

# Agenda

**Meeting: Elizabeth Line Committee**

**Date: Tuesday 25 July 2023**

**Time: 3pm**

**Place: Conference Rooms 1&2,  
Ground Floor, Palestra,  
197 Blackfriars Road, London,  
SE1 8NJ**

## Members

Heidi Alexander (Chair)

Anne McMeel (Vice-Chair)

Seb Dance

Dr Nelson Ogunshakin OBE

Mark Phillips

Sarah Atkins

Matthew Lodge (Department for  
Transport Observer)

Copies of the papers and any attachments are available on [tfl.gov.uk How We Are Governed](https://tfl.gov.uk/How-We-Are-Governed).

This meeting will be open to the public and webcast live on [TfL's YouTube channel](#), except for where exempt information is being discussed as noted on the agenda.

There is access for disabled people and induction loops are available. A guide for the press and public on attending and reporting meetings of local government bodies, including the use of film, photography, social media and other means is available on [www.london.gov.uk/sites/default/files/Openness-in-Meetings.pdf](https://www.london.gov.uk/sites/default/files/Openness-in-Meetings.pdf).

## Further Information

If you have questions, would like further information about the meeting or require special facilities please contact:

Sue Riley, Secretariat Officer; Email: [sueriley@tfl.gov.uk](mailto:sueriley@tfl.gov.uk).

For media enquiries please contact the TfL Press Office; telephone: 0343 222 4141; email: [PressOffice@tfl.gov.uk](mailto:PressOffice@tfl.gov.uk)

Howard Carter, General Counsel  
Monday 17 July 2023

**Agenda  
Elizabeth Line Committee  
Tuesday 25 July 2023**

**1 Apologies for Absence and Chair's Announcements**

**2 Declarations of Interest**

General Counsel

**Members are reminded that any interests in a matter under discussion must be declared at the start of the meeting, or at the commencement of the item of business.**

**Members must not take any part in any discussion or decision on such a matter and, depending on the nature of the interest, may be asked to leave the room during the discussion.**

**3 Minutes of the Meeting of the Committee held on 18 May 2023  
(Pages 1 - 4)**

General Counsel

**The Committee is asked to approve the minutes of the meeting of the Committee held on 18 May 2023 and authorise the Chair to sign them.**

**4 Matters Arising and Actions List (Pages 5 - 8)**

General Counsel

**The Committee is asked to note the updated actions list.**

**5 Safety Update (Pages 9 - 18)**

Director, Elizabeth line

**The Committee is asked to note the paper.**

**6 Crossrail Complaints and Claims** (Pages 19 - 20)

Chief Finance Officer

**The Committee is asked to note the paper and the supplementary information on Part 2 of the agenda.**

**7 Elizabeth Line Operations and Programme Completion Update**  
(Pages 21 - 24)

Director, Elizabeth line

**The Committee is asked to note the paper and the supplementary information on Part 2 of the agenda.**

**8 Finance and Risk Update** (Pages 25 - 26)

Chief Finance Officer

**The Committee is asked to note the paper and the supplementary information on Part 2 of the agenda.**

**9 Elizabeth Line Programme Assurance Update** (Pages 27 - 34)

Director of Risk and Assurance

**The Committee is asked to note the paper.**

**10 Elizabeth Line Passenger Usage Insight** (Pages 35 - 46)

Chief Finance Officer

**The Committee is asked to note the paper.**

**11 Update on Measuring Benefits and Impacts** (Pages 47 - 52)

Chief Finance Officer

**The Committee is asked to note the paper.**

## **12 Any Other Business the Chair Considers Urgent**

**The Chair will state the reason for urgency of any item taken.**

## **13 Exclusion of Press and Public**

**The Committee is recommended to agree to exclude the press and public from the meeting, in accordance with paragraphs 3&5 of Schedule 12A to the Local Government Act 1972 (as amended), in order to consider the following items of business.**

### **Agenda Part 2**

## **14 Crossrail Complaints and Claims (Pages 53 - 54)**

**Exempt supplementary information relating to the item on Part 1.**

## **15 Elizabeth Line Operations and Programme Completion Update (Pages 55 - 70)**

**Exempt supplementary information relating to the item on Part 1.**

## **16 Finance and Risk Update (Pages 71 - 74)**

**Exempt supplementary information relating to the item on Part 1.**

## Transport for London

### Minutes of the Elizabeth Line Committee

**Kings Cross/St Pancras Room, 10<sup>th</sup> Floor, Palestra,  
197 Blackfriars Road, London SE1 8NJ  
2.30pm, Thursday 18 May 2023**

#### Members

Heidi Alexander (Chair)  
Anne McMeel (Vice-Chair)  
Seb Dance  
Mark Phillips (via Teams)

Sarah Atkins  
Rachel Bain (Government representative) (via Teams)

#### Executive Committee

Andy Lord                      Interim Commissioner

#### Staff

Andrea Clarke	Director of Legal
Patrick Doig	Group Finance Director and statutory Chief Finance Officer
Lorraine Humphrey	Director of Risk and Assurance
David Knight	Head of Finance (Elizabeth line)
Peter McNaught	Director of Operational Readiness
James Norris	Head of Project Assurance
Howard Smith	Director, Elizabeth line
Richard Zavitz	Lead Sponsor
Sue Riley	Secretariat Officer

#### Also in Attendance

Tim Ball, Director	Director, Elizabeth line (Network Rail)
TC Chew	Chair of Elizabeth line Independent Investment Programme Advisory Group Sub-Group
Emma Gould	Deloitte Board Review Team

### **13/05/23 Apologies for Absence and Chair's Announcements**

Apologies for absence had been received from Dr Nelson Ogunshakin OBE. Mark Phillips was attending via Teams and was able to take part in the discussions but was not counted towards the quorum. The meeting was quorate.

The Chair welcomed everyone to the meeting, including those on Teams, and Rachel Bain deputising for Matt Lodge, Tim Ball representing Network Rail and Emma Gould from Deloitte, who was observing the meeting as part of the TfL Board Effectiveness Review.

On behalf of the Committee, the Chair passed on her condolences to the family of Pam Alexander OBE, who passed away recently. Pam was a former non-executive Director on the Board of Crossrail Limited from December 2015 to June 2018 and a member of the London Legacy Development Corporation and a former Chair of its Planning Decisions Committee.

The meeting was also being broadcast live to TfL's YouTube channel to ensure the public and press could observe the proceedings and decision making.

TfL maintained a priority focus on safety. The Chair highlighted that there was a specific agenda item on safety, which would be the first item considered at the meeting. She invited Members to raise any safety issues either under the specific agenda item or with the appropriate member of the Executive Committee after the meeting.

### **14/05/23    Declarations of Interests**

Members on the TfL Board confirmed that their declarations of interests, as published on [tfl.gov.uk](http://tfl.gov.uk), were up to date and there were no interests to declare that related specifically to items on the agenda.

### **15/05/23    Minutes of the Meeting of the Committee Held on 24 January 2023**

**The minutes of the meeting of the Committee held on 24 January 2023 were approved as a correct record and the Chair was authorised to sign them.**

### **16/05/23    Matters Arising and Actions List**

Andrea Clarke introduced the paper. All actions from previous meetings had been completed or were scheduled on the forward plan.

**The Committee noted the updated actions list.**

### **17/05/23    Safety Update**

Howard Smith introduced the paper, which provided an update on safety for Periods 12 and 13 of 2022/23 with a continued focus on 'close calls'.

Safety data in relation to MTR and passenger incidents were reported and reviewed internally.

Appropriate follow up actions had been taken in relation to the North Woolwich Portal incident.

**The Committee noted the paper.**

## **16/05/23 Elizabeth Line Operations and Programme Completion Update**

Howard Smith introduced the paper on operational performance of the Elizabeth line and the closure of the Crossrail project, with a focus on successfully closing down the project.

The final phase of the scheduled timetable (peak frequency) was scheduled to be introduced by the end of May 2023.

There continued to be some challenges in day to day performance, particularly in relation to the western section of the railway which were being addressed by Network Rail. Issues with the most recent software updates had also been addressed.

The Commissioner continued to challenge Siemens and Alstom as to the speed and efficiency of train upgrades.

Customer passenger numbers continued to be high with good performance on step-free access and customer satisfaction scores.

**The Committee noted the paper.**

## **17/05/23 Finance and Risk Update**

Patrick Doig and David Knight introduced the update on the financial performance at Period 13 of 2022/23 and on risk management progress.

**The Committee noted the paper and the exempt supplementary information on Part 2 of the agenda.**

## **18/05/23 Elizabeth Line Programme Assurance Update**

Lorraine Humphrey and James Norris introduced the paper, which provided an update on progress with Elizabeth line Programme Assurance activity since the previous report. TC Chew was also in attendance.

The resilience of the Great Western infrastructure and the impacts on performance on the overall end-to-end train service continued to be a concern but significant improvements in the visibility of the Network Rail data on infrastructure failures, and mitigating improvement plans were being implemented.

**The Committee noted the paper and the exempt supplementary information on Part 2 of the agenda.**

## **19/05/23 Members' Suggestions for Future Discussion Items**

Andrea Clarke introduced the item and the Committee's forward plan.

**The Committee noted the forward plan.**

## **20/05/23 Any Other Business the Chair Considers Urgent**

There was no other urgent business to discuss.

## **21/05/23 Date of Next Meeting**

The next scheduled meeting of the Committee would be held on Tuesday 25 July 2023 at 3pm. This is expected to be the final meeting of the Committee.

## **22/05/23 Exclusion of the Press and Public**

The Committee agreed to exclude the press and public from the meeting, in accordance with paragraph 3 of Schedule 12A to the Local Government Act 1972 (as amended), when it considered the exempt information in relation to the items on Finance and Risk Update and Elizabeth Line Programme Assurance Update.

The meeting closed at 3.20pm.

Chair: \_\_\_\_\_

Date: \_\_\_\_\_

## Elizabeth Line Committee

Date: 25 July 2023

Item: Matters Arising and Actions List



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### This paper will be considered in public

#### 1 Summary

1.1 This paper informs the Committee of progress against actions agreed at previous meetings.

#### 2 Recommendation

2.1 **The Committee is asked to note the Actions List.**

#### List of appendices to this report:

Appendix 1: Actions List

#### List of Background Papers:

Minutes of previous meetings of the Elizabeth Line Committee

Contact Officer: Howard Carter, General Counsel

Email: [HowardCarter@tfl.gov.uk](mailto:HowardCarter@tfl.gov.uk)

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Elizabeth Line Committee Actions List (to be reported to the meeting on 25 July 2023)

Appendix 1

Actions from the meeting held on 18 May 2023: No actions

Actions from previous meetings:

Minute No.	Item/Description	Action By	Target Date	Status/Note
77/11/22	<b>Matters Arising and Actions List – Crossrail Complaints</b> A final note to be provided to the Committee once all Crossrail complaints had been resolved.	Patrick Doig	25 July 2023 meeting.	<b>Completed.</b> Information has been circulated and a paper is on the agenda for this meeting.
83/11/22	<b>Members’ Suggestions for Future Discussion Items</b> An update on Elizabeth line usage to be provided to a future meeting.	Patrick Doig	25 July 2023 meeting.	<b>Completed.</b> A paper is on the agenda for this meeting.

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## Elizabeth Line Committee



**Date:** 25 July 2023

**Item:** Safety Update

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### This paper will be considered in public

## 1 Summary

1.1 This paper provides an update on safety for Periods 1, 2, and 3 of 2023/24.

## 2 Recommendation

2.1 **The Committee is asked to note the paper.**

## 3 Overall Safety Update

3.1 This paper includes a performance update for the Infrastructure Manager, Rail for London (Infrastructure) Limited (RfL(I)), and the Crossrail Programme.

3.2 With respect to operational safety, all RfL(I) Safety Key Performance Indicators (SKPIs) remain better than target. As at Period 3, there have been no RIDDOR (Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013) reportable incidents, and no fatalities or serious workforce Injuries. There has been one Lost Time Injury (LTI) reported during Period 3 which is the first LTI reported since Period 12 of 2021/22. There is an ongoing focus on proactive safety management including the reporting of Close Calls.

3.3 Safety of the Crossrail Programme remained strong up until it ceased as a Programme on the 26 May 2023 with no significant incidents reported during the last nine periods of the programme. All remaining residual works have now transferred to Capital Works under RfL(I).

## 4 Operational Safety Update

4.1 The RfL(I) SKPIs are all better than the annual target:

(a) RfL(I) recorded no RIDDOR events during Periods 1, 2 and 3, with the RIDDOR event rate at 0.00 for all three periods.

(b) RfL(I) recorded one LTI during Period 3, the LTI Accident Frequency Rate is 0.10 at Period 3.

4.2 A Close Call is defined as anything that has the potential to cause harm or damage – for example, the potential to cause major or minor harm to a person, damage to railway infrastructure or environmental damage.

- 4.3 Twelve Close Calls were reported in Period 1, 13 for Period 2, and a further 12 during Period 3. The rate of Close Calls reported is at a level trend.
- 4.4 The Safety, Health and Environment (SHE) Business Partners are actively working with the business with appropriate processes in place to ensure all Close Calls are investigated and closed within the expected timeframe.
- 4.5 The number of incidents (unplanned, uncontrolled events that have occurred that may or may not have resulted in harm to the environment, infrastructure or equipment) totals eight for the last three periods; five reported during Period 1, one during Period 2, and two reported during Period 3, this compares to nine recorded during the previous three periods.
- 4.6 There have been two accidents (unplanned, uncontrolled events that have occurred that have resulted in injuries) reported so far this Financial Year, one during Period 1 and one during Period 3. The accident during Period 3 resulted in a LTI where an operative tripped on the track. This the first LTI recorded since Period 12 2021/22. The LTI Accident Frequency Rate at Period 3 is 0.10.
- 4.7 The SHE Business Partnering team continue to support the business on a day to day basis while implementing a rolling programme to align the management of SHE within RfL(I) with the wider TfL business.
- 4.8 The latest version of the RfL(I) Main Line Safety Authorisation was agreed by the Office of Road and Rail and issued on 27 April 2023.

**List of Appendices:**

Appendix 1: RfL(I) Safety, Health and Environment Dashboards.

**List of Background Papers:**

None

Contact Officer: Howard Smith, Director, Elizabeth line  
Email: [howardsmith@tfl.gov.uk](mailto:howardsmith@tfl.gov.uk)



# **RfLI Safety, Health and Environment Performance Dashboards Period 3 2023/24 – Appendix 1**

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**28/05/23 to 24/06/23**

## Executive Summary

### Reasons to celebrate

- All Safety Key Performance Indicators are within tolerance levels.
- 90% of Investigation Actions have been closed.
- Elizabeth line SHE forum established. First meeting to take place at Paddington on 13 July 23.
- A total of 6 (6 fewer than previous period) Investigation Actions remain overdue

### Areas for Improvement

- 61% of Close Calls have been reported within 24 hrs, this is showing a declining trend.
- Information Exchange (IE2) failed to go live due to unforeseen lack of General Data Protection Regulation (GDPR) training (it is a mandatory course).

### Next Steps

- GDPR training was completed by 15 June 2023 to enable system upload (2-week lag)
- IE2 accountable manager training, investigator and user training can then take place.
- iAuditor App training being delivered so that Senior Manager Safety Tours can commence.
- Network Rail Benchmarking.



# RfLI Safety Performance Period 3 2023/24 Overall

## Adverse Events

**Accidents:** One

- 11/06 Tottenham Court Road WB Track – During a line block the IP tripped and fell heavily on the track while retrieving an item – this resulted in a LTI.

**Incidents:** Three (Detail on Incident/Accident Analysis dashboard)

## Engagement (Close Calls)

The Engagement rate for Close Calls increased slightly to 15.1 reported every 100k hours worked.

## Safety KPIs and Benchmarking

RIDDOR Accident Frequency Rate (AFR) remains at 0.00 with zero reported for twenty-three periods. There was one Lost Time Injury (LTI) reported during the period with the AFR now at 0.10. Both the TfL SKPIs are within the tolerance levels.

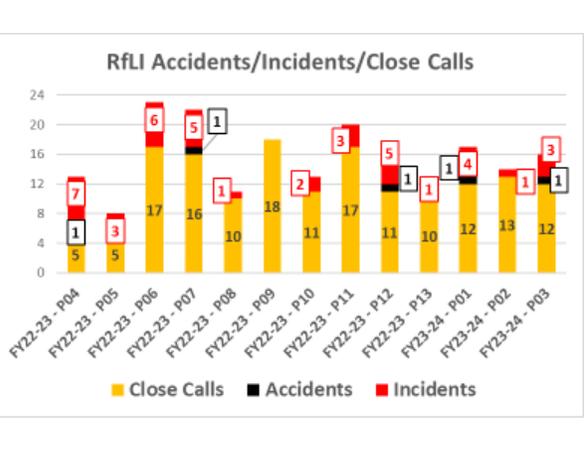
## Aggressive Behaviour

95% of aggressive behaviour towards staff – verbal and physical – is towards MTREL staff, both RfLI and Alstom make up 2.4%.

## Investigation Actions

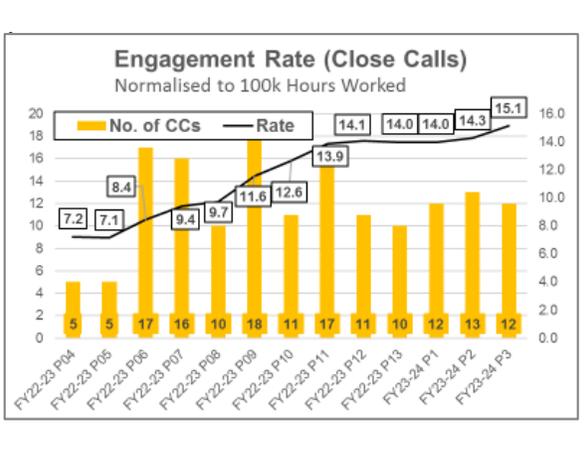
ten investigation Actions were closed during the period. Ten are currently open with six overdue.

## Accidents/Incidents/Close Calls



Three Incidents, one Accident and twelve Close Calls were recorded during Period 3.

## Leading Indicator Engagement (CCs)



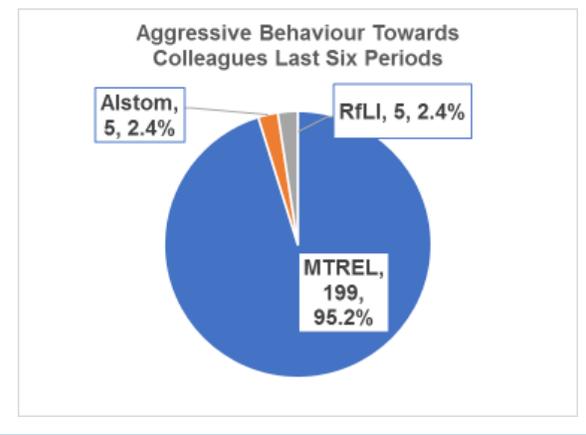
Engagement (Close Calls) metric is 15.1 CCs recorded, normalised to every 100k hrs worked, over the last thirteen periods.

## SKPIs and Rail Benchmarking

EL TfL Scorecard Measures	Annual Target	Period 03 23/24	YTD as at P03
	Customer Injuries Per Million Passenger Journeys	2.49	1.63 ↓
Workforce Injuries (FY Target)	101	5 ↑	15 ↑

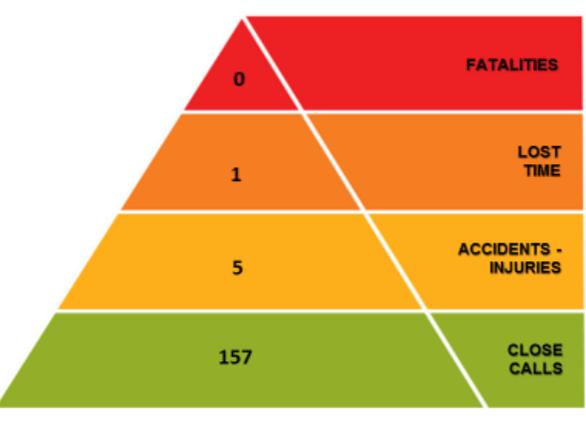
Rail benchmarking in progress

## Aggressive Behaviour



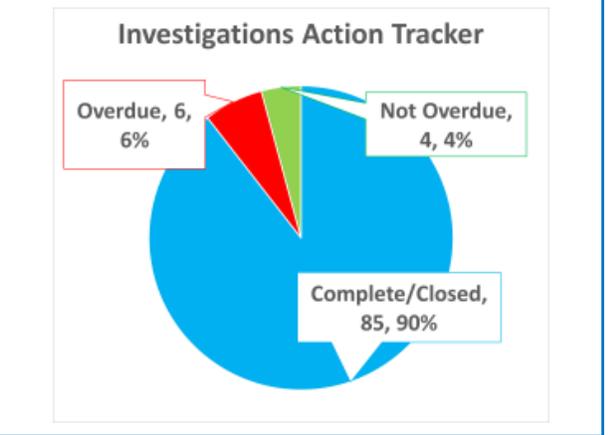
95% of aggressive behaviour (verbal and physical) is towards MTR Colleagues.

## Safety Triangle



Last 13 Periods – RfLI data

## Investigation Actions



Ten Actions were closed during the last period. Six investigation Actions are currently overdue.



# RfLI Safety Performance Period 3 2023/24 Aggressive Behaviour

95% of all aggressive behaviour to Customer and Colleague – verbal and physical – is recorded by MTR.

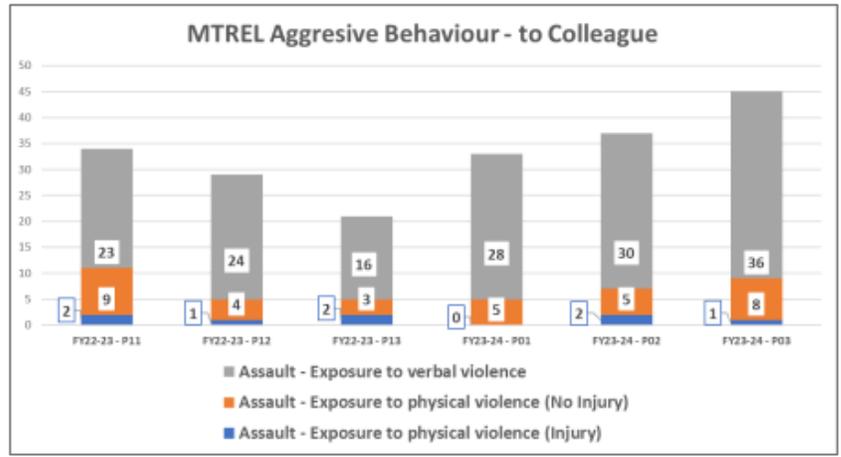
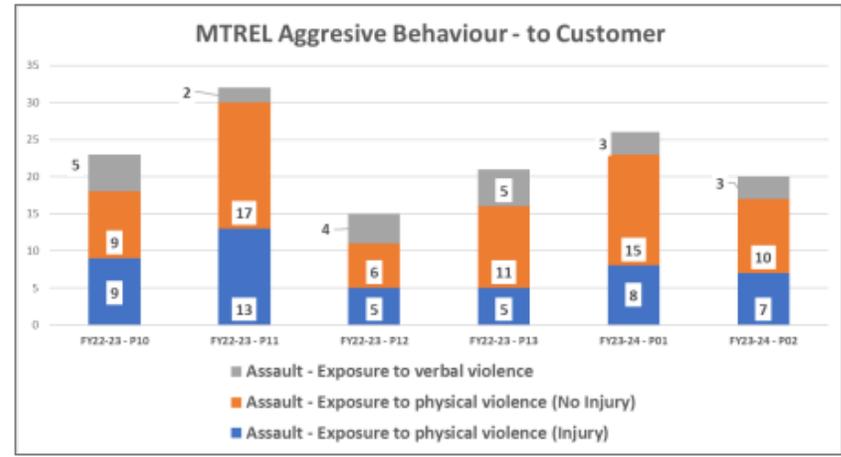
The aggressive behaviour reported by Alstom were objects being thrown from Taplow Court into the depot.

Two of the aggressive acts reported by RfLI colleagues were at Eleanor Street Shaft. The latest incident was reported at Stepney Green Shaft where an individual threatened contractors with a large hammer.

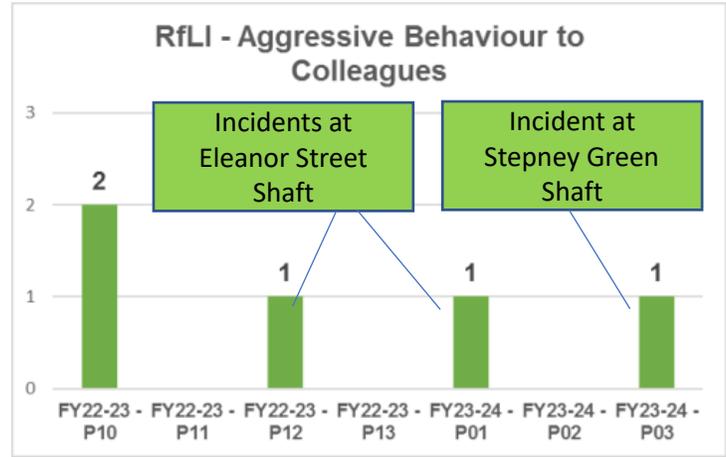
Page 14

## Aggressive Behaviour

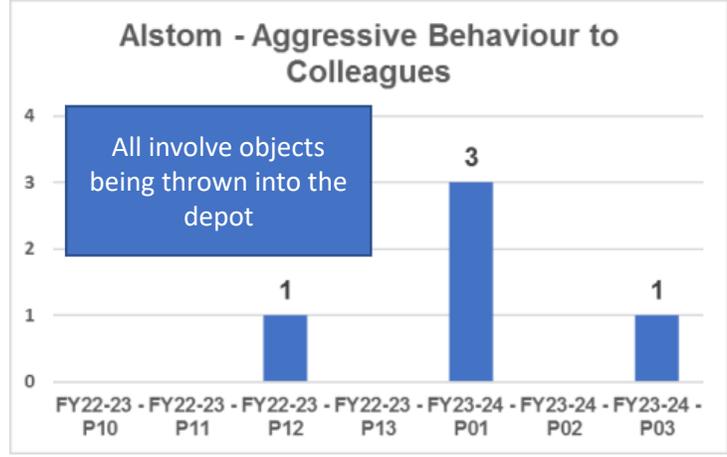
### MTR EL



### RfLI



### Alstom



# RfLI Safety Performance Period 3 2023/24 AFRs/FWI Trends

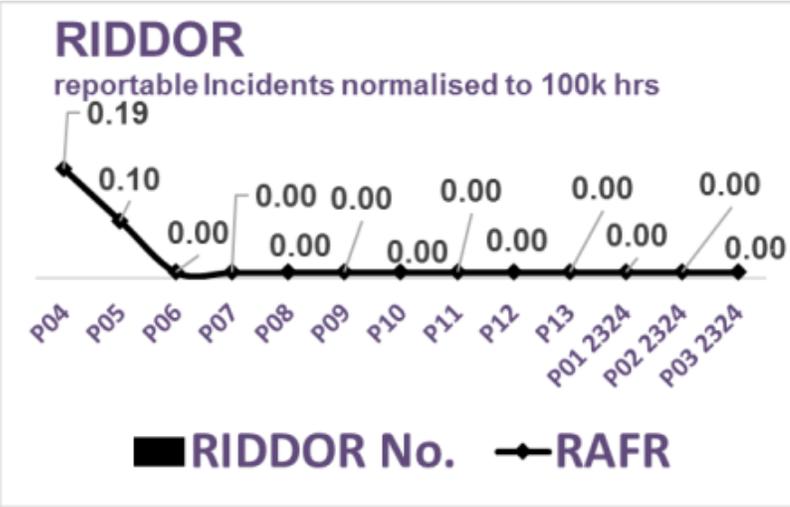
The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR) AFR is showing a level trend at 0.00 with no RIDDORs reported during the last 22 periods.

There was one Lost Time Injury (LTI) during the last period, the first in seventeen periods, the AFR is 0.10 up from 0.00.

Five Workforce injuries occurred the period, two MTREL, two Alstom, and one RfLI which was the LTI.

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## RIDDOR Number and AFR - RfLI



## Workforce Injuries – Elizabeth Line



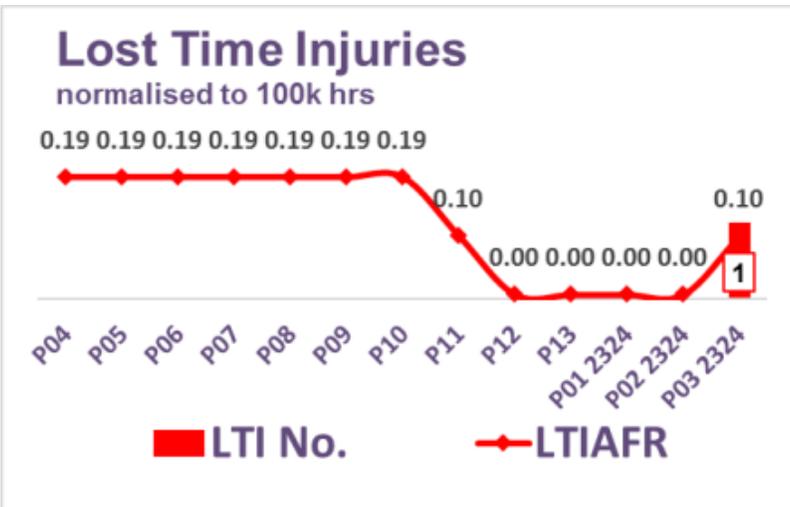
Workforce Injuries include minor & major for; RfLI, MTR, Alstom

## Customer Injuries – Elizabeth Line



Customer Injuries are calculated using the MTREL Customer Injury dataset.

## Lost Time Injuries No. and AFR - RfLI



# RfLI Safety Performance Period 3 2023/24 Accident/Incident Analysis

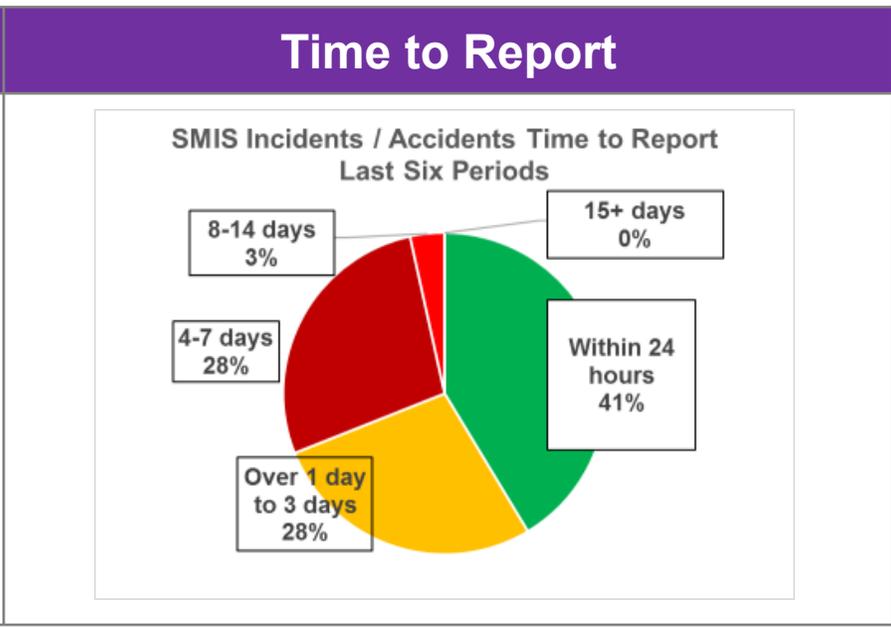
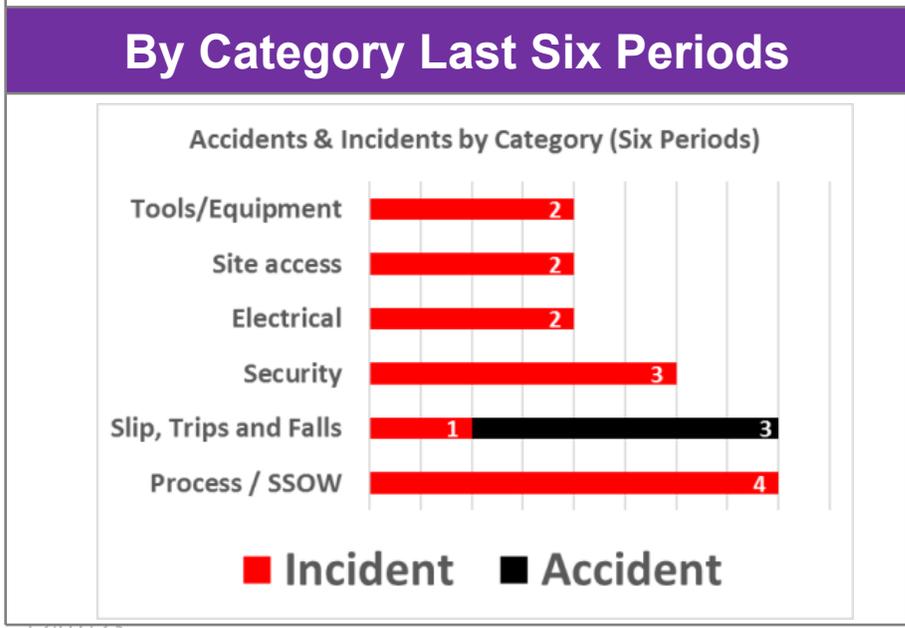
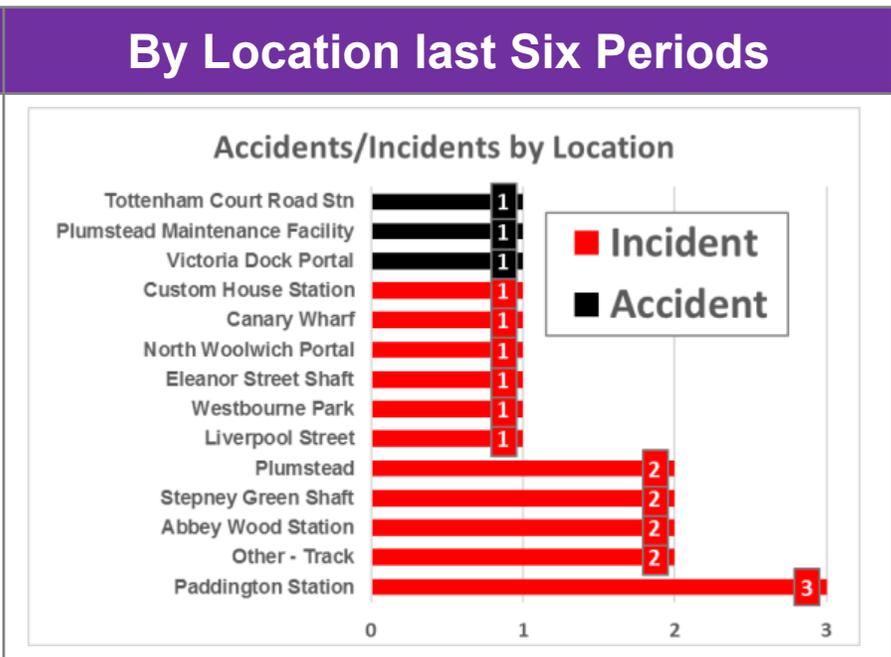
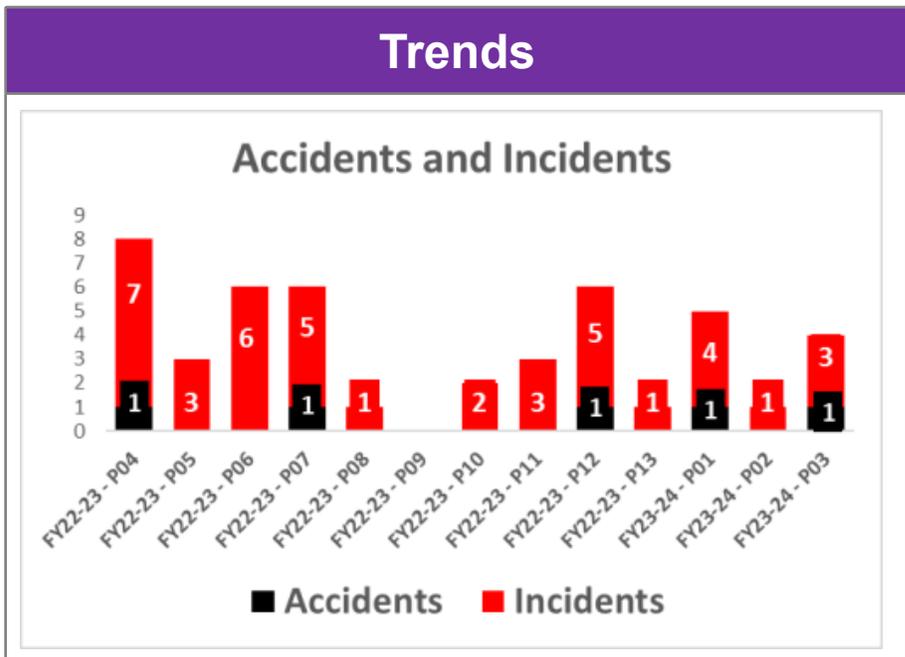
## Accidents: One

- 11/06 Tottenham Court Road WB Track – During a line block the IP tripped and fell heavily on the track whilst retrieving an item, this resulted in bruising to their chest and knees.

## Incidents: Three

- 11/06 Stepney Green Shaft - An individual with a large hammer approached two RfLI contractors whilst sitting in their vehicles. The individual was using threatening behaviour and at one point was banging on the vehicles and tried to open the car door.
- 01/06 XR334 to XR338 – Possession - Route bar implemented, Robel 6R01 carried out movement and therefore not in compliance with the restriction in place.
- 23/06 Plumstead East Junction Train 5U83 had its movement authority removed by the RfLI signaller as it was approaching XR372 travelling EB on the EB line. The train came to a stand beyond the route marker board. This was done to try to prevent a routing conflict with another train which was going to result in a standoff situation.

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12/07/23

# RfLI Safety Performance Period 3 2023/24 Close Call Analysis

## Close Calls

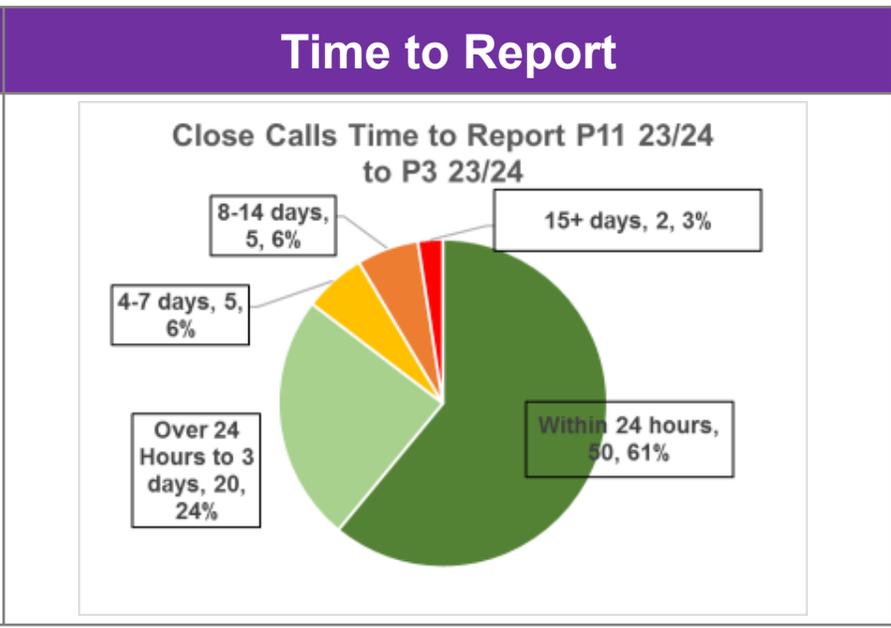
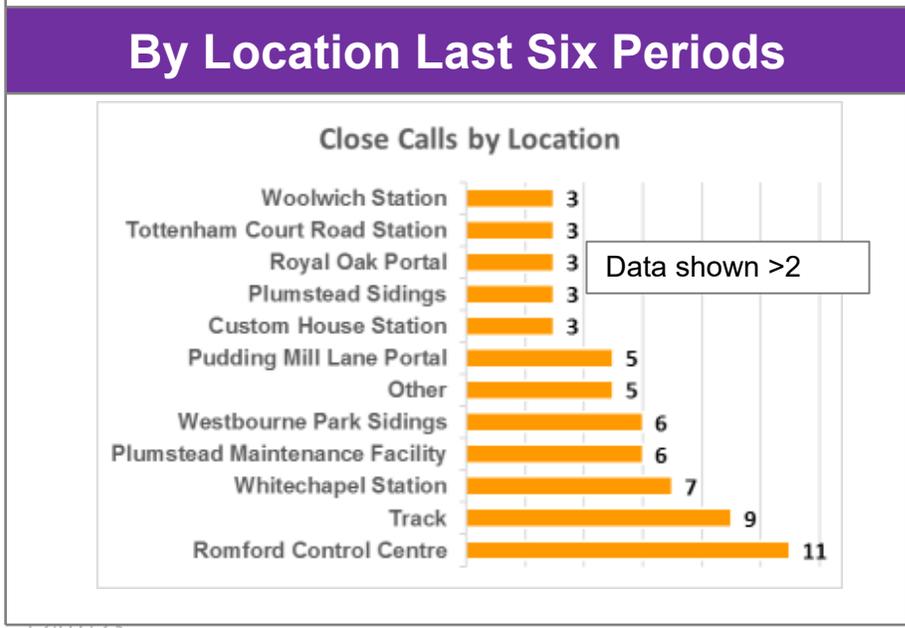
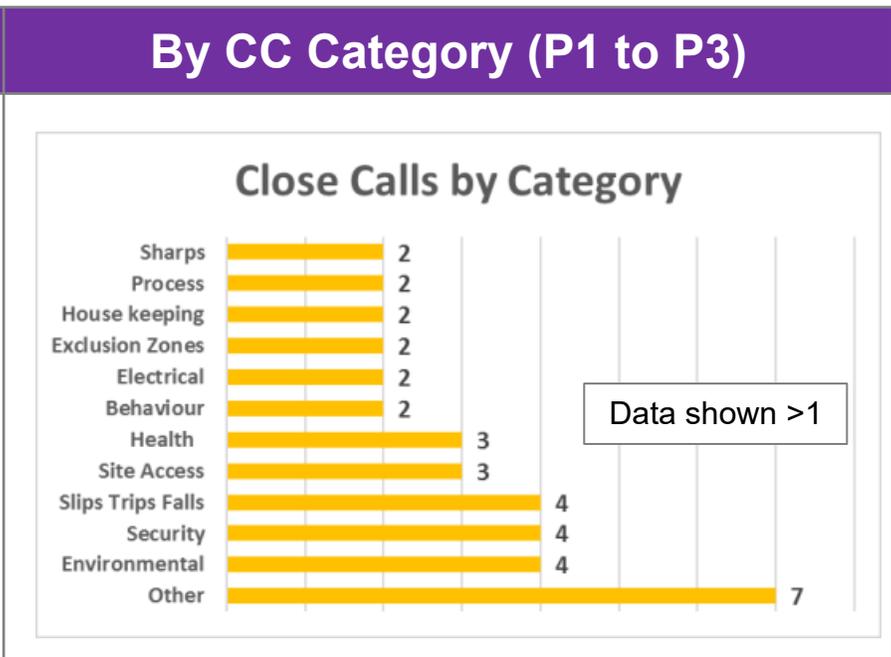
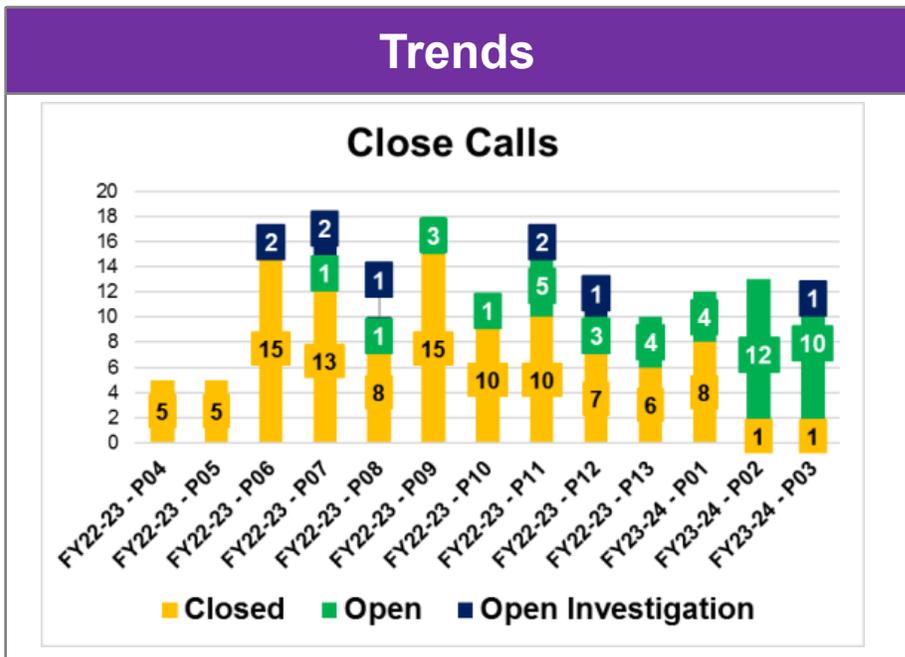
Twelve Close Calls (CCs) were reported during P3, a decrease of one from the previous period.

44 CCs remain open (at the end of P3), an increase of three from the last period.

The Romford Control Centre has the most reported CCs, the most common CC Category reported at the RCC (over 6 periods) is Electrical with 3.

When looking at Close Calls by Category, other than Other which has seven, Environment, Security, and Slips, Trips, Falls are the most common recorded with four each.

61% of all CCs are reported within 24 hours of the event, showing a declining trend.



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## Elizabeth Line Committee



**Date:** 25 July 2023

**Item:** Crossrail Complaints and Claims

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### **This paper will be considered in public**

## **1 Summary**

- 1.1 This paper provides a final update to the Committee on the close-out of the three cases identified by the Crossrail Complaints Commissioner that remained when the Crossrail Complaints Committee was concluded in August 2022, and an ongoing business interruption compensation claim.
- 1.2 A paper is included on the Part 2 agenda which contains supplementary information that is exempt from publication by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL and other parties. Any discussion of that exempt information must take place after the press and public have been excluded from the meeting.

## **2 Recommendation**

- 2.1 **The Committee is asked to note the paper and the supplementary information on Part 2 of the agenda.**

## **3 Remaining cases**

- 3.1 The Crossrail Complaints Committee concluded in August 2022. The Complaints Commissioner, Stephen Jolly, provided a final report on 24 November 2022, where he identified three cases which had not fully concluded:
  - (a) Bond Street Western Ticket Hall;
  - (b) Whitechapel, Durward Street, west of the former Temporary Ticket Hall; and
  - (c) Abbey Wood.
- 3.2 The Committee has been kept informed on the status of these cases, with a verbal update to the meeting of the Committee on 24 January 2023 and a written update sent to Committee Members on 15 May 2023. We have received no further correspondence relating to these complaints and there has been no change to the position as reported in our May 2023 update to Members. These cases are therefore closed.

3.2 In addition to the cases identified by the Crossrail Complaints Commissioner, there is an ongoing business interruption compensation claim and details of that are provided in the exempt appendix to Part 2 of the paper.

**List of appendices to this report:**

A paper containing exempt supplementary information is included on Part 2 of the agenda.

**List of Background Papers:**

Minutes of Elizabeth Line Committee on 23 January 2023.

Contact Officer: Patrick Doig, Acting Chief Finance Officer  
Email: [Patrick.Doig@tfl.gov.uk](mailto:Patrick.Doig@tfl.gov.uk)

## Elizabeth Line Committee



**Date:** 25 July 2023

**Item:** Elizabeth Line Operations and Programme Completion Update

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### **This paper will be considered in public**

## **1 Summary**

- 1.1 This paper provides an update on Elizabeth line operations, including the final transition to an integrated railway on 21 May 2023 that marked the end of the Crossrail project. The project closed on 26 May 2023, with the team closing out or transitioning activities to TfL and declaring final completion for endorsement by the Sponsors.
- 1.2 Following the initial phase of transition, the Elizabeth Line Delivery Group (ELDG) was formed to ensure appropriate oversight of the delivery of the Elizabeth line by Crossrail and the Transport for London (TfL) Executive. The ELDG is chaired by the Commissioner. In line with the commitments made by the Mayor for greater transparency of the Crossrail project, the minutes and actions from ELDG are available on our website<sup>1</sup>. Available reports are uploaded to correspond to the meeting of this Committee.
- 1.3 A paper is included on the Part 2 agenda which contains supplementary information that is exempt from publication by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL and other parties. Any discussion of that exempt information must take place after the press and public have been excluded from the meeting.

## **2 Recommendation**

- 2.1 **The Committee is asked to note the paper and the supplementary information on Part 2 of the agenda.**

## **3 Operations and Programme update**

- 3.1 The latest Elizabeth line timetable was introduced on Sunday 21 May 2023. This timetable change sees the railway move to a peak service of 24 trains per hour in the central section, an increase from the current 22 trains per hour, and also increases connectivity and reduces journey times.
- 3.2 The introduction of this timetable change marked the end of the Crossrail project.
- 3.3 The project closed on 26 May 2023, with the team closing out or transitioning activities to TfL and declaring final completion for endorsement by the Sponsors.

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<sup>1</sup> <https://tfl.gov.uk/corporate/publications-and-reports/elizabeth-line-delivery-group>

- 3.4 A paper is provided in Part 2 to provide an update on the project completion and the status of the close out discussions with the Department for Transport (DfT) as joint Sponsor of the Crossrail programme.
- 3.5 After final completion, bespoke Crossrail Programme governance is no longer required, with Elizabeth line reporting integrating into TfL operational governance.
- 3.6 Customer scores and operational performance will be reported to the Customer Service and Operational Performance Panel, safety issues will be included in the quarterly Safety, Health and Environment reports to the Safety, Sustainability and Human Resources Panel and the Commissioner's report to the Board will also contain updates on issues of note. The new Investment Programme structure approved by the Programmes and Investment Committee on 17 May 2023, includes an Elizabeth Line Programme for future investment approvals.

## 4 Performance and Reliability

- 4.1 Since the introduction of the new timetable on 21 May 2023 focus has remained on improving performance and reliability, working collaboratively with Network Rail on our joint infrastructure.
- 4.2 The overall Public Performance Measure (PPM) scores on the Elizabeth line for Period 1 (1 April – 29 April 2023) was 87.8 per cent, Period 2 (30 April – 27 May 2023) was 88.3 per cent and Period 3 (28 May – 24 June 2023) 87.5 per cent.
- 4.3 Charts showing Elizabeth line PPM, trips run and delays over 15 minutes (data date 5 March – 24 June 2023).



4.4 The key issues in terms of reliability have been:

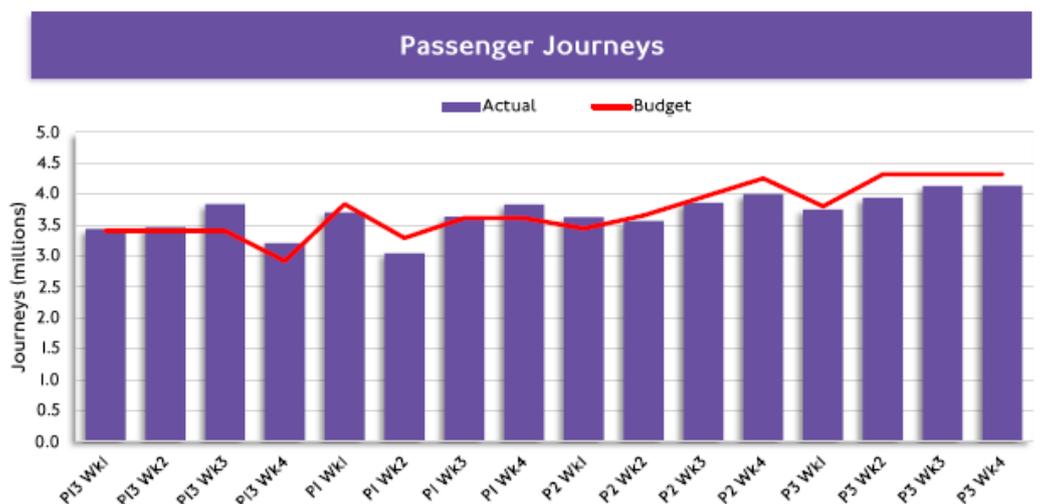
- (a) The reliability of the class 345 trains. Software upgrades have been rolled out and loaded onto the fleet which has improved reliability with further upgrades planned in July and August;
- (b) performance affecting regressions ('bugs') following the ELR400 signalling update. A programme of patch releases were delivered between May and early July to improve reliability; and
- (c) Network Rail infrastructure, where failures in both the East and West have disrupted services

## 5 Customer Experience

5.1 Passenger journeys continue to increase on the line, with an average of 600,000 journeys made each day.

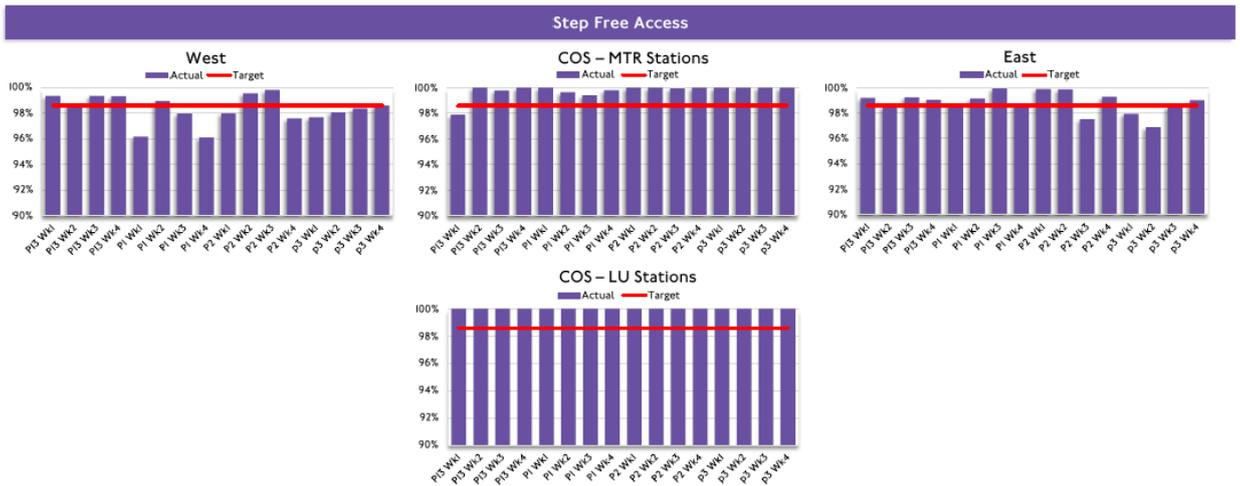
5.2 The week ending 17 June 2023 saw a record number of passenger journeys, with a total of 4.1million with Thursday 15 June 2023 seeing 685,000 passenger journeys, the highest overall daily number since opening.

5.3 The chart below showing weekly passenger journeys in millions vs budget: (data date 5 March – 24 June 2023). Revenue was ahead of budget due to a higher than expected yield following the commencement of full through running.



5.4 Step-free access availability was above target for the first quarter of the year. At MTR stations it was 98.6 per cent in Period 1, 99.2 per cent in period 2 and 98.5 per cent in period 3. London Underground central stations had 100 per cent availability across the three periods.

5.5 Chart showing weekly step-free access availability by section / operator (data date 5 March – 24 June 2023):



5.6 Customer satisfaction remains high on the Elizabeth line with the Customer Satisfaction Survey score in Quarter 4 at 82.

**List of appendices to this report:**

Exempt supplemental information is contained in a paper on Part 2 of the agenda.

**List of Background Papers:**

None

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## Elizabeth Line Committee



**Date:** 25 July 2023

**Item:** Finance and Risk Update

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### This paper will be considered in public

#### **1 Summary**

- 1.1 This paper provides an update on the financial performance at Period 3 2023/24 (1 April 2023 to 24 June 2023) and on risk management progress.
- 1.2 A paper is included on the Part 2 agenda which contains supplementary information that is exempt from publication by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL and other parties. Any discussion of that exempt information must take place after the press and public have been excluded from the meeting.

#### **2 Recommendation**

- 2.1 **The Committee is asked to note the paper and the supplementary information on Part 2 of the agenda.**

#### **3 Elizabeth Line Operational Finance**

- 3.1 In the financial year to date (YTD) to Period 3, passenger journeys for the Elizabeth line were one million lower than budget. Fares income was £12m above budget due to an adjustment relating to 2022/23, plus a growth in yield (average fare per journey).
- 3.2 YTD, direct operating costs were £1m lower than budget, and the Net Operating Contribution for the Elizabeth line was £13m favourable to budget. Elizabeth line capital expenditure was £2m lower than budget for the YTD.
- 3.3 The Elizabeth line is forecast to achieve operational breakeven in the year 2023/24.

#### **4 Crossrail Programme Financial Performance**

- 4.1 Spend in Period 3 (28 May 2023 to 24 June 2023) was £7m, and £18m for the financial YTD. The period spend was £6m above the Delivery Control Schedule 1.2 (DCS1.2) budget and the Programme is £11m above the DCS1.2 budget for the year to date.

- 4.2 On average the Programme has seen an overspend of £4m a period in this financial year. At the time the DCS1.2 budget was set, the majority of work was expected to have been completed by now. However additional scope, rephasing of work and changes to transition plans have meant that some work is ongoing.
- 4.3 The number of Crossrail full time equivalent staff is 79 (this excludes any consultancy resource and vacancies). This was 79 higher than had been forecast in the DCS1.2 Workforce Plan, which assumed that there would be no staff remaining at this point in time.

## **5 Anticipated Final Crossrail Direct Cost (AFCDC)**

- 5.1 In Period 3 the P50 (50th percentile) AFCDC was £15,903m, unchanged from that reported in Period 13.

## **6 Funding**

- 6.1 The total funding package for the programme remained unchanged at £15,887.5m.
- 6.2 The total funding package is £15.5m below the P50 AFCDC. This remains well below the “up to £1.1bn” requirement.

## **7 Risk**

- 7.1 There are seven Level 1 Risks at Period 3.
- 7.2 These risks summarise the significant risks that face the Elizabeth line and residual Crossrail Programme. Review and update of Level 1 and working-level risks is a well-established part of senior management activity.

### **List of appendices to this report:**

Exempt supplemental information is contained in a paper on Part 2 of the agenda.

### **List of Background Papers:**

None

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## Elizabeth Line Committee



**Date:** 25 July 2023

**Item:** Elizabeth Line Programme Assurance Update

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### **This paper will be considered in public**

#### **1 Summary**

- 1.1 This paper reports on progress with programme assurance activity across the Elizabeth line since the last report to the Committee.

#### **2 Recommendation**

- 2.1 **The Committee is asked to note the paper.**

#### **3 Background**

- 3.1 The Elizabeth line Integrated Assurance Framework is based on a Three Lines of Defence model comprising:

- (a) Line 1 – Management functions of Crossrail Limited (CRL), Rail for London (Infrastructure) Limited and key interfaces;
- (b) Line 2 – Project and Programme Assurance Elizabeth line (PPA-EL); and
- (c) Line 3 – TfL Internal Audit and the IIPAG sub-group (IIPAG-EL).

- 3.2 This paper reports specifically on Line 2 (PPA-EL), Line 3 (Internal Audit) and Line 3 (IIPAG-EL) assurance progress.

#### **4 Line of Defence 2 (LoD2) Assurance**

- 4.1 The commencement of Stage 5c of the Elizabeth line on 21 May 2023 completes the final stage of the train service operations linking Abbey Wood and Shenfield in the east with Heathrow and Reading in the west via the central operating section (COS). The challenges of running a fully integrated metro frequency railway on infrastructure provided by Network Rail (NR) in the east and west through the COS provided by CRL have resulted in occasional days of reduced performance, as measured by the public performance measure, below that required to maintain a resilient Stage 5c timetable. The continuing operating challenge going forward is to improve the reliability and resilience of the end-to-end railway to achieve the required trains per hour (tph).
- 4.2 The resilience of the Great Western infrastructure and the impacts on performance on the overall end-to-end train service continue to be a concern. There have been significant improvements in the visibility of the NR data on infrastructure failures, and the improvement plans being implemented to mitigate the issues.

- 4.3 Fleet availability consistently achieves 65 train units per day, which is the requirement for Stage 5c. Alstom are actively working on train software and hardware service affecting failures which are resulting in reliability and performance below that required to provide a consistently robust Stage 5c timetable.
- 4.4 The latest Computer Based Train Control software provided by Siemens is being upgraded progressively to supplement the ELR400 software installed at Easter 2023. The next major software installation will be ELR500 scheduled for Easter 2024, which will address a number of reliability performance matters which have become apparent during passenger service operations.
- 4.5 Since the last meeting of the Committee, LoD2 Periodic Assurance Review Reports have provided input to the periodic Integrated Assurance Report to the Elizabeth Line Delivery Group and to the Audit and Assurance Committee.
- 4.6 The LoD2 assurance process of regular interaction with the CRL team continued when the Crossrail Close Out Strategy was developed, and close out was divided into 10 Areas of Closeout and Transition (ACTS) identifying the activities required to close out the programme in a controlled way. The delivery of the workstreams identified in the ACTS (Stations Delivery, Routeway Delivery, Health, Safety and Environment, Commercial Services, IT Services, Engineering, Delivery Assurance, Finance, Human Resources, Transition and Closeout) enabled satisfactory completion of the obligations set out in the Project Development Agreement (PDA). Appendix 1 sets out the summary LoD2 position on CRL's response to the obligations and concludes that CRL have undertaken their obligations as set out in the PDA and have not transferred any residual risk to TfL as a result. There are some obligations relating to On-Network Works which are not included in the PDA and once complete will enable Final Completion to be considered as described in a paper elsewhere on the agenda.

## **5 Line of Defence 3 (LoD3 - IIPAG-EL) Assurance**

- 5.1 The terms of reference of the IIPAG-EL sub-group provide "look ahead" overview and areas of interest highlighted as part of the revised Integrated Audit and Assurance Schedule in February 2022. Support was provided to the assessment conducted by LoD2 to ensure adequacy and consistency. The schedule was maintained and reviewed regularly with the Elizabeth Line Programme Assurance Group which was co-ordinated by LoD2.
- 5.2 The focus by LoD3 over the reporting period was on the performance of the system in maintaining the 24tph service and the resilience of the system, both technically and operationally. The operational teams have risen to the challenge and continue to learn through their various experiences. There have been some challenges around the signalling functionality, the Customer Information System, and the fleet reliability remains a challenge. The performance of both Great Western and Anglia will need to be continually monitored to ensure continued improvement.
- 5.3 In general, the overall assurance framework for the Elizabeth line has continued to operate effectively.

## **6 Line of Defence 3 (LoD3 - TfL Internal Audit) Assurance**

6.1 This section covers the Internal Audit activities that were agreed in the Integrated Audit and Assurance schedule.

6.2 There no audit reports issued in Quarter 1 of 2023/24 (1 April to 24 June 2023) (Q1).

### **Audit Delivery**

6.3 There was one audit in progress at the end of Q1 – Elizabeth Line Transition from Capital Programme to business-as-usual, and details are provided in Appendix 2. There is an audit planned for Quarter 3 of 2023/24 (17 September to 9 December 2023) on Privacy and Data Protection: Surveillance Cameras in London Underground and Elizabeth line trains. This will be reported to the Audit and Assurance Committee as part of the Risk and Assurance quarterly report.

### **Management Actions**

6.4 The team monitors the implementation of all Internal Audit management actions and confirms whether they have been adequately addressed before closing them. There are 16 actions open with 10 overdue at the end of Q1. Two of the actions are now overdue since 30 June 2023 and relate to the audit on Obsolescence of Critical Systems.

## **7 Transition to Business-as-Usual Assurance**

7.1 In December 2022 responsibility for the project and programme assurance of the Elizabeth line was incorporated into the remit of the TfL Project Assurance team. Third line assurance continued to be undertaken by Internal Audit and the IIPAG-EL sub-group.

7.2 The responsibility for future third line project and programme assurance will remain with IIPAG, however the IIPAG-EL sub-group will be disbanded. Elizabeth line assurance will be incorporated into the overall IIPAG work plan.

7.3 The work of Project Assurance and IIPAG is overseen by the Audit and Assurance Committee and provides assurance on capital works to the Programmes and Investment Committee. Assurance of the Elizabeth line will be incorporated into the regular reports that Project Assurance and IIPAG submit to those Committees.

7.4 The focus for future Elizabeth line assurance will cover the following areas:

(a) a targeted assurance review to align with the TfL project completion stage gate following financial close as agreed as part of the recent Infrastructure and Projects Authority review;

(b) continuous assurance monitoring of the reliability performance of the rolling stock, until an acceptable level of reliability has been achieved;

(c) continuous assurance monitoring of the management of the Siemens

contracts until delivery of ELR500 – currently scheduled for Easter 2024;

- (d) targeted assurance reviews on the identified residual capital works being undertaken by TfL (and funded by CRL) including the Plumstead power supply requirements;
  - (e) annual targeted assurance reviews on the Elizabeth line capital renewal works programme;
  - (f) targeted assurance reviews on capital projects exceeding £5m in value, selected on the basis of risk and project lifecycle stage; and
  - (g) additional assurance identified as necessary, or as directed.
- 7.5 Going forward, assurance updates of the Elizabeth line will be incorporated into regular reports that the Project Assurance team and the Independent Investment Programme Advisory Group (IIPAG) submit to the Audit and Assurance Committee and the Programmes and Investment Committee.
- 7.6 Responsibility for future audit activity will continue to form the remit of Internal Audit. Audits of the Elizabeth line are detailed in the Integrated Assurance Plan as agreed by the Audit and Assurance Committee.

**List of Appendices:**

Appendix 1: LoD2 Assurance Assessment of the Completion of CRL Close Out Process

Appendix 2: Line 3 (TfL Internal Audit) Work in progress during Quarter 1 of 2023/24

**List of Background Papers:**

None

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# Line of Defence Level 2 (LoD2) Assurance Assessment of the Completion of Crossrail (CRL) Close Out Process

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25 July 2023



# LoD2 Assurance Assessment of Completion of CRL Close Out Activities

## Completion of CRL Close Out Process – May 2023

■ No Risk    
 ■ Some Residual Risk    
 ■ Significant Risk    
 ■ Unknown as yet

Key Metrics	Comment	RAG Risk to Sponsors
Project Development Agreement (PDA)	CRL maintained a PDA Evidence Tracker which identified by clause the evidence required by CRL to discharge the obligations under the PDA. Clauses were categorised according to whether obligations to be discharged before 26 May 2023, or an agreed transfer to recipient organisation. Process is considered to be robust. An agreed final version was signed on 26 May 2023.	
New Engineering Contract 3 (NEC3) Employers Completion Process (ECP)	The ECP was managed by the CRL Quality team over the duration of the CRL works. Of the 46 contracts subject to this process, 44 were complete and signed off. The remaining 2 are the Siemens contracts (C620 and C660) which have been transferred to TfL RfL(I) due to ongoing works to be completed to the signalling and control system (ELR400 patches and ELR500) and further Customer Information System (CIS) upgrades during second half of 2023. These contracts were subject to an Interim ECP process (and sign off) to reflect all the works and documentation undertaken under CRL. Process is considered to be robust.	
Management of Contracts in Defects Periods	Handshake Agreement (reference CO-04) covers the residual contract administration matters in relation to a small number of NEC3 contracts (eight contracts covered by this agreement) which still have their defect periods past 26 May 2023 or where notified defects are still to be corrected. Process is considered to be robust.	
Element Outstanding Works List (EOWL)	Throughout the delivery of the CRL works, the process for recording elements of works requiring addition attention was the use of EOWs. At the closure of each NEC3 contract, the list of EOWs was agreed, to either be completed as defects (under the NEC3 contract), or transferred to TfL for completion (including an agreement on budget transfer). There were no outstanding EOWs for CRL to discharge at 26 May 2023. Process throughout the administration of the contracts was considered to be robust.	
Commercial Matters	Of the 420 CRL contracts, 31 will remain active beyond 26 May 2023, including those in defect periods, operations support contracts / Network Rail support contracts. There are 7 commercial handshake agreements in place outlining the transfer of responsibilities and resources as required. Process is considered robust.	
Third Party Agreements / Undertakings and Assurance (U&A)	Of the 1461 Third Party Agreements, 304 remain to be closed beyond 26 May 2023, and, of the 4347 U&As, 28 remain to be closed beyond 26 May 2023. Handshake agreements are in place and signed for transfer of both activities, including transfer of resources to Rail for London Infrastructure (RfLI) to close remaining U&As. Process is considered robust.	
CRL Level 1 Risks	CRL Level 1 risks have been managed effectively throughout the period of delivery. Following final review a number of risks have been identified as residual, although not presenting a risk to completion. These have been agreed and transferred to RfLI to manage the mitigations – traction power harmonics on Network Rail Great Eastern, cost pressures on remaining final accounts, and success of ELR400 software patches to deliver functionality. Process through the delivery of the works is considered robust, and accurately reflects position. RfLI risks will be incorporated into TfL's Enterprise Risk process at the appropriate level (strategic Level 1 or project / tactical Level 2) and will be managed in line with TfL's Enterprise Risk Management Framework.	

**Assessment of Overall Completion of CRL Process (May 2023)**

**CRL have undertaken their obligations as set out in the PDA and have not transferred any residual risk to TfL as a result.**

**(Note: There are some obligations relating to On-Network Works which are not included in the PDA and once complete will enable Final Completion.)**



**Work in progress in Quarter 1 (Q1) of 2023/24**

- There is one audit in progress at the end of Q1

Enterprise risk	Directorate	Ref	Audit title	Objective
ER06: Deterioration of Operational Performance	RfL(I)	22 044	Elizabeth Line Transition from Capital Programme to Business-as-usual	To provide assurance on the effectiveness of the Elizabeth line's transition from a capital programme to a business-as-usual operation.

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## Elizabeth Line Committee



**Date:** 25 July 2023

**Item:** Elizabeth Line Passenger Usage Insight

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**This paper will be considered in public**

### **1 Summary**

- 1.1 This paper provides insight into passenger usage patterns on the Elizabeth line and their impact on other transport modes in London throughout the first full year of operation.
- 1.2 A separate paper has been prepared for the Committee to provide an update on our activities to implement the Elizabeth line benefits framework published by TfL in partnership with the Department for Transport, as Crossrail Joint Sponsors.
- 1.3 Further analysis will report the impacts of Stage 5c, which started operation on 21 May 2023. At the point of paper submission, it is too early to reliably report changes and patterns that have been/will be occurring.

### **2 Recommendation**

- 2.1 **The Committee is asked to note the paper.**

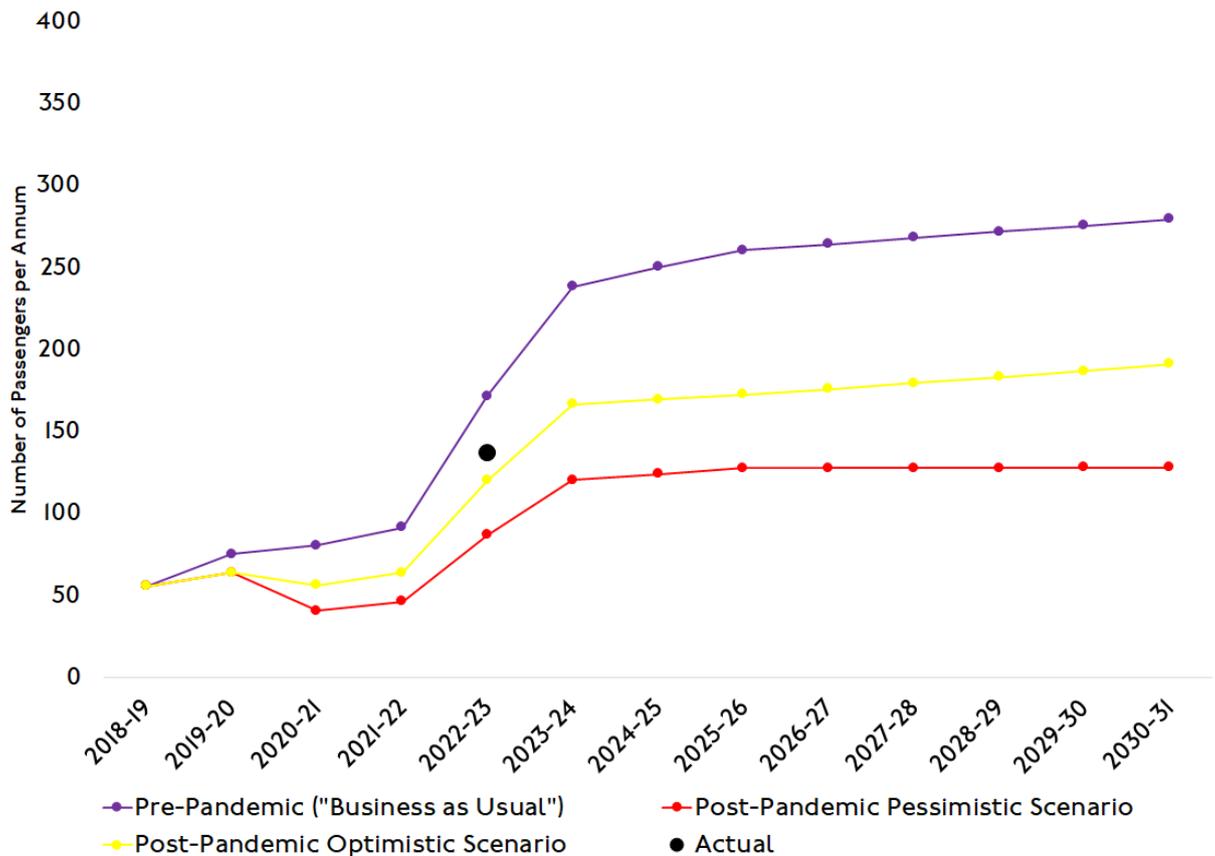
### **3 Passenger Demand**

#### **Annual Passenger Journeys**

- 3.1 The graph below compares pre and post pandemic passenger projections with the number of actual first year passenger journeys made on the Elizabeth line. During its first full year of operation, the Elizabeth line carried 150.7 million passenger journeys, with 137 million journeys being made during the 2022/23 financial year. Passenger demand is slightly below pre-pandemic forecasts that supported the final update of the business case and above a range of post-pandemic projections. Current planning scenarios, including pre-pandemic forecasts, indicate a range of 130 million to 170 million passenger journeys per annum.

## Pre-Pandemic and Post-Pandemic Elizabeth Line Passenger Projections and First Year Actual Passenger Journeys (millions)

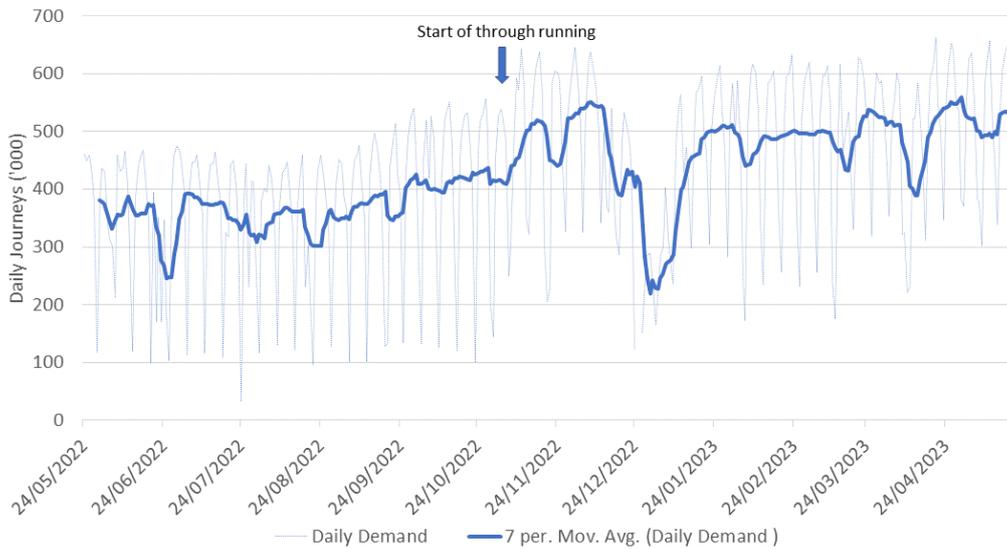
Source: Analysis from Oyster/Contactless and Loadweigh and Railplan Forecasts



3.2 Were the number of passenger journeys observed since the start of east to west through running to continue for a full year, then annual passenger journeys would be 170 million per annum. A faster post pandemic recovery and the changes associated with Stage 5c could see this reach 200 million journeys per annum.

3.3 Based upon data from monitoring weeks in September 2022 and January 2023 that were unaffected by external events such as strikes, the Elizabeth line carried an average of 550,000 passenger journeys per mid-week day. The graph below shows daily Elizabeth line demand over the first full year of operation and it can be seen that the busiest days have seen almost 600,000 passengers per day. The start of through running which led to new direct journey opportunities, frequency increases, and changes in days/hours of operation drove an uplift of 100,000 daily passenger journeys.

**Daily Elizabeth Line Demand, First Year of Operation, Journeys 000's**  
 Source: Analysis from Oyster/Contactless and Loadweigh

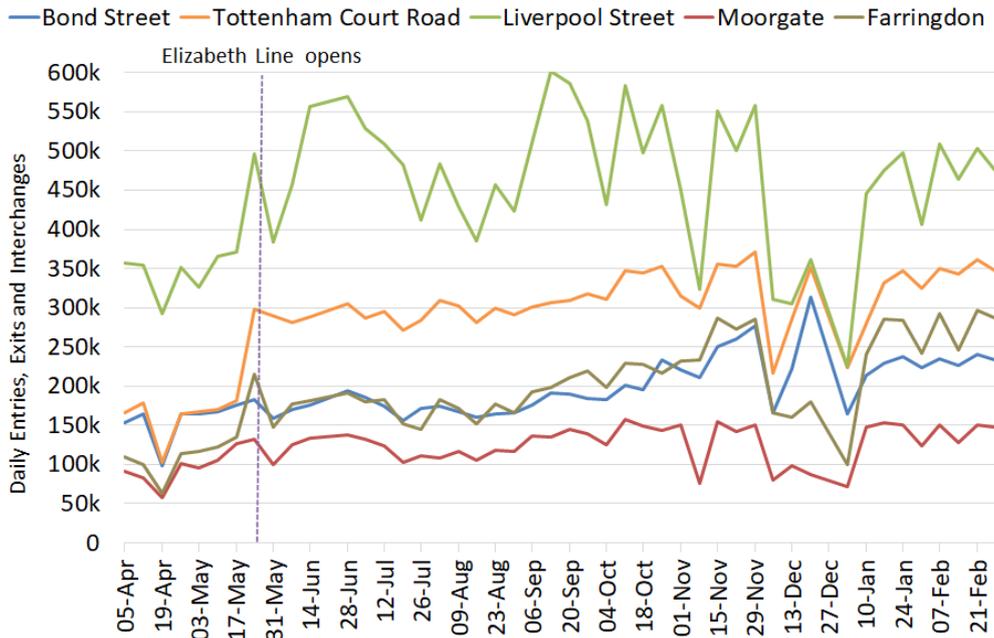


3.4 Stations on the Elizabeth line have observed significant but expected increases in entries/exits and interchanges, as shown in the graph below, because of the new service. These are summarised as:

- (a) Tottenham Court Rd: saw an increase from 110,000 to 175,000 passengers per day;
- (b) Bond Street: saw an increase from 175,000 passengers to 230,000 per day; and
- (c) Farringdon: saw an increase from 100,000 passengers to 280,000 per day.

## Number of Station Entries, Exits and Interchanges at Central Area Stations by Day

Source: "Dunnart" usage database

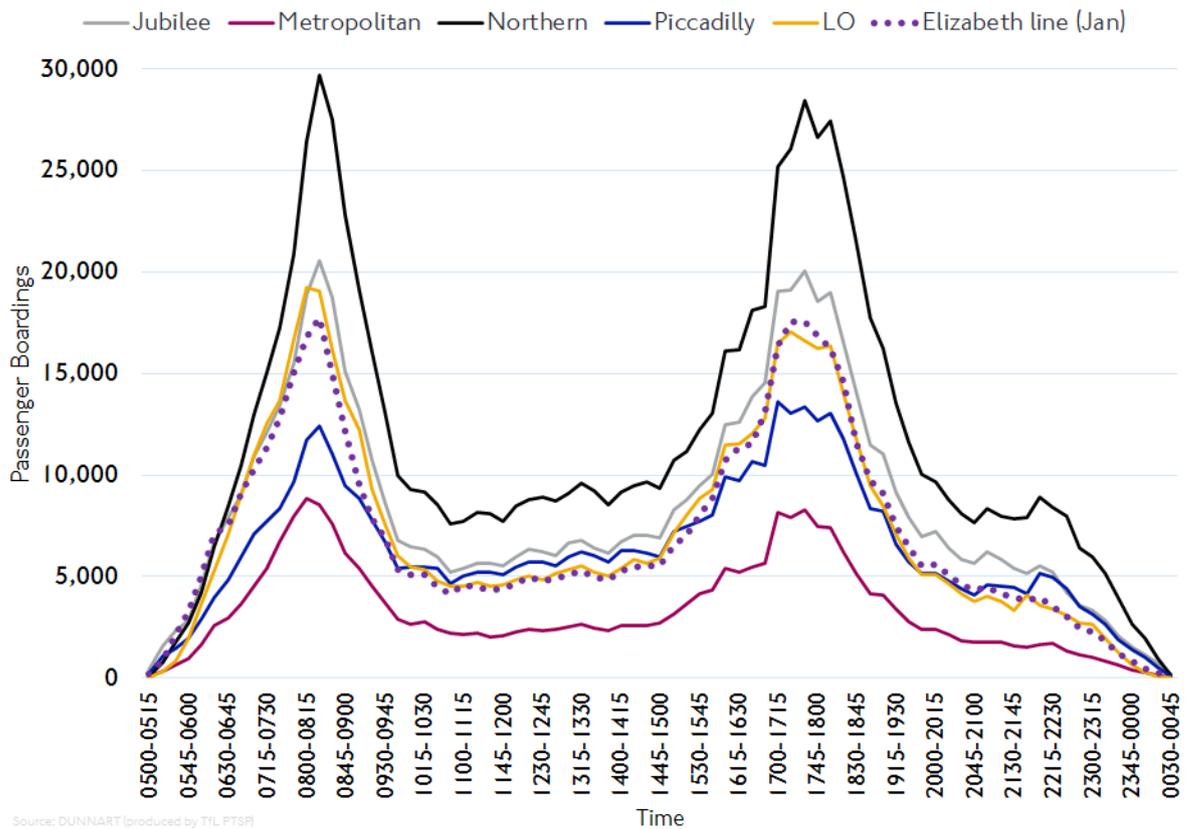


## Passenger Time of Travel Profile

- 3.5 An average of 56 per cent of passenger journeys on Elizabeth line occur during weekday peak travel times (07:00 to 10:00 and 16:00 to 19:00) as shown in the following graph which presents the Daily Weekday Passenger Boardings by time of travel. This is higher when compared to London Underground (around 50 per cent) and reflects trends observed on National Rail services with a wider geographical reach more attractive to commuters.

## Daily Weekday Passenger Boardings by Time of Day

Source: "Dunnart" usage data 23 January to 30 January 2023



3.6 The average route wide travel time profile masks several geographic variations:

- the Elizabeth line serves Heathrow Airport where only 32 per cent of journeys are made during traditional peak times;
- the route from Shenfield via Stratford has an earlier peak at 0700 as well as the later morning peak at around 0830, reflecting the high proportion of skilled manual and service-related commuting typical in that part of London; and
- in the central section just less than 50 per cent of passenger journeys take place during peak times.

### Day of Week Travel Profile

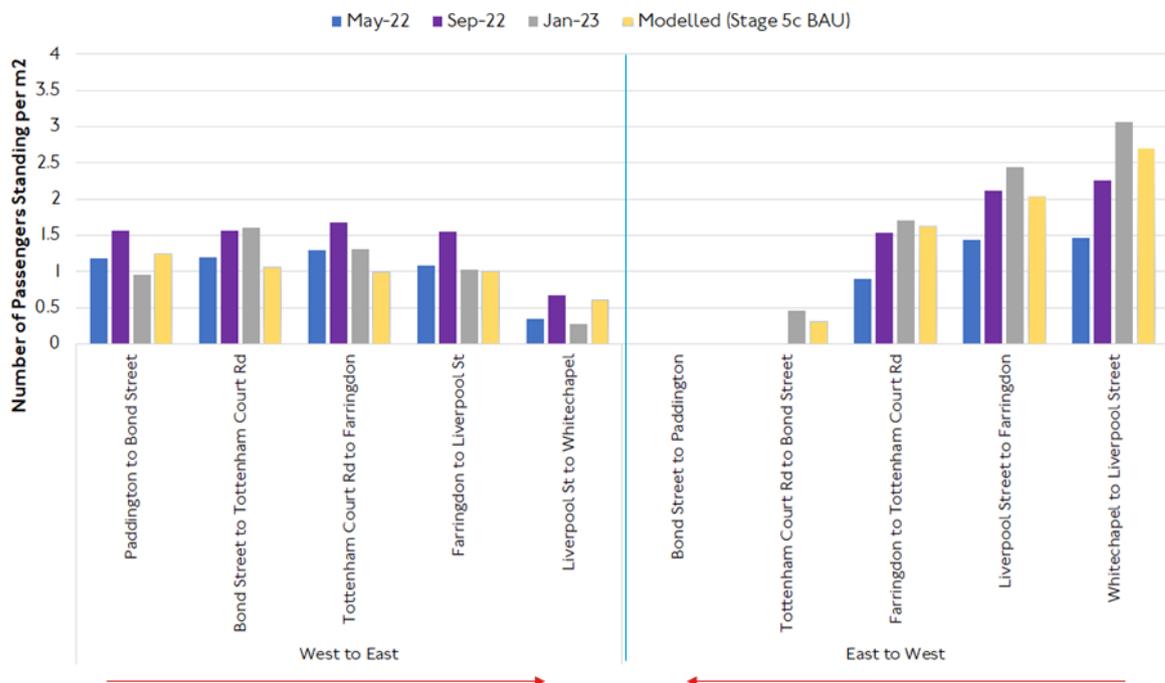
- Passenger demand is highest on Tuesdays, Wednesdays, and Thursdays (560,000 to 614,000 passengers) with the quietest working day being a Monday (500,000 passengers). This fits the wider public transport network trends following the pandemic. Recent Elizabeth line demand growth has been greatest on a Thursday influenced by post pandemic activity trends.
- Upon opening in May 2022, the Elizabeth line did not run on a Sunday. Since this commenced in November 2022, Sunday demand has grown rapidly and has reached 280,000 passengers per day. Saturday demand at 470,000 passengers per day, is only six per cent lower than the quietest working day of Monday.

## 4 Occupancy

- 4.1 Occupancy on the Elizabeth line is a measure used to describe the levels of crowding on trains and is expressed as the number of passengers standing per metre of standing space (pax/sqm) during the busiest hour of the morning peak (Tuesday to Thursday). Elizabeth line class 345 trains have a notional capacity of 1,500 passengers which equates to all seats taken and usable standing space occupied to a density of four passengers/sqm. Data from the on-train passenger counting systems allows occupancy to be disaggregated into further detail to identify problems on specific trains or times of day.
- 4.2 Occupancy on the Elizabeth line is as expected when compared to pre-opening projections, both in terms of the location and extent of on train crowding. It indicates a well-used and busy railway; occupancy remains at or below three passengers/sqm at the busiest times suggesting sufficient capacity for both comfortable travel and future growth.
- 4.3 The graph below presents occupancy within the central section which is between one and 1.5 passengers/sqm between Paddington and Whitechapel (west to east at the height of the morning peak); and three passengers/sqm between Whitechapel and Liverpool Street (east to west in the height of the morning peak).

### Central Section Occupancy; number of passengers standing per metre of available standing space at the height of the morning peak (Mid-Week Tuesday to Thursday).

Source: Observed from Dunnart and Modelled from Railplan Business as Usual Forecasts



- 4.4 On the eastern section, occupancy approaches three passengers/sqm from Maryland to Stratford (height of the morning peak); and from Canary Wharf to Whitechapel (height of the morning peak). On the Shenfield route towards central London passengers start to stand from Romford, and from Abbey Wood services depart with all seats taken and passengers from Woolwich and Custom House stand.
- 4.5 On the western section, the busiest point is between Acton Main Line and Paddington with an average of 2.5 passengers/sqm in the morning peak hour. Crowding varies dependent upon whether a service is from Reading/M Maidenhead or Heathrow with Heathrow services injecting additional capacity for the inner stations between Hayes & Harlington and Paddington. Passengers will typically be standing from Slough on Reading/M Maidenhead services at the height of the morning peak.

### **Monitoring of Occupancy Levels**

- 4.6 Detailed analysis of occupancy hot spots has identified the following specific locations and times:
- (a) 0815 between Maryland and Stratford;
  - (b) 0815 to 0900 between Canary Wharf and Whitechapel;
  - (c) 0800 around Ealing Broadway (eastbound);
  - (d) 1745 between Whitechapel and Canary Wharf; and
  - (e) 1800 around Ealing Broadway (westbound).
- 4.7 Capacity provision, both within stations and on trains, will be kept under review to inform further timetable changes where we can optimise benefits of the operating service. This will include monitoring the expected impacts of HS2 at Old Oak Common throughout its phased opening and especially while Old Oak Common is the temporary terminus.

## **5 Journey Times**

- 5.1 Journey times have been transformed by the Elizabeth line and increases in demand have followed. The largest demand gains have been where journey times have fallen the most. Research into factors that drive customer experience and influence travel behaviour consistently reference journey time as the most important factor for passengers.
- 5.2 Analysis of a series of station-to-station pairs from Oyster/Contactless payments reveals the journey time reduction and observed demand response (including previously using other lines):
- (a) Paddington to Tottenham Court Rd: 48 per cent journey time reduction to an average of 11 minutes and six times the number of daily journeys;
  - (b) Liverpool Street to Paddington: 25 per cent journey time reduction to an average of 18 minutes and twice the number of daily journeys;

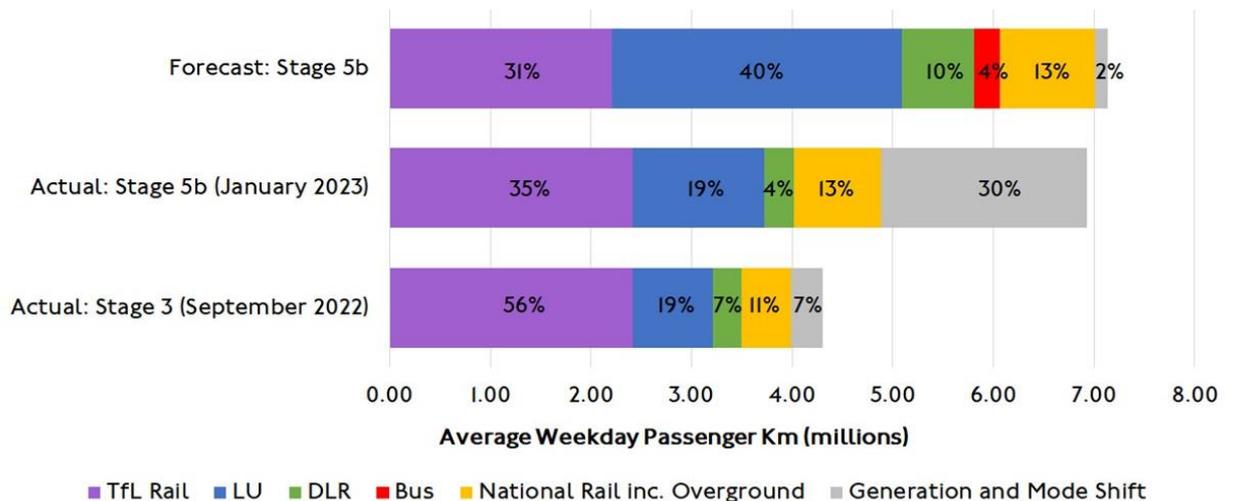
- (c) Stratford to Paddington: 37 per cent journey time reduction to an average of 25 minutes and nearly four times the number of daily journeys; and
  - (d) Paddington to Canary Wharf: 33 per cent journey time reduction to an average of 22 minutes and nearly four times the number of daily journeys.
- 5.3 TfL has undertaken an analysis of the demand response to changes in journey time (known as service elasticity) applying ‘big data’ approaches to a number of service changes across the network, including the Elizabeth line. Findings suggest the demand response following the changes in journey time brought about by the Elizabeth line is greater than the demand response observed for previously studied service changes. This is possibly driven by the larger absolute reductions in journey time, but also by the substantial improvement in travel comfort and ambiance. The ongoing impact of recovery from the pandemic is likely to drive part of this higher response.
- 5.4 Connectivity, especially in southeast London, has also dramatically improved. The Elizabeth line almost halves journey times from stations in southeast London to Central London: in 20 minutes, passengers can now travel from Abbey Wood to Farringdon, a journey that would have previously taken 39 minutes. There are 1.4 million more jobs across London and the Southeast now accessible within 60 minutes of Abbey Wood than before the central section of the Elizabeth line opened.
- 5.5 The improvements in journey time to central London via the Elizabeth line from Abbey Wood and Woolwich have also had an impact on the role the local bus network performs as a feeder. Bus boardings around Abbey Wood and Custom House stations more than doubled with the opening of Elizabeth line, and those at Woolwich increased from 28,500 to 31,500 per weekday.

## **6 Abstraction**

- 6.1 We have carried out extensive work to understand what portion of Elizabeth line demand is abstracted (that which was already travelling by public transport before but has now switched in whole or in part to Elizabeth line), and what has either shifted mode (e.g. from private car) or is generated (a journey that did not exist before but now does, thanks to the Elizabeth line). This helps us understand the impact of Elizabeth line on the economy and on TfL and National Rail revenue.
- 6.2 To do this, we need to estimate what would have happened in the absence of Elizabeth line and compared this to what we have seen happen instead. We have done this using the change from May 2022 to January 2023, and compared flows affected by Elizabeth line to those that are not, using Oyster and contactless payment data.
- 6.3 During this period, many other factors were also at play, including ongoing recovery from the pandemic, population change, service changes, fuel prices and fares changes. Our method allows us to account for some of these changes, but not all of them, and should therefore be treated as an estimate.

**Source of Elizabeth Line Average Weekday Passenger Kilometres, Tuesday to Thursday from September 2022 and January 2023.**

Source: Observed from Dunnart and Oyster/Contactless and Modelled from Railplan Business as Usual Forecasts



6.4 The graph above shows the source of Average Mid-Weekday Passenger Kilometres using Elizabeth line in September 2022 and January 2023 and compares this to the pre-opening forecast. The estimates are that:

- (a) 35 per cent of Elizabeth line demand came from the previously existing TfL Rail service (Shenfield to Liverpool Street and Paddington to Heathrow/Reading);
- (b) 19 per cent of Elizabeth line demand transferred from London Underground. This is concentrated in particular locations; demand on the Central line at Ealing Broadway has reduced by around 40 per cent, and on the Bakerloo line demand between Paddington and Oxford Circus has reduced by five per cent. Overall, the biggest transfers are from the Central line (37 per cent of the Underground abstraction), Jubilee line (24 per cent), and Piccadilly line (18 per cent);
- (c) four per cent of Elizabeth line demand has come from the DLR, partly masked by demand growth from its own timetable enhancements;
- (d) 13 per cent of Elizabeth line demand transferred from National Rail services, mainly South Eastern and Great Western; and
- (e) the remaining 30 per cent of Elizabeth line demand is 'new':
  - (i) We believe most of these trips are *generated* (i.e. these customers would not have made these trips without the existence of the Elizabeth line).

- (ii) Some of these trips may arise from *mode shift* from non-public transport (e.g. private car). Our forecasts suggested that this would be a small proportion.
  - (iii) Our analysis to date cannot determine the split between mode shift and trip generation, but this will be one of the subjects of the ongoing evaluation study.
- 6.5 Our estimate of the large portion of new trips (i.e. not travelling in May 2022 before the Elizabeth line opened), relative to our forecasts, is supported by the observed growth in demand at core Elizabeth line stations, that cannot be explained by decreases at surrounding stations (such as around Woolwich, Canary Wharf and Tottenham Court Road).
- 6.6 Of the trips we classify as generated, we believe that a significant portion of the generated demand can be viewed as “accelerated recovery” where the rate of recovery from the pandemic has been higher where the Elizabeth line is now available. We see some pieces of evidence for this hypothesis:
  - (a) the response to the better journey times provided by Elizabeth line is stronger than we would normally expect;
  - (b) the speed of the demand response to the journey time improvements, particularly for trips from the Shenfield branch to central London; and
  - (c) the difference between the forecast and observed abstraction (as opposed to the total demand, which is close to forecast). The forecast assumed a steady state in travel habits, with more of the demand coming from LU/DLR than we observed in reality. This implies that those customers could have used LU/DLR for these journeys but chose not to.
- 6.7 Taken together, these results suggest that a proportion of these 'new' trips were 'ready to travel', i.e. they had chosen not to use existing services but responded quickly to the change in the network. This is most likely if the customers in question were already travelling and have increased the frequency of their trips, e.g. additional days in the office for 'hybrid' workers.
- 6.8 In practice, it is not possible to tell the difference between pandemic recovery and any other type of demand growth, especially as there will have been significant churn in the travelling population in the more than three years since the pandemic began.
- 6.9 In either case, the transformation in connectivity, journey times and comfort has accelerated demand growth towards (and in some cases beyond) pre-pandemic levels. Overall, the Elizabeth line is attracting an estimated 140,000 additional journeys in London each weekday than otherwise would have been the case.
- 6.10 Bus demand as a feeder to the wider Elizabeth line has also increased substantially in response to the journey time reductions. Bus boardings around stations on the Western section have increased by 15 per cent, on the Eastern section by 13 per cent, and on the Central section outside Zone 1 by 22 per cent.

This is partially offset by bus boardings around Elizabeth line stations in Zone 1 decreasing by eight per cent on average.

- 6.11 TfL will continue to keep services under review as the impacts of abstraction from the latest Elizabeth line timetable change settle and ensure the appropriate response to changes in demand patterns. A more comprehensive study of abstraction is planned as part of the wider post opening study over the next two years. This will isolate the array of background factors and build a picture of what may have happened without the Elizabeth line. Extensive passenger surveys will be conducted later this year to understand how and why passengers' travel behaviour has changed. This will assess the displacement from other modes including travelling by car or bike.

**List of appendices to this report:**

None

**List of Background Papers:**

None

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## Elizabeth Line Committee



**Date:** 25 July 2023

**Item:** Update on Measuring Benefits and Impacts

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### **This paper will be considered in public**

#### **1 Summary**

- 1.1 This paper provides an update on our activities to implement the Elizabeth line benefits framework published by TfL in partnership with the Department for Transport, as Crossrail Joint Sponsors.
- 1.2 A separate paper has been prepared for the Committee to provide insight into passenger usage patterns on the Elizabeth line and its consequential impact on other transport modes in London throughout the first full year of operation.

#### **2 Recommendation**

- 2.1 **The Committee is asked to note the paper.**

#### **3 Background**

- 3.1 The Elizabeth line is the most significant addition to London's transport network in a generation. Since opening in May 2022, it has not only transformed how we travel across London but has also boosted economic growth, improved the customer experience on public transport and attracted people back to the capital.
- 3.2 The Elizabeth line's full peak timetable commenced on Monday 22 May 2023 following the May timetable change. The introduction marked the final milestone of the Crossrail project, realising more of the benefits including higher frequencies, greater connectivity and faster journey times. Twenty-four trains per hour now operate between Paddington and Whitechapel stations at peak times.
- 3.3 On 24 May 2023, the Elizabeth line celebrated its first anniversary of opening to passengers. In its first week of operations, more than 2.5 million journeys were made on the entire route. Now, with journeys from the east and west running through central London, there is an average of around 3.5 million Elizabeth line journeys each week, with around 600,000 journeys on weekdays. Since the introduction of the new timetable, we have seen our busiest week on the railway with over 4.1 million journeys. This is a tremendous response from customers and we anticipate even more will use the railway now that the timetable has further improved the service.
- 3.4 It is valuable for us to understand and document the benefits realised against what the project set out to achieve for the investment in the new railway.

3.5 Our benefits framework document titled, 'Elizabeth line: evidencing the value'<sup>1</sup>, sets out how we will gather evidence to demonstrate that the new railway has generated the benefits we expect from the investment. Understanding the benefits and outcomes of Crossrail and the Elizabeth line will enable us to maximise the return on investment, demonstrate value for money and learn important lessons for the future. We will be undertaking benefits management/optimisation and evaluation to achieve these aims.

## **4 Benefit Measurement and Realisation**

4.1 Benefits realisation covers transport outcomes and wider socio-economic outcomes.

4.2 The benefits management and optimisation process involves:

- (a) tracking indicators (benefits) to draw an early picture of how well the railway is performing against our expectations;
- (b) focusing on the information needed to take any necessary action to ensure we realise the benefits in full and on time; and
- (c) using the data collected to analyse if the outcomes (or the aims of the investment) have been achieved.

4.3 The benefit indicators include transport outcomes and wider socio-economic outcomes as defined in the business case and Sponsors Requirements.

4.4 A Benefits Forum, chaired by the TfL Elizabeth Line Sponsor Team, is used to coordinate and support the benefits management activities. It is the central body to make sense of the findings across discipline boundaries for onward discussion and engagement with senior management, stakeholders and the public.

4.5 The Benefits Forum will suggest any optimisation actions to the relevant parties and will monitor and record where optimisation actions are dealt with by the relevant teams.

4.6 The Benefits Forum brings together key workstreams responsible for realising the Elizabeth line's benefits including the Elizabeth line Operations Team and those responsible for analysing and understanding the measures and indicators including City Planning, Transport Planning and Finance.

4.7 Information on the realisation of benefits, and developing understanding of impact through evaluation, will also be shared and considered regularly at the Benefits Forum.

4.8 We expect to provide annual updates on these activities and findings to the Programmes and Investment Committee in future, along with a published report in coordination with the findings from the evaluation studies.

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<sup>1</sup> Elizabeth line: evidencing the value, <https://content.tfl.gov.uk/tfl-elizabeth-line-benefits-framework.pdf>

## 5 Impact Evaluation Study

- 5.1 London's transport system and economy are complex and ever changing and it can be challenging to distinguish the effects of a single factor from other general background changes. Through robust impact evaluation studies, we can try to understand and learn from the wide-ranging impacts of the Elizabeth line opening, including identifying links between the distribution of benefits and the expectations of funders and other stakeholders.
- 5.2 The first post-opening evaluation study will focus on early evidence of the transport impacts of the Elizabeth line and gathers baseline information on wider socio-economic impacts. We have appointed Arup to deliver the first Elizabeth line post-opening evaluation study. An initial findings reports is expected to be published in spring 2024 and a comprehensive report is expected in spring 2025.
- 5.3 The second post-opening evaluation study will focus on the positive and negative wider socio-economic impacts of the Elizabeth line and will also update the findings on transport impacts from the first post-opening study. These wider economic, social and environmental effects will take longer to emerge and this second study will be commissioned in early 2025.
- 5.4 With a focus on the current study, we aim to answer the five questions below to examine how travel demand patterns have changed as a result of the Elizabeth line opening:
- (a) how has the overall number of trips taken on public transport networks in London and the South East changed since the opening of the Elizabeth line?;
  - (b) to what extent has the line induced a shift away from other lines and road transport?;
  - (c) to what extent have reduced journey times led to better connections between places?;
  - (d) to what extent has the Elizabeth line improved: 1) the quality and reliability of the transport system and 2) the experience of passengers and 3) any other indirect outcomes?; and
  - (e) what early evidence is there of regeneration and other economic, social and environmental effects around stations?
- 5.5 To help answer the research questions above, the first study will rely on the comprehensive travel data and models held by us and the wider travel industry to estimate journey numbers and analyse travel patterns. In addition, a passenger survey will be conducted later this year to collect insights into travel behaviour at key Elizabeth line stations. Some of the questions will relate to journey purpose, routing and reasons for route choice, frequency of journey, ticket type, use of mobility aids and key demographic characteristics. We will also use mobile network data that offers the opportunity to fill data gaps to better analyse road use and better estimate the shift to public transport.

- 5.6 In addition to route-wide analysis, station case studies will be carried out to examine early evidence of economic, social, and environmental impacts to inform the scoping of the second post-opening evaluation and to provide early evidence on local impacts. We have identified 12 Elizabeth line stations, including: Slough, Southall, Ealing Broadway, Paddington, Tottenham Court Road, Farringdon, Whitechapel, Canary Wharf, Custom House, Abbey Wood, Ilford and Romford.
- 5.7 Station case studies will use data from available sources and a wide range of stakeholder interviews (for example, with local businesses, developers and passengers) to examine early evidence for regeneration and other wider economic effects for selected locations along the line.

## **6 Review of Crossrail Funding/Financing Model**

- 6.1 As part of the project evaluation, work has started on a review of the Crossrail funding/financing model with an aim to write an objective and factual account of funding and financing of the Crossrail project. The Crossrail story is relevant to other projects in London and the UK and is also much discussed internationally. The team will aim to concentrate on what matters for the future rather than rework past negotiations.
- 6.2 The work is being carried out by TfL and includes some individuals who have been working on Crossrail funding and financing from 2007. The team will progress the review during the summer and some initial findings are included below.
- 6.3 Crossrail funding and financing should be seen as a success for a number of reasons:
- (a) the joint venture structure and the management of funding risk by the sponsors survived changes of Government and Mayor and held throughout delivery;
  - (b) funding was delivered to the project as set out;
  - (c) risks were managed during a ten-year period – in particular economic risks over tax/levy revenues and financing costs;
  - (d) the Business Rate Supplement (BRS) and the Mayoral Community Infrastructure Levy (MCIL) were useful innovations that delivered fairly stable funding and are likely to continue. Broad based, hypothecated, bankable revenue streams with relatively low 'tax rates' can be powerful tools; and
  - (e) the BRS and MCIL were flexible enough to support most of the additional funding needed to complete the project.

6.4 The funding and financing portfolio was wide. There could be more specific but still rich learning from:

- (a) the emerging approach to rolling stock finance;
- (b) the use of third parties (Canary Wharf Group and Berkeley Homes) in the construction and part funding of individual stations;
- (c) the relationship with Heathrow and its regulator;
- (d) the capacity for over-station development; and
- (e) the timings and profile of particular receipts.

6.5 The review will also consider why the Crossrail mechanisms and approach are talked about widely but have not so far been adopted by other UK cities or copied internationally.

**List of Appendices:**

None.

**List of Background Papers:**

Elizabeth Line Committee paper 29 September 2022: Measuring and Maximising Benefits, Impacts and Learnings

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