitoring and managing risks, and ensuring clear and timely communications through all channels to keep everyone informed of our progress and further opportunities.

### Sustainability graduate and apprenticeship schemes

We have launched our first Sustainability graduate and apprenticeship schemes, which drew record-breaking numbers of applicants. The first cohort of Sustainability graduates will join us in September 2023.

### Youth Panel exploration

In late 2022, we supported the TfL Youth Panel to undertake an exploration of issues of diversity, inclusion and equality, and how these interact with environmental sustainability. The panel hosted a series of hearings at City Hall in November and December 2022 (recordings are available at <https://madeby.tfl.gov.uk/2022/11/28/tfl-youth-panel-exploration/>) and intend to present initial findings later in 2023. Following this, we intend to publish our response.

## Sustainability assessment award schemes

### Some of our major projects have been recognised with sustainability awards

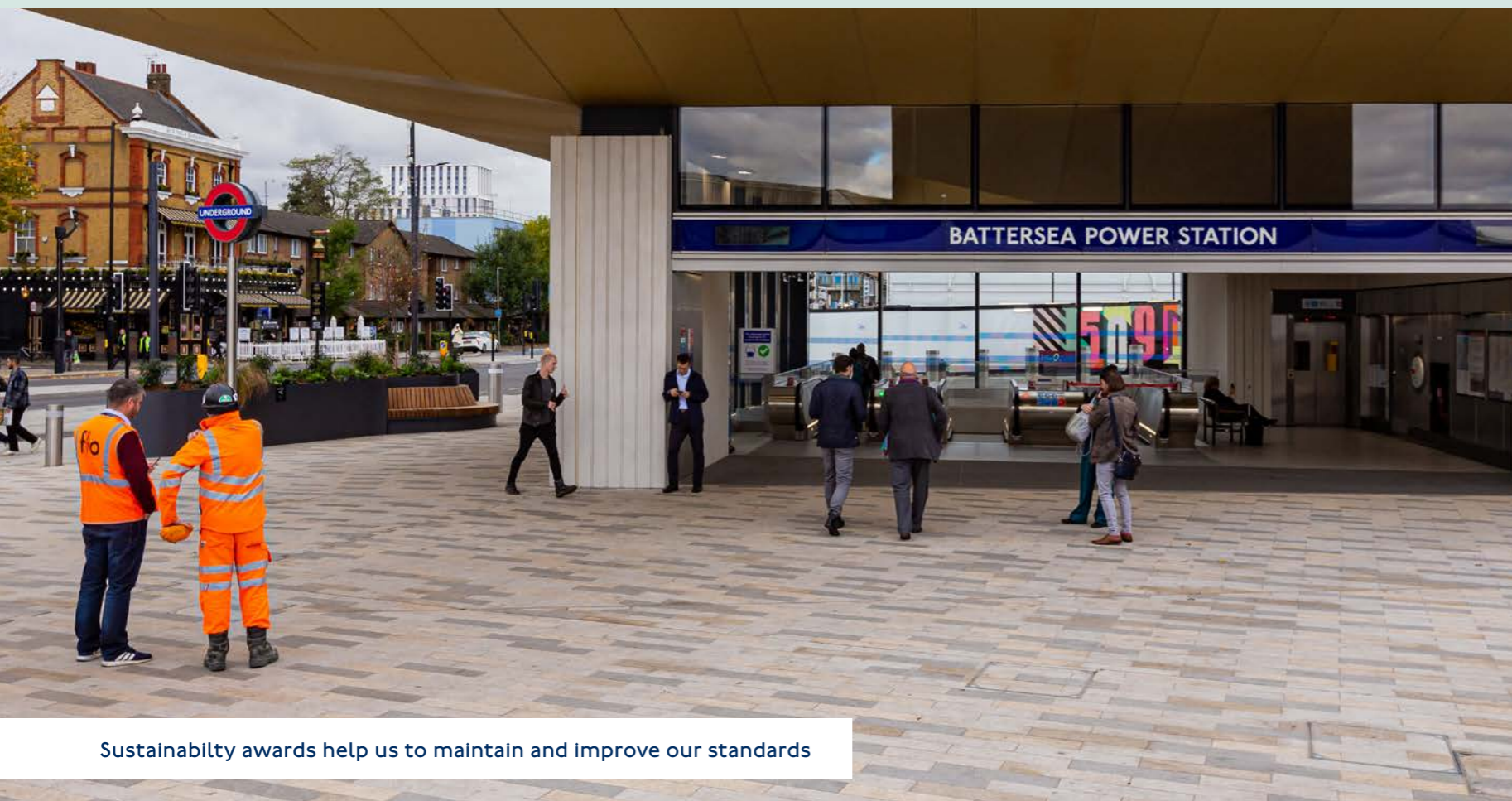
Sustainability assessment award schemes provide a framework for optimising all sustainability performance, from designing for future climate, to providing local employment and reducing whole-life carbon. They help to scope, design and deliver truly sustainable developments, as well as offering visible assurance to us and to our stakeholders.

There are two awards applicable projects can achieve:

- BREEAM Infrastructure (previously CEEQUAL) is the sustainability award scheme for civil engineering, infrastructure and public realm
- BREEAM New Construction is the sustainability award scheme for buildings

Projects must aim to achieve at least Very Good in both awards. In 2022, the Northern line extension achieved CEEQUAL Excellent (81.7 per cent), BREEAM New Construction Very Good for Battersea Power Station Tube station (56.3 per cent), and BREEAM Good for Nine Elms station (45.83 per cent). This award was achieved through the hard work and commitment of the TfL and Ferrovial Laing O'Rourke teams, with the support of the many suppliers and sub-contractors involved.

In 2023, the Barking Riverside extension project achieved an Excellent rating under CEEQUAL for its sustainability strategy, and Very Good for the assessment of the project's performance.



# Tackling the climate emergency

We are taking action to reduce carbon emissions from our activities and adapt to the impacts of climate change

In April 2022, we published our final submission under the third round of Defra's Adaptation Reporting Power, setting out our strategy for adapting to climate risks, both now and in the future.

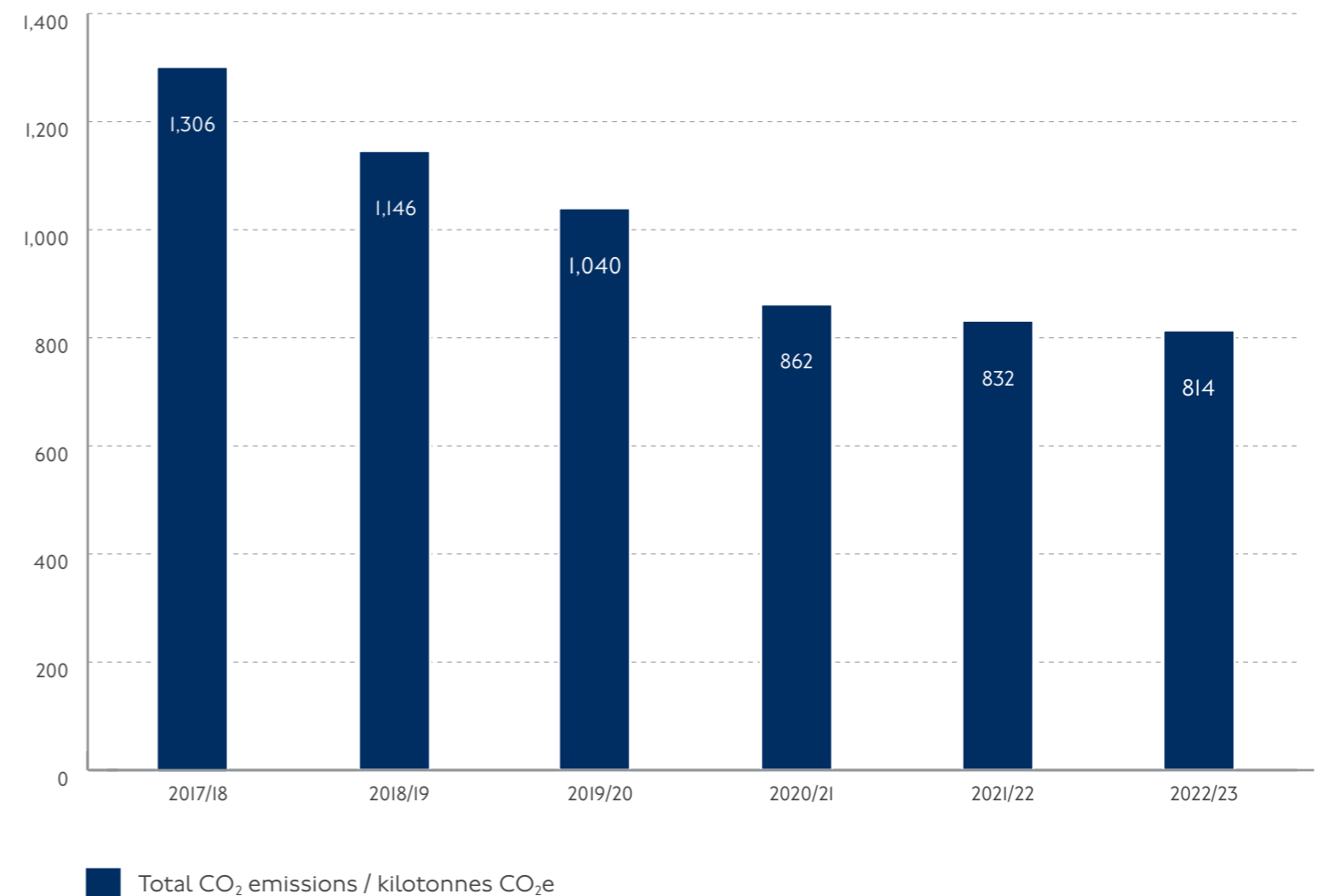
Our climate risk assessment identified 333 risks using the Met Office's latest climate projections and best professional judgement from a wide range of colleagues across the business. It showed that all our assets, operations and services, staff and passengers carry some degree of weather- and future climate-related risk, and that risk severity will increase over time.

We are using this to inform the development of our research programme, as well as internal and external collaborative work with groups including the new London Surface Water Strategic Forum, Transport Adaptation Steering Group and Infrastructure Operators Adaptation Forum.

Our first corporate Climate change adaptation plan was published in March 2023. It sets out the actions needed to embed adaptation requirements across the business in the short-, medium- and longer-term.

Adapting to climate change is crucial for us to become financially sustainable in the long term, and will require action across the entire organisation, as well as collaboration with key external stakeholders.

Total CO<sub>2</sub> emissions  
(kilotonnes CO<sub>2</sub>e)



Total carbon emissions for 2022-23 are 813.6 kilotonnes CO<sub>2</sub>e. This is down year-on-year versus 2021-22. A significant part of the reduction is related to the reduction in carbon intensity from the electricity we consume.

While total carbon emissions have reduced, electricity and gas consumption has increased to above pre-pandemic levels. This is predominantly due to the opening of the Elizabeth line.

## Creating a low-carbon city

### We are working with partners to remove carbon from our estate and increase the lifecycle of resources and materials

#### Buildings decarbonisation

In 2022, we conducted a baseline assessment of the carbon emissions associated with our buildings, using existing data supplemented with 40 site visits. We completed an initial analysis for how we can simultaneously reduce carbon and operational costs.

We estimate that approximately 11-12 per cent of our operational carbon emissions (approximately 105 kilotonnes of carbon dioxide) are linked to the activities we undertake across our estate of approximately 6,000 buildings.

The energy used by our buildings is estimated to currently cost us approximately £65m per year. However, this is set to increase with rising energy costs. London Underground, our tenanted estate, bus operations and our head office buildings account for 93 per cent of all emissions.

We have developed a buildings decarbonisation plan, which includes recommendations and key action areas requiring further development.

In March 2023, thanks to funding from the Public Sector Low Carbon Skills Fund, administered by the Department for Energy Security and Net Zero, we concluded initial feasibility studies on how we can remove carbon from the operation of our buildings.

This detailed, site-specific feasibility work improves our understanding of how to decarbonise high-priority sites, particularly at complex locations such as depots. We are now translating the findings into plans to decarbonise our buildings. We're also exploring the next phase of feasibility studies to fully remove carbon from the operation of our buildings as quickly as possible.



## Our first low-carbon depot

### We are upgrading our Trams depot to replace outdated heating systems

We secured funding to transition the Trams depot at Therapia Lane to become the first low-carbon depot, making it cleaner, greener and cheaper to run. This forms part of wider work to further decarbonise our network and meet the Mayor's goal of a net-zero London by 2030.

The project will upgrade heating systems with heat pumps and infrared panel heaters to replace inefficient fossil fuel gas boilers. The additional electricity consumption from the new heating system will be offset by using 1,800 square metres of south-facing roof space for solar panels, as well as other energy-efficiency measures such as improved insulation and LED lighting. Work is expected to be complete by 2025.



One of our offices at Endeavour Square in Stratford



We want to improve air quality for people in the streets

## Decarbonising construction

### Reducing whole-life carbon impacts across our projects

We are working closely with partners to remove carbon from our construction activities. One example is our collaboration with Hackney and Islington councils to make the area around Old Street station more friendly for people walking and cycling.

Works to introduce improved pedestrian crossing, segregated cycle lanes, a new public space and a new station entrance are underway.

Our delivery partner on the scheme, Morgan Sindall, has been working closely with one of their main subcontractors, J Coffey, to switch from using diesel-powered plant and deliver the works without the use of this polluting fuel.

Carbon emissions have reduced significantly by shifting to electric-powered equipment and using hydro-treated vegetable oil (HVO) fuel. In less than one year, this has saved 13.8 tonnes of carbon dioxide and helped reduce other harmful emissions to air.

#### Major projects carbon baseline

In June 2022, we completed the Major projects carbon baseline report. This is the first time the whole-life carbon baseline for all ten current major projects have been modelled in detail, including the scope and carbon hotspots for each. We will be aiming to reduce whole-life carbon impacts in the coming years, by management of carbon through the full project lifecycle in collaboration with our supply chain. We are now working to expand the decarbonisation strategy and carbon baseline across our capital investment portfolio in conjunction with our Capital directorate.

#### Scope 3 carbon - managing carbon emissions from our supply chain

Building on an initial GLA-wide study undertaken in 2021, we are currently undertaking a more detailed assessment of our 'upstream' scope 3 carbon emissions, including emissions from our supply chain and the delivery of our capital projects.

Assessments of whole-lifecycle emissions from our Major projects and Technology and data activities have been undertaken. Our full upstream scope 3 carbon assessment will be used to inform overall emissions reduction targets in this area.



## Carbon literacy training

### Educating our workforce on ways to reduce carbon

In 2022, in collaboration with the Carbon Literacy Project and the DfT, we developed a one-day carbon literacy course for staff, fully accredited by the Carbon Literacy Project. As part of this course, colleagues make two pledges to reduce carbon in their role at TfL.

We have developed 24 in-house volunteers as accredited carbon literacy trainers, and by the end of March 2023 had trained more than 700 colleagues, including the Commissioner, chief officers and most of their direct reports.

Due to the programme's success and demand, carbon literacy training has been added to the TfL 2023/24 scorecard, with the aim to create a community of coordinators and trainers who will train 3,000 colleagues by the end of March 2024.

## Power purchase agreement

### Investing in new renewable energy

In February 2023, we relaunched our first power purchase agreement tender. This is a vital step towards ensuring all our operations can be net zero by 2030.

The tender encourages the market to invest in new renewable energy connected to the national grid, with a commitment from us to purchase the clean energy generated.

At the first stage of the tender, standard selection questionnaire submissions were received and evaluated, and bidders informed of the outcome in May.

Successful suppliers progressed to the invitation to tender stage of the procurement process, which will continue throughout 2023 with a contract due in early 2024.

## Harnessing the sun's energy

### Generating cleaner, cheaper energy for the Underground

As London's single largest consumer of electricity, it is our responsibility to identify and use renewable energy sources.

The Solar private wire project presents an opportunity to directly receive zero-carbon (solar generated) electricity from decentralised sources, bypassing the national grid and distribution network operators (and associated charges). This has twin benefits of guaranteeing renewable energy, while also offering financial savings.

There has been a positive response to a recent market engagement exercise to gauge appetite from market players. The intention is for a solar collaborator to carry out detailed project identification and development. We would ultimately purchase the energy to assist with powering the Underground network. Detailed



Solar panels on our buildings generate cheaper, renewable energy

discussions with the industry are underway to inform the final content of any commercial relationship, as well as establishing an appropriate route to market.

Initial investigations suggest that our power network can accommodate 64 megawatts of locally generated renewable energy, equivalent to five per cent of the annual load.

### Capturing waste heat

Waste heat from London Underground ventilation shafts is a constant and reliable source of energy. Much of it is simply released into the air. This project will capture thermal energy from ventilated air to provide heating and hot water in nearby buildings.

Detailed feasibility studies have been conducted for six ventilation shafts, to explore the scale of opportunity. If all six sites are developed and used by energy suppliers, the project could contribute to serving thousands of residential premises, plus commercial and public buildings such as schools.

The proposed supply of waste heat would reduce the requirement for gas combustion and could therefore decrease carbon emissions.

We are focusing initially on one ventilation shaft site and working to find an appropriate energy supplier by the summer. Work continues in parallel to identify future waste-heat opportunities across our estate. Other sites may not be limited to ventilation shafts, and options for harnessing heat from alternative sources, including pumped water systems, are being explored across the Tube network.

## Transitioning our network to LED lighting

### New lighting is brighter, improves safety and uses less energy

We are working to convert all lighting on our network to LEDs to reduce waste, energy consumption and associated carbon emissions. By the end of March 2023, more than 50 per cent of our bus shelters across London were converted to LED lighting. LED lighting uses 57 per cent less energy while providing 10 per cent brighter light, making the shelters more welcoming and improving safety for customers, especially at night. By the end of March 2024, all 12,100 bus shelters will be converted, saving more than 1,000 tonnes of carbon emissions annually.

At least a quarter of all Tube stations have been converted to only use LED lighting, with more planned for conversion in the coming months and years. Customer lighting at tram stops served by London Trams have been converted to LED lighting,

and work is also taking place to upgrade lighting at bus stations across London, as well as at several Tube depots, and the London Trams depot in Croydon. Around 50 per cent of all lamp columns on our roads are now fitted with LED lights, with work underway to convert more of these lamps as soon as possible.

**1,000**

tonnes of carbon saved annually by converting our bus shelters to LED lighting by 2024



Bright LED lighting helps to improve customer safety

## Increasing use of sustainable resources

### Helping London to become a zero-waste, low-carbon city

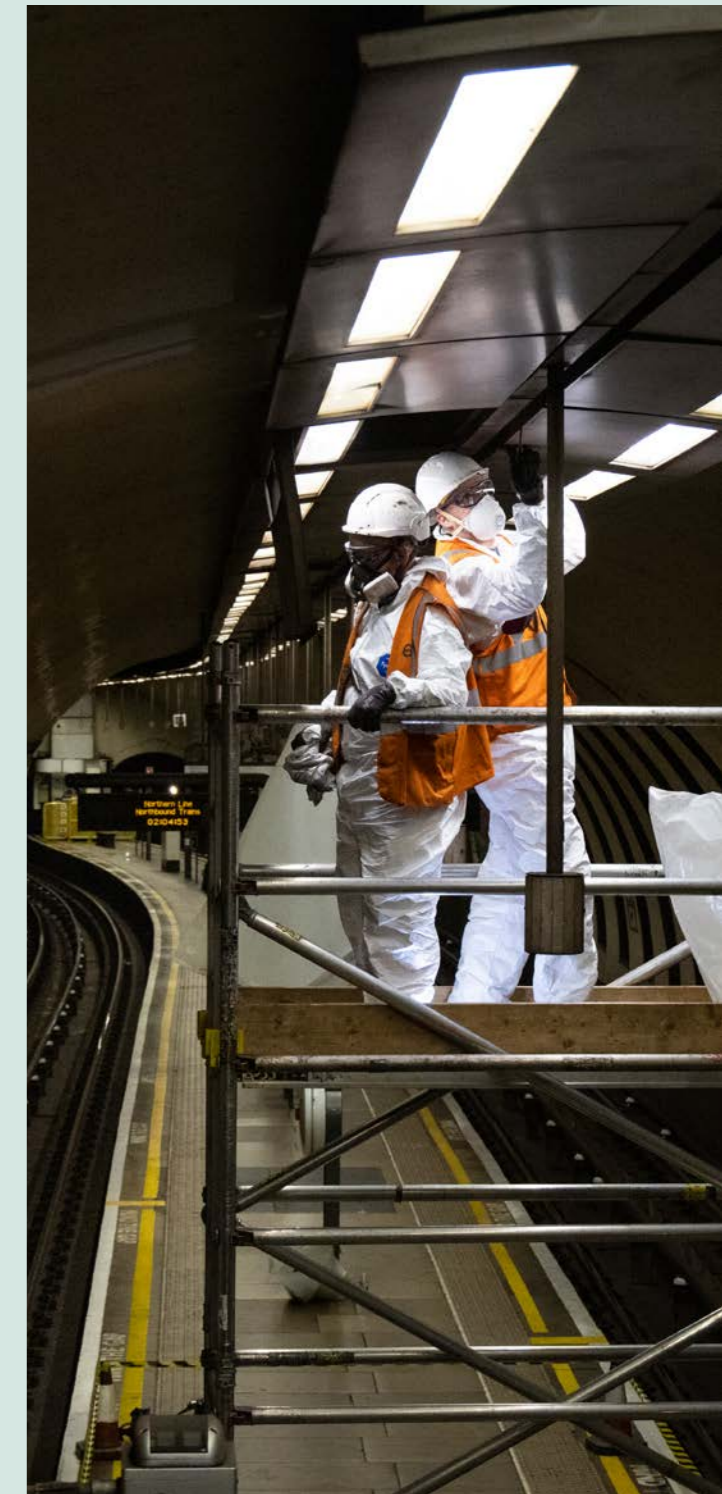
We will design for the circular lifecycle of resources and materials, supporting London's goal of being a zero-waste city.

Overall recycling levels remain similar to previous years, while ridership on our network has continued to increase post-pandemic and with the opening of the Elizabeth line. We are adding recycling collections to more stations.

We continue to work with the ReLondon partnership – the collaboration between the Mayor and London's boroughs aimed at accelerating the transition to a low-carbon circular city – engaging with Tier 1 suppliers and contractors and small and medium-sized enterprises.

We also continue to work with the Transport Infrastructure Efficiency Strategy project on industry-wide improvement activity, and with other bodies where we can share knowledge and materials.

Our Executive team had sustainability training in December 2022, with a view to extend this training to all Directors in 2023.



# Growing a greener city

We will increasingly protect, connect and enhance our green infrastructure, including the biodiversity, habitats and ecosystems services on our estate

## Our first natural capital account

Natural capital accounting is the process of considering the value of the environment in business decision-making and reporting. For the first time, we have assessed our whole estate and carried out a monetary valuation of our natural capital, following the Natural Capital Protocol, a globally recognised framework to support businesses in identifying, measuring and valuing their impacts on, and interdependencies with, nature.

Our natural capital assets bring significant value to Londoners and global society. Their numerous benefits range from air quality, carbon sequestration, biodiversity, visual

screening, shading and cooling, to mental health and education. These have been included in the assessment.

Due to the complex nature of our organisation, we have identified several data gaps that we intend to fill to improve future natural capital accounts and are working to embed the natural capital approach into business activities, including project delivery, asset strategy and maintenance.

We are one of the first transport infrastructure organisations to look at natural capital in this depth, therefore we have a great opportunity to show leadership and share learning with other organisations in the sector.

We have assessed our whole estate and carried out a monetary valuation of our natural capital, following the Natural Capital Protocol



## Tree planting

We remain on track to meet the target of a one per cent year-on-year increase in street tree numbers between 2016 and 2025. In 2022/23, an additional 453 trees were planted, increasing the total number on our network to 24,795.



Supporting nature improves our wellbeing as well as biodiversity

## Wildflower verges

### Using our land to restore biodiversity and reduce carbon

Around a third of our land is covered by vegetation. This means we have an enormous opportunity and obligation to ensure we are encouraging the restoration of biodiversity in London. In March 2023, we completed the conversion of 55,000 square metres of verges to wildflowers. This strategic network of wildflower verges on our land is set to more than double (to 130,000 square metres) by the end of summer 2023.

In addition to wildflowers encouraging pollinators such as bees, longer grasses provide cover for reptiles, mammals and invertebrates. Allowing verges to grow also helps to reduce the carbon emissions linked with mowing and increases the potential for greater levels of carbon to be captured.



## Sustainable drainage systems

### Sustainable drainage systems (SuDS) manage storm water by mimicking natural drainage

Interventions such as narrow landscaped gardens along roadsides capture, filter and slow the release of water into mains drainage systems. This can help prevent flooding.

Well-designed SuDS can also improve the look and feel of a street by adding greenery and can serve as a divide between moving traffic on a carriageway and people using the pavements, making it more pleasant and attractive to choose a walking journey.

We own and manage approximately five per cent of London's roads and have committed to including SuDS as a default design feature for any project that involves excavation or structural changes to a roof. Our designers are now required to justify any instances where SuDS are not included. The ambition is to deliver 5,000 square metres of catchment draining into SuDS on our roads each year.

As SuDS function best at scale across a catchment, we are keen to find opportunities to collaborate with neighbours and other partners across London to ensure interventions will initially be focused in areas where they will be most beneficial and effective. We have agreed £640,000 of Thames Water funding for the delivery of SuDS projects on our roads, including outside Edgware Road station, at Tolworth roundabout, Nine Elms Lane and Old Street.

**SuDS are now a default design feature. The ambition is to deliver 5,000 square metres of catchment draining in to SuDS on our roads each year**



**130,000**

square metres of wildflower verge by summer 2023



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## About us

Part of the Greater London Authority family led by Mayor of London Sadiq Khan, we are the integrated transport authority responsible for delivering the Mayor's aims for transport. We have a key role in shaping what life is like in London, helping to realise the Mayor's vision for a 'City for All Londoners' and helping to create a safer, fairer, greener, healthier and more prosperous city. The Mayor's Transport Strategy sets a target for 80 per cent of all journeys to be made by walking, cycling or using public transport by 2041. To make this a reality, we prioritise sustainability, health and the quality of people's experience in everything we do.

We run most of London's public transport services, including the London Underground, London Buses, the DLR, London Overground, Elizabeth line, London Trams, London River Services, London Dial-a-Ride, Victoria Coach Station, Santander Cycles and the London Cable Car. The experience, reliability and accessibility of these services is fundamental to Londoners' quality of life.

We manage the city's red route strategic roads and, through collaboration with the London boroughs, we are helping to shape the character of all London's streets. These are the places where Londoners travel, work, shop and socialise. Making them places for people to walk, cycle and spend time will reduce car dependency, improve air quality, revitalise town centres, boost businesses and connect communities. As part of this, our expanded Ultra Low Emission Zone and fleets of increasingly environmentally friendly and zero-emission buses are helping to tackle London's toxic air.

During the pandemic, we took a huge range of measures to ensure people were safe while travelling. This included extensive cleaning regimes across the public transport network and working with London's boroughs to introduce the Streetspace for London programme, which provided wider pavements and cycle lanes so people can walk and cycle safely and maintain social distancing. London's recovery is vital to the UK's recovery as life returns to normal. We want to ensure London avoids a car-led recovery and we continue to reassure people the capital and our transport network is safe and ready for them.

We have constructed many of London's most significant infrastructure projects in recent years, using transport to unlock much needed economic growth. This includes major projects like the extension of the Northern line to Battersea Power Station and Nine Elms in south London, as well as our work at Barking Riverside and the Bank station upgrade.

Working with Government, we completed the Elizabeth line in time for Her Majesty the Queen's Jubilee. This transformational new railway adds 10 per cent to central London's rail capacity and supports the delivery of high-density, mixed-use developments, which are planned around active and sustainable travel to ensure London's growth is good growth. We also use our own land to provide thousands of new affordable homes and our own supply chain creates tens of thousands of jobs and apprenticeships across the country.

We are committed to being an employer that is fully representative of the community we serve, where everyone can realise their potential. Our aim is to be a fully inclusive employer, valuing and celebrating the diversity of our workforce to improve services for all Londoners.

We are constantly working to improve the city for everyone. This means using intel, data and technology to make services intuitive and easy to use and doing all we can to make streets and transport services accessible to all. We reinvest every penny of our income to continually improve transport networks for the people who use them every day. None of this would be possible without the support of boroughs, communities and other partners who we work with to improve our services. By working together, we can create a better city as London's recovery from the pandemic continues.

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