

LONDON'S NEWEST RAILWAY

THE ELIZABETH LINE OPENS

by Kim Rennie

INTRODUCTION

“London’s Newest Railway” is the announcement made on the front cover of the booklet issued to, among others, volunteers taking part in the pre-opening passenger evacuation exercises held on parts of the Elizabeth Line, and provides an appropriate title for this article. The Elizabeth Line was formally opened by HM The Queen on Tuesday 17 May 2022, with public services commencing a week later on 24 May on a new section of line running from Paddington (Low Level) to Abbey Wood. There are nine stops on the route, either at stand-alone sites or combined with existing London Underground (LU) or National Rail (NR) stations, with Bond Street scheduled to be added later in the year. This routeway is officially titled the Central Operating Section (COS) and currently runs separately from the existing Liverpool Street (High Level) to Shenfield, and Paddington (High Level) to Heathrow/Reading services, both of which were renamed from TfL Rail to Elizabeth Line on 23 May 2022.



NR is the Infrastructure Manager for the former TfL Rail sections east of Liverpool Street and west of Paddington, with signalling and power control provided by the NR Anglia or Western routes. Rail for London Infrastructure (RfLI), a TfL subsidiary, is the Infrastructure Manager for the COS, which stretches from Westbourne Park in the west, to Pudding Mill Lane in the east, and Abbey Wood in the south-east. The line into Heathrow is owned by Heathrow Airport Limited, with signals and power sub-contracted to NR.

Station Infrastructure Management is split between five different entities depending on location. These are: Heathrow Airport Limited, London Underground, Network Rail Anglia Route, Network Rail Western Route, and RfLI. As regards the COS itself, stations come under either LU or RfLI.

Station facility operation is also split between five entities: Great Western Railway, Greater Anglia, Heathrow Airport Limited, London Underground and MTR-Elizabeth Line. On the COS itself, stations are operated by either LU or MTR-Elizabeth Line. An anomaly is Liverpool Street, where the Elizabeth Line ‘footprint’ is controlled by the Station Operations Room at Moorgate.

Of the stations where LU is the operator, four are designed to a similar layout. Bond Street, Tottenham Court Road, Farringdon and Liverpool Street each have east-west linear ‘Tube’-style platforms, with escalators and Persons of Reduced Mobility lifts at both ends that connect into the existing LU station or to new-build entrances. Platforms are lettered ‘A’ for eastbound and ‘B’ for westbound, the exception being Abbey Wood, where the numbers ‘3’ and ‘4’ follow on from the existing series. At Whitechapel, the more constrained site meant that a circulating area was built over the sub-surface lines and there is only single-ended access to the Elizabeth Line. Each of the five stations have at least two MTR-Elizabeth Line Customer Experience Assistants on duty, but they do not form part of the station’s Congestion, Control and Emergency Plan minimum numbers. These stations also have a designated infrastructure management boundary, with everything beyond (and including) the Platform Screen Doors coming under RfLI, whilst the remainder of the infrastructure is the responsibility of LU.

All below-ground platforms on the COS are fitted with Platform Screen Doors (PSDs) – note the subtle difference in nomenclature from LU’s Platform Edge Doors – above which are Passenger Information Display screens giving the time, train arrival/destination details and service status. There are 27 doors per-platform, plus two staff doors that align with driving cabs. Each PSD suite has 18 media panels and between 24 to 30 Emergency Escape Doors. Each pair of doors has an orange Door Status Indicator light that illuminates when they are open, and flashes if they are out of service. There is also a white light which, when lit, is the train Ready to Depart signal for platform staff. At PSD-equipped platforms the train doors open automatically and there is no need to operate the Passenger Door Control buttons.

Trains are formed of 9-car Class 345 units using the 25kV overhead catenary system (actually a metal bar in the deep-tube tunnels). At time of writing (June 2022) a few Class 315 diagrams remain on the Liverpool Street – Shenfield section. Trains between Paddington and Abbey Wood operate every 5 minutes from 06.30 to 23.30 Mondays to Saturdays. There are currently no services on Sundays.

Signalling on the COS is under Communications-based Train Control (CBTC) and includes an 'auto-reversing' facility at Paddington.

The COS is controlled by the Rail Control Centre (RCC) within NR's Romford Rail Operating Centre. At Abbey Wood, Canary Wharf, Custom House and Woolwich, RfLI staff operate signalling, power control, ventilation fans, pumps and all other fixed assets. LU staff will respond to incidents on the Elizabeth Line platforms at locations where LU is the infrastructure manager but cannot access the track unless authorised by the Traffic Manager at the RCC.

The plan is for services to be progressively integrated as follows:

STAGE 1 (as at present)

1. Reading/Heathrow to Paddington (High Level).
2. Paddington (Low Level) to Abbey Wood.
3. Liverpool Street (High Level) to Shenfield.

STAGE 2

1. Reading/Heathrow to Abbey Wood.
2. Paddington (Low Level) to Shenfield.

STAGE 3

1. Reading/Heathrow to Abbey Wood/Shenfield – plus some Shenfield to Liverpool Street (High Level) peak hour workings.

PADDINGTON

This station is located on the site of the old taxi rank pick-up point and adjacent to Eastbourne Terrace. Design is by Weston Williamson. Construction was by 'cut and cover' with the earth dug out until the running tunnels were reached and broken into. The station is built to a 10-foot² grid pattern in homage to Brunel's original work.

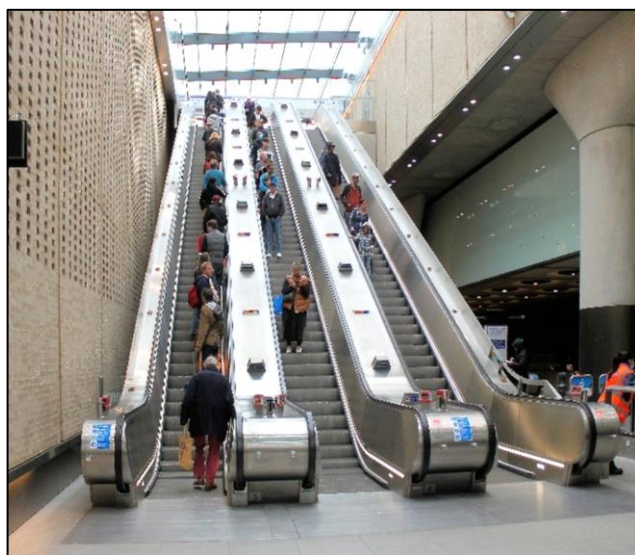
The main entrance is on the Departures Road level and there is a clear opening above the station to allow air to circulate and daylight to reach platform level. The canopy roof has a patterned artwork titled *Cloud Index* by artist Spencer Finch digitally printed onto the glass.

There are two separate entry points, roughly facing east and west, that lead to a bank of either three or two escalators serving the ticket hall. Two lifts also connect these points and also go up to Eastbourne Terrace.

At ticket hall level there are two facing gateline arrays, beyond which is a mezzanine level. From here, the platforms are reached by four separate sets of two escalators (eight in total) and two lifts. Two further escalators, stairs and a lift lead to a long corridor that connects with another lift, stairs and pair of escalators to interchange with the Bakerloo Line in the LU station.



Access to Paddington (Low Level) is primarily from the old Departures Road. There are two entrances each with escalators that connect to the ticket hall/mezzanine level. This is the west end with escalators Nos. 2 & 1.



The east end entrance is closer to the NR station and thus equipped with three escalators – Nos. 3, 4 & 5. Note the brick wall cladding in 10-ft² panels and the glass roof above that carries a cloud pattern artwork.

All photos in this article by Kim Rennie unless stated otherwise

The ticket hall walls are faced with light-coloured brick panels designed to absorb noise, as is the concrete coffered ceiling. The bases of the elliptical support columns are clad in bronze, as are some wall areas. Ceiling lights are set within circular surrounds and said to resemble lily pads. Platform

roundels are of three types: 'silhouette', 'panel' on white glass, or directly on clear glass. Some of the 'silhouette' roundels are combined with seating in a modern take on the classic 1930s/1940s LPTB wooden benches. These new roundel seats also appear at some other locations. There are no roundels (or adverts) on the offside tunnel walls here or at the other new stations. The entrance name fascia are purple, and there are two exterior roundels of the wall-mounted projecting 'silhouette' variant. These were first lettered PADDINGTON, before being changed to read ELIZABETH LINE prior to opening. There is also a separate combined Elizabeth Line roundel and NR double arrow 'totem' sign on Praed Street.



Paddington (Low Level) is the current western terminus of the COS. Features of note include the large 'lily pad' lights and combined roundel/seating. The oldest and newest Underground railways in London both link Paddington to Farringdon.



A long corridor links the Bakerloo Line platform concourse at Paddington LU with the Elizabeth Line station. This is the view looking towards the latter. The tiling pattern is inspired by Brunel's 1854 train shed roof.

TICKETING EQUIPMENT

Ticket hall		
Equipment	Amount	Device Nos.
Touchscreen ticket vending machine	8	32 – 39
Slimline reversable electric E2 gate	16	40 – 47 / 50 – 57
Wide aisle gate	4	21 – 22 / 23 – 24

The station is an Out-of-Station Interchange with Lancaster Gate LU.

LIFTS AND ESCALATORS

Asset	Make	Between
Lift No.6 ‡	Kone	Eastbourne Terrace and Departures Road and Ticket Hall
Lift No.7 ‡	Kone	Eastbourne Terrace and Departures Road and Ticket Hall
Lift No.8 ‡	Kone	Ticket Hall and Elizabeth Line platforms
Lift No.9 ‡	Kone	Ticket Hall and Elizabeth Line platforms
Lift No.12	Kone	Elizabeth Line platforms and Bakerloo Line corridor
Lift No.1	Kone	Bakerloo Line corridor and Bakerloo Line platforms †

† LU station asset. ‡ Lift pairs, side by side.

It is believed the lifts are numbered in a common sequence with those on the National Rail station. In addition, here and at a number of other locations, there are unadvertised firefighters/evacuation/service lifts numbered within the main station series.

Asset	Make	Between
Escalator No.1	Otis	Departures Road entrance (west) and Ticket Hall
Escalator No.2	Otis	Departures Road entrance (west) and Ticket Hall

Escalator No.3	Otis	Departures Road entrance (east) and Ticket Hall
Escalator No.4	Otis	Departures Road entrance (east) and Ticket Hall
Escalator No.5	Otis	Departures Road entrance (east) and Ticket Hall
Escalator No.6	Otis	Ticket Hall level and Elizabeth Line platforms (west end)
Escalator No.7	Otis	Ticket Hall level and Elizabeth Line platforms (west end)
Escalator No.8	Otis	Ticket Hall level and Elizabeth Line platforms (second from west end)
Escalator No.9	Otis	Ticket Hall level and Elizabeth Line platforms (second from west end)
Escalator No.10	Otis	Ticket Hall level and Elizabeth Line platforms (second from east end)
Escalator No.11	Otis	Ticket Hall level and Elizabeth Line platforms (second from east end)
Escalator No.12	Otis	Ticket Hall level and Elizabeth Line platforms (east end)
Escalator No.13	Otis	Ticket Hall level and Elizabeth Line platforms (east end)
Escalator No.14	Otis	Elizabeth Line platforms and Bakerloo Line corridor
Escalator No.15	Otis	Elizabeth Line platforms and Bakerloo Line corridor
Escalator No.3	Otis	Bakerloo Line corridor and Bakerloo Line platforms †
Escalator No.5	Otis	Bakerloo Line corridor and Bakerloo Line platforms †

† LU station asset (LU escalators 1 and 2 go from the Bakerloo Line to LU ticket hall).

The station facility operator is MTR-Elizabeth Line and station infrastructure management is by Rail for London Infrastructure.

BOND STREET

This station was not ready on the date the service opened to the public and will be featured in a future article. The platform roundels showed “Station Closed” and “Opening Soon” alternately.

TOTTENHAM COURT ROAD

Tottenham Court Road is a double-ended station with entrances at the existing LU St. Giles Circus ticket hall and at a new entrance in Dean Street. At the former, three new escalators and a lift lead to and from the Elizabeth Line platforms, whilst at the latter, three new escalators and two new lifts perform the same function.

The Dean Street ticket hall sits below a new commercial development and is open to natural light on three sides. Finishes include granite, black glass and stainless steel that are said to be dark and cinematic. The exterior carries a projecting wall-mounted ‘silhouette’ Elizabeth Line roundel and a purple name fascia. This is not surprising, since passengers requiring LU services will find it quicker to enter the station via the St. Giles Circus entrance. In spite of this, the new ticketing equipment and gateline staffing at Dean Street are all provided by LU.

Overall, the décor includes stainless steel, plus red, white or black glass panelling that feature a pattern of dots representing the street plan of Soho, whilst ceiling lights are housed in prominent stainless-steel drums. The platforms and associated cross-passages are of ‘Tube’ design with curved ceilings and walls. These are clad in concrete panels, many of which are perforated for noise-reduction purposes. Platform lighting is by a continuous strip above the Platform Screen Doors. The eastern platform is curved to avoid the foundations of Centre Point and the only one on the COS that is not straight. Corridors are lit by uplighter columns, some of which carry wayfinding information. Passages at the east end of the platforms lead to new or existing lifts and staircases which allow interchange with the Central and Northern lines. Platform roundels are of the ‘panel’ type and also appear in corridors.

TICKETING EQUIPMENT

Western (Dean Street) ticket hall		
Equipment	Amount	Device Nos.
Touchscreen ticket vending machine	3	37 – 39
Slimline reversable electric E2 gate	9	50 – 58
Wide aisle gate	2	80 – 81

The Eastern (St. Giles Circus) entrance uses the existing LU ticketing facilities.



Areas of Tottenham Court Road have red, white or black glass bearing a decorative pattern based on the street plan of Soho. Also seen are the distinctive lighting drums on the ceiling.



The standard 'Tube' platform décor used at five stations. Note the Platform Screen Doors, the Passenger Information Display above, and the continuous light strip. Both the wall and ceiling are clad in pre-cast concrete panels. This is the eastbound looking east and the only curved platform on the COS.

LIFTS AND ESCALATORS

Asset	Make	Between
Lift No.7 (Lift J)	Kone	Western Ticket Hall and Mid-level
Lift No.8 (Lift H)	Kone	Mid-level and Elizabeth Line platforms
Lift No.10 (Lift C)	Kone	Eastern Ticket Hall and Elizabeth Line platforms
Lift No.11	Kone	Western Ticket Hall to all levels †
Lift No.12 (Lift G)	Kone	Elizabeth Line platforms and Northern Line platforms

† Firefighters/evacuation lift

Asset	Make	Between
Escalator No.15	Otis 520 E	Western Ticket Hall and Elizabeth Line platforms
Escalator No.16	Otis 520 E	Western Ticket Hall and Elizabeth Line platforms
Escalator No.17	Otis 520 E	Western Ticket Hall and Elizabeth Line platforms
Escalator No.18	Otis 520 F	Eastern Ticket Hall and Elizabeth Line platforms
Escalator No.19	Otis 520 F	Eastern Ticket Hall and Elizabeth Line platforms
Escalator No.20	Otis 520 F	Eastern Ticket Hall and Elizabeth Line platforms

London Underground is both the station facility operator and the station infrastructure management.

FARRINGDON

The primary entry point to the Elizabeth Line at Farringdon is via the Western (or Integrated Ticket Hall – ITH) that stands opposite LU's 1922 Metropolitan Railway building in Cowcross Street. The ITH opened in December 2011 and is perhaps better known as the 'Thameslink' ticket hall. Three escalators were commissioned in April 2021 between the ticket hall and northbound National Rail platform 4. Three further escalators have now been brought into use from the platform 4 area down to the west end of the Elizabeth Line platforms. Also, two existing lifts have been reprogrammed to stop additionally at Elizabeth Line level. At the east end of these platforms, sets of two and three escalators, and two inclined lifts, serve a new surface ticket hall and entrance in Long Lane. A conventional lift also links the Interchange Level (east) with inner rail/westbound platform 2 at Barbican.

The new Eastern Entrance and ticket hall is the smallest of the new central area stations and forms part of a new office block. The ticket hall opens up on three sides and has York Stone paving, a common material used in the City of London, and two facing gatelines. The coffered concrete ceiling references the brutalist architecture of the Barbican, whilst the glazing is embedded with an intricate pattern inspired by the elaborate ironwork of the historic Smithfield Market next door. This is entitled *Spectre* and is by

Simon Periton. The metal heavy sliding doors have irregularly-spaced vertical slats which form the barcode for 'Farringdon'.

Platform finishes follow those at Tottenham Court Road and elsewhere. Décor bespoke to this location includes panels bearing gemstone images – *Avalanche*, also by Simon Periton, and a diamond-patterned ceiling, both paying tribute to the nearby Hatton Garden 'Jewellery Quarter', as do the gold-coloured stainless-steel wall panels designed to reduce noise. Platform roundels are of the 'panel' design. The Eastern Entrance exterior has two projecting wall-mounted 'silhouette' Elizabeth Line roundels and a purple name fascia.



The Eastern ticket hall with its concrete coffered ceiling and patterned windows. Beyond the gateline are escalators Nos. 9, 8 & 7 and inclined Lift No.7 to the Interchange Level (east).



A second set of escalators is required to reach the platforms from the Interchange Level (east). These are escalators Nos. 10 & 11, plus Lift No.8, whose glazed shaft is on the left.

TICKETING EQUIPMENT

Eastern (Long Lane) ticket hall

Equipment	Amount	Device Nos.
Touchscreen ticket vending machine	2	38 – 39
Slimline reversable electric E2 gate	6	50 – 52 / 53 – 55
Wide aisle gate	2	26 – 27

LIFTS AND ESCALATORS

Asset	Make	Between
Lift No.3 (Lift C)	Kone	Western Ticket Hall and S/B National Rail platform and Elizabeth Line platforms †
Lift No.4 (Lift C)	Kone	Western Ticket Hall and S/B National Rail platform and Elizabeth Line platforms †
Lift No.7 (Lift F)	Kone	Eastern Ticket Hall and Interchange Level (east)
Lift No.8 (Lift E)	Kone	Interchange Level (east) and Elizabeth Line platforms
Lift No.10 (Lift G)	Kone	Barbican inner rail Met/Cir/H&C platform and Interchange Level (east)

† Lifts in service prior to commencement of Elizabeth Line services – 3 & 4 lifts are side by side.

Asset	Make	Between
Escalator No.4	Otis 520 F	Western Ticket Hall and Interchange Level (west)
Escalator No.5	Otis 520 F	Western Ticket Hall and Interchange Level (west)
Escalator No.6	Otis 520 F	Western Ticket Hall and Interchange Level (west)
Escalator No.7	Otis 520 E	Eastern Ticket Hall and Interchange Level (east)
Escalator No.8	Otis 520 E	Eastern Ticket Hall and Interchange Level (east)
Escalator No.9	Otis 520 E	Eastern Ticket Hall and Interchange Level (east)

Asset	Make	Between
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Escalator No.10	Otis 520 D	Interchange Level (east) and Elizabeth Line platforms
Escalator No.11	Otis 520 D	Interchange Level (east) and Elizabeth Line platforms

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LIVERPOOL STREET

This station has a similar general layout to Farringdon, whereby two parallel ‘Tube’ tunnel platforms are served by a ticket hall and lifts/escalators at each end. The eastern ends of the platforms are connected to the main ticket hall at Liverpool Street LU and also a new entrance in Broadgate. The western ends are accessed via the existing Moorgate LU station, and so indirectly gives Liverpool Street LU station interchange with the Northern Line – albeit by a lengthy and circuitous route.



Liverpool Street's Eastern Entrance in Broadgate. Visible are escalators Nos. 12, 11 & 10, and inclined Lift No. 9.



Escalators Nos. 24, 23 & 22 at Moorgate between Moorfields ticket hall and the mezzanine level (west).

The Eastern Entrance is housed in a 5m-high glazed and steel canopy, where three short escalators and an inclined lift take passengers down to ticket hall level. Beyond the gateline, to the left a gentle ramp leads up to the LU main ticket hall, whilst on the right three escalators and another inclined lift connect with an intermediate level and corridor. Mid-way along this corridor a conventional lift goes down to platform level. At the far end of the corridor are three more escalators descending to the platforms. This corridor also contains the ‘infamous’ fire doors that were tested in Germany to withstand a fire of up to 3,000°C for two hours.

The Western Entrance is within the Moorfields ticket hall of the LU station, which reopened after modernisation in July 2021. Two sets of three escalators and an intermediate level area provide the link between the ticket hall and the Elizabeth Line. One existing lift has been reprogrammed to descend further to a Mid-level landing, from where a new lift goes to Elizabeth Line platform level. This new lift also stops intermediately at a Link Passage, which after a lengthy walk enables a lift to the Northern Line to be reached. In addition, there are new stairs to the Link Passage from both the Elizabeth Line and Northern Line platforms.

The standard ‘Tube’ cladding finishes are applied to the platform areas, and there is a wide central walking route running parallel between the two. This features a line of ‘totems’ supporting lighting, signage and other services. Platform roundels are of the ‘panel’ type. Materials used on the station include concrete, glass, stainless-steel and terrazzo tiling. Both ticket halls have grooved and angled pre-cast concrete ceilings that are said to resemble the traditional pinstripes of City workers. They also each have a blue glass panel bearing the City of London’s coat-of-arms which states that new line was part-funded by the Corporation “for the benefit of those who live and work in London”.

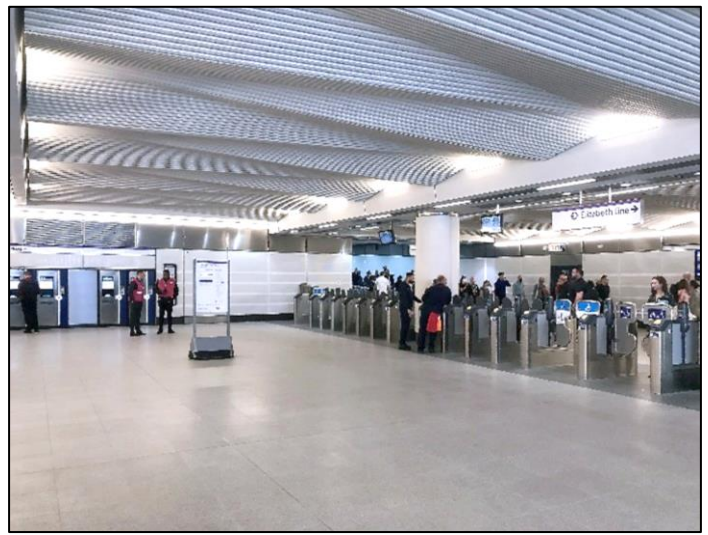
The Eastern Entrance has a purple name fascia and freestanding Elizabeth Line ‘totem’ roundel. Another roundel is applied directly onto clear glass. The Western Entrance, being within the LU station, has a standard blue fascia and a wall-mounted projecting LU ‘silhouette’ roundel.

4,000 skeletons from the Bedlam burial ground were unearthed during construction as well as many objects from Roman times.



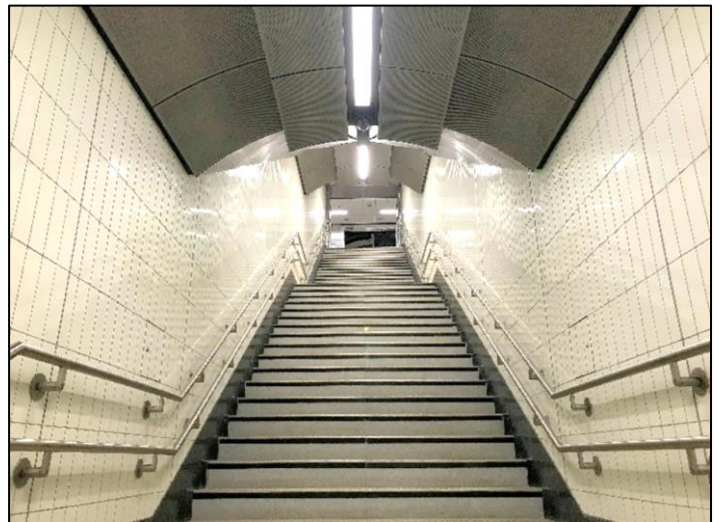
All the stations constructed in 'Tube' style have full or part-length walkways running between the platforms and linked to cross-passages. Liverpool Street is probably the most impressive with its numerous sign/uplighter 'totems'.

Link Passage corridor between the Elizabeth Line and Northern Line.



Broadgate Eastern Entrance ticket hall at Liverpool Street showing the angled pre-cast concrete ceiling. The gateline is close to the top of the Central Line escalators and also gives access to the main LU ticket hall.

Stairs between the Link Passage and Northern Line platforms.



TICKETING EQUIPMENT

Eastern (Broadgate) ticket hall

Equipment	Amount	Device Nos.
Touchscreen ticket vending machine	6	34 – 39
Slimline reversable electric E2 gate	10	40 – 45 / 50 – 53
Wide aisle gate	3	21 – 23

LIFTS AND ESCALATORS

Asset	Make	Between
Lift No.1 (Lift B)	Kone	Moorgate Ticket Hall and W/B Met/Cir/H&C platforms and Mid-level †
Lift No.2 (Lift D)	Kone	Mid-level and Lift Passage and Elizabeth Line platforms
Lift No.5 (Lift C)	Kone	Lift passage and Northern Line platforms
Lift No.7 (Lift E)	Kone	Mezzanine (east) and Elizabeth Line platforms
Lift No.8 (Lift F)	Kone	Broadgate Ticket Hall and mezzanine (east)
Lift No.9 (Lift G)	Kone	Broadgate entrance and Ticket Hall

† Lift in service prior to commencement of Elizabeth Line services

Asset	Make	Between
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Escalator No.10	Otis 520 A	Broadgate entrance and Ticket Hall
Escalator No.11	Otis 520 A	Broadgate entrance and Ticket Hall
Escalator No.12	Otis 520 A	Broadgate entrance and Ticket Hall
Escalator No.13	Otis 520 D	Broadgate Ticket Hall and mezzanine (east)
Escalator No.14	Otis 520 D	Broadgate Ticket Hall and mezzanine (east)
Escalator No.15	Otis 520 D	Broadgate Ticket Hall and mezzanine (east)
Escalator No.16	Otis 520 E	Mezzanine (east) and Elizabeth Line platforms
Escalator No.17	Otis 520 E	Mezzanine (east) and Elizabeth Line platforms
Escalator No.18	Otis 520 E	Mezzanine (east) and Elizabeth Line platforms
Escalator No.19	Otis 520 E	Mezzanine (west) and Elizabeth Line platforms
Escalator No.20	Otis 520 E	Mezzanine (west) and Elizabeth Line platforms
Escalator No.21	Otis 520 E	Mezzanine (west) and Elizabeth Line platforms
Escalator No.22	Otis 520 E	Moorgate Ticket Hall and mezzanine (west)
Escalator No.23	Otis 520 E	Moorgate Ticket Hall and mezzanine (west)
Escalator No.24	Otis 520 E	Moorgate Ticket Hall and mezzanine (west)

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WHITECHAPEL

At Whitechapel, the Elizabeth Line is reached from within the existing LU station. This was extensively rebuilt over a number of years with the four-platform District Line layout reduced to two to accommodate a wide island platform and circulating area. From the ticket hall, access to the Elizabeth Line is via a Bridge Concourse that came into use in August 2021 and lies over the London Overground platforms 5 & 6. This is supported on steel struts that rest on the brick arches of the East London Line cutting. At the far end, three escalators and two lifts lead to and from the Elizabeth Line platforms. These are new assets, which combined with the existing station lifts, provide overall step-free access.



Above: (Left) Cost-cutting led to Whitechapel having a single entrance and exit at the west end of the platforms. This is the westbound platform facing east.

Above: (Right) Escalators 1, 2 & 3 between platform level and the Bridge Concourse looking upwards.

The Elizabeth Line platforms are of the 'Tube' type, but to save money, the proposed entrance in Cambridge Heath Road was dropped, and there is only an emergency exit at the east end. The platforms feature an artwork entitled *A Sunday Afternoon in Whitechapel* by Chantel Joffe, which were initially made as paper collages and then enlarged and rendered in laser-cut aluminium.

Ticketing arrangements fall under LU and use the existing station assets.

A LU 'totem' roundel appears outside the main entrance in Whitechapel Road. At the Durward Street rear entrance, a wall-mounted white enamel sign carries Elizabeth Line, London Overground and London Underground roundels.

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LIFTS AND ESCALATORS

Asset	Make	Between
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Lift No.1 (Lift H)	Kone	Bridge Concourse and Elizabeth Line platforms †
Lift No.2 (Lift F)	Kone	Bridge Concourse southbound London Overground platform and Elizabeth Line platforms

† Can also be used as a firefighters/evacuation lift

Asset	Make	Between
Escalator No.1	Otis 520 F	Bridge Concourse and Elizabeth Line platforms
Escalator No.2	Otis 520 F	Bridge Concourse and Elizabeth Line platforms
Escalator No.3	Otis 520 F	Bridge Concourse and Elizabeth Line platforms

CANARY WHARF

Along with Paddington, Canary Wharf might be considered one of the two ‘flagship’ stations on the Elizabeth Line. Built on an artificial island in the North Dock of the former West India Docks, the upper levels of the structure are home to a mixed-use leisure/retail 100,000-ft² development and roof garden known as Crossrail Place. The station was originally intended to be called Isle of Dogs but adopted its current name after lobbying from the Canary Wharf Group. Construction started in 2009 and is estimated to have cost around £500 million.

The station is double-ended with entrances serving Crossrail Place or Canada Place, and both are/will be accessible from the north and south sides. At each entrance, four escalators in two banks, and one lift, serve a ticket hall. Each ticket hall has two adjoining UTS gate arrays separated by two escalators. The latter connect with the shopping centre above. These are not TfL assets and are not yet in service. A non-TfL lift at each end will perform the same task. Within the gateline is a long mezzanine floor linking the two ticket halls, which is linked to the platforms below by nine escalators, in three banks of three, and two lifts.



A section of the Canada Place gateline at Canary Wharf. Ascending on the left are two of the non-TfL escalators which run between the ticket halls and a shopping centre above.



This is platform level at Canary Wharf looking west. The oval support columns are clad in stainless-steel and a slatted ceiling helps to hide services and utilities.

The station finishes include grey, off-white and yellow panelling, pale terracotta, glass, stainless steel and light terrazzo tiles. The main colour accent is provided by the glass sides of the escalators, which are coloured in what is meant to be canary yellow, though seems nearer to lime green. There are also areas of perforated acoustic panelling to help reduce noise. Ceilings are slatted to disguise services running above. At platform level, lighting is either by continuous strips or spotlights, and there is an overall darker colour palette intended to aid “intuitive wayfinding”. Platform roundels are of the ‘silhouette’ type, or ‘panel’ type on white, both standard and small sizes. The ‘panel’ type is also fitted remote from platforms at mezzanine level. Exterior roundels are of the pole-mounted ‘silhouette’ design.

TICKETING EQUIPMENT

Western (Crossrail Place) ticket hall		
Equipment	Amount	Device Nos.
Touchscreen ticket vending machine	2	35 – 36

Slimline reversable electric E2 gate	14	40 – 46 / 47 – 53
Wide aisle gate	2	21 – 22
Eastern (Canada Place) ticket hall		
Equipment	Amount	Device Nos.
Touchscreen ticket vending machine	2	37 – 38
Slimline reversable electric E2 gate	14	60 – 66 / 67 – 73
Wide aisle gate	2	23 – 24

The station is an Out-of-Station Interchange with Canary Wharf LU and DLR.

LIFTS AND ESCALATORS

Asset	Make	Between
Lift No.1 (Lift A)	Schindler	Crossrail Place entrance and Ticket Hall and Adam's Plaza Bridge †
Lift No.2	Schindler	Crossrail Place entrance and all levels ‡
Lift No.3	Schindler	Canada Place entrance and all levels ‡
Lift No.4 (Lift B)	Schindler	Canada Place entrance and Ticket Hall
Lift No.5 (Lift C)	Schindler	Ticket Hall level and Elizabeth Line platforms (west end)
Lift No.6 (Lift D)	Schindler	Ticket Hall level and Elizabeth Line platforms (east end)
Lift No.?	Schindler	Crossrail Place Ticket Hall and shopping centre *
Lift No.?	Schindler	Canada Place Ticket Hall and shopping centre *

† Operates only between Canada Place entrance and Adam's Plaza Bridge when station is closed.

‡ Firefighters/evacuation lift.

* Non-TfL asset not yet in service.

Asset	Make	Between
Escalator No.1	Schindler	Ticket Hall level and Elizabeth Line platforms (west end)
Escalator No.2	Schindler	Ticket Hall level and Elizabeth Line platforms (west end)
Escalator No.3	Schindler	Ticket Hall level and Elizabeth Line platforms (west end)
Escalator No.4	Schindler	Ticket Hall level and Elizabeth Line platforms (middle)
Escalator No.5	Schindler	Ticket Hall level and Elizabeth Line platforms (middle)
Escalator No.6	Schindler	Ticket Hall level and Elizabeth Line platforms (middle)
Escalator No.7	Schindler	Ticket Hall level and Elizabeth Line platforms (east end)
Escalator No.8	Schindler	Ticket Hall level and Elizabeth Line platforms (east end)
Escalator No.9	Schindler	Ticket Hall level and Elizabeth Line platforms (east end)
Escalator No.10	Schindler	Crossrail Place entrance and Ticket Hall
Escalator No.11	Schindler	Crossrail Place entrance and Ticket Hall
Escalator No.12	Schindler	Crossrail Place entrance and Ticket Hall
Escalator No.13	Schindler	Crossrail Place entrance and Ticket Hall
Escalator No.14	Schindler	Canada Place entrance and Ticket Hall
Escalator No.15	Schindler	Canada Place entrance and Ticket Hall
Escalator No.16	Schindler	Canada Place entrance and Ticket Hall
Escalator No.17	Schindler	Canada Place entrance and Ticket Hall
Escalator No. ?	Schindler	Crossrail Place Ticket Hall and shopping centre †
Escalator No. ?	Schindler	Crossrail Place Ticket Hall and shopping centre †
Escalator No. ?	Schindler	Canada Place Ticket Hall and shopping centre †
Escalator No. ?	Schindler	Canada Place Ticket Hall and shopping centre †

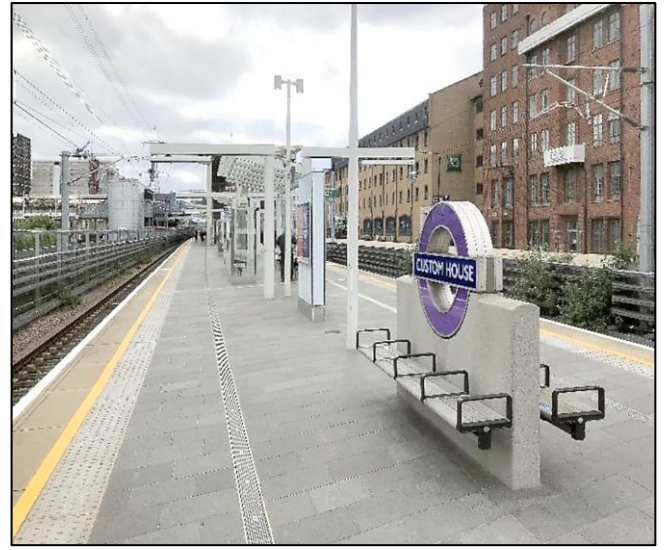
† Non-TfL asset not yet in service

The station facility operator is MTR-Elizabeth Line and station infrastructure management is by Rail for London Infrastructure.

CUSTOM HOUSE

Custom House first appeared on the railway map in 1885 as part of the Eastern Counties & Thames Junction Railway, which had been developed by the parent Eastern Counties Railway. Its fortunes waned after the Second World War with both passenger numbers and services reduced, despite the line being electrified in 1985 using the 3rd rail system and allowing through services to Richmond. The

arrival of the DLR in 1994, when the Beckton extension opened, effectively sealed its fate with the line between Stratford and North Woolwich closing in 2006. The opening of the ExCel London exhibition centre in 2000, and its expansion in 2010, led to an enlargement of the DLR station's facilities with escalators and additional entrances/exits/canopies etc. added.



Above: (Left) Custom House is the smallest of the new stations. The entrance sits on a concrete deck and shares infrastructure with the DLR. To the left is Lift No.1 tower in Victoria Dock Road.

Above: (Right) Looking west along the westbound platform with a combined roundel/seat to the fore.

The Elizabeth Line station is of an island configuration and accessed from either Victoria Dock Road, or via a separate gateline for the DLR and ExCel. The designers were faced with a cramped site, as the railway lies between Victoria Dock Road on one side, the DLR and ExCel on the other, and with high-voltage power cables above. The ticket hall area is at footbridge level on a concrete deck above the west end of the platforms. Public toilets are available inside the paid area. Two single reversible escalators run between this level and the platforms. These were a later upgrade, as the original plan was for fixed stairs to suffice. A lift also connects these points and provides full step-free access in conjunction with the existing lifts serving the DLR platforms and Victoria Dock Road.

The predominant décor is of concrete, steel, glass and light grey. Separate glass canopies and glazed waiting areas are provided at the east end of platforms. Platform roundels are of the 'silhouette' type or are applied directly onto clear glass. Note that whilst the DLR station is titled 'Custom House for ExCel', the Elizabeth Line uses the shorter name 'Custom House'. Large exterior Elizabeth Line roundels appear alongside the DLR version on the tower of Lift No.1 in Victoria Dock Road.

TICKETING EQUIPMENT

Victoria Dock Road ticket hall

Equipment	Amount	Device Nos.
Touchscreen ticket vending machine	2	35 – 36
Slimline reversable electric E2 gate	4	40 – 43
Wide aisle gate	2	21 – 22

DLR and ExCel ticket hall

Equipment	Amount	Device Nos.
Touchscreen ticket vending machine	0	–
Slimline reversable electric E2 gate	4	50 – 53
Wide aisle gate	1	21

LIFTS AND ESCALATORS

Asset	Make	Between
Lift No.3	Kone	Ticket Hall and Elizabeth Line platforms

Asset	Make	Between
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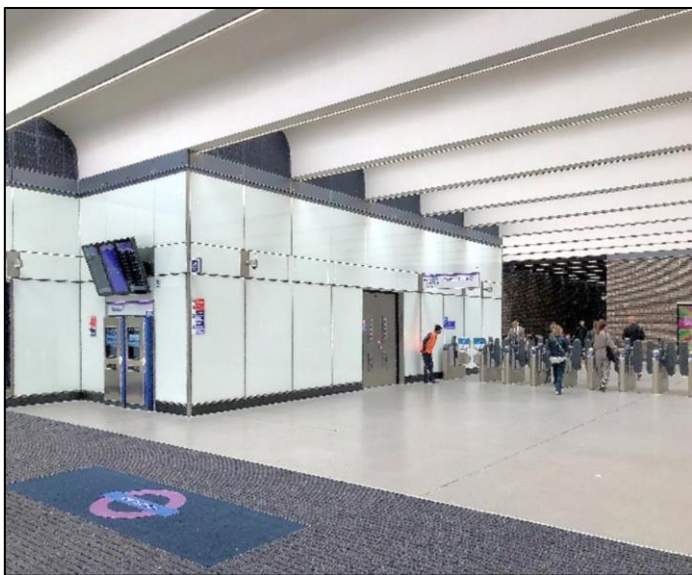
Escalator No.1	Otis	Ticket Hall and Elizabeth Line platforms (west end)
Escalator No.2	Otis	Ticket Hall and Elizabeth Line platforms (east end)

The station facility operator is MTR-Elizabeth Line and station infrastructure management is by Rail for London Infrastructure.

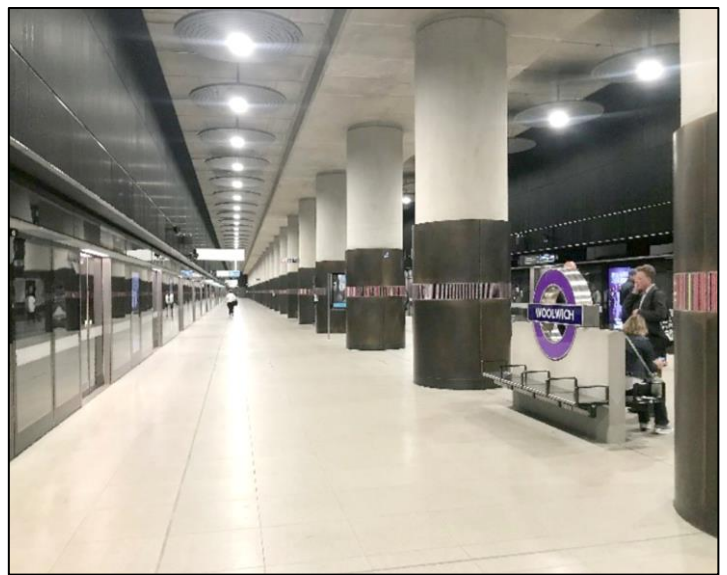
WOOLWICH

The original Crossrail plan did not envisage a station at Woolwich but, following talks between Greenwich Council and developer Berkeley Homes, the sum of £162 million was raised to allow construction. Like Canary Wharf, a station 'box' concept was used, but with a single entrance at the west end and omitting any mezzanine level. The station was built by Balfour Beatty to the design of Weston Williamson, Mott MacDonald and Arup Group.

The entrance is contained in a double-height surface building that faces onto Dial House Square. The exterior front is part-clad in bronze and has a rifling pattern reflecting the former Royal Arsenal. On the rear and side are perforated bronze panels with motifs derived from the circular Memorial Death Plaques produced after the First World War for issue to the next-of-kin of those killed in the conflict. These, some 1,355,000 of them, were cast at Woolwich and known colloquially as the "Dead Man's Penny". Left of the entrance is a currently unlet tenant's premises. The ticket hall area is lit by skylights and has walls of white glass or brick.



Above: (Left) The spacious ticket hall with natural light entering from skylights above and the personalised entrance mat.



Above: (Right) Westbound platform looking west. On the columns are coloured bands paying homage to regiments associated with the old Royal Arsenal.

Once through the gateline, three escalators and one lift lead to and from the island platform. The platform area bears some similarity to Paddington, with a high ceiling supported by large circular concrete columns. The bases of the columns are wrapped in architectural bronze and feature bands of red & blue, or red, yellow & blue, vertical stripes. These are a nod to the Tactical Recognition Flash colours of the Royal Artillery or Royal Engineers and are another reference to the former arsenal.

The ceiling lights are set into circular surrounds in a similar way to those at Paddington. Platform roundels are mainly of the 'silhouette' design, with a smaller number of the 'panel' type at each end. As at Whitechapel, there is no exterior roundel fitted to the building, but rather a freestanding 'totem' version incorporating a local area map installed adjoining the public square.

The station facility operator is MTR-Elizabeth Line and station infrastructure management is by Rail for London Infrastructure.



Part of the exterior bronze panelling bearing an image from WW1 Memorial Death Plaques.



Platform Screen Door open with the Passenger Information Display above.

TICKETING EQUIPMENT

Ticket hall		
Equipment	Amount	Device Nos.
Touchscreen ticket vending machine	2	35 – 36
Slimline reversable electric E2 gate	9	40 – 48
Wide aisle gate	2	21 – 22

The station is an Out-of-Station Interchange with Woolwich Arsenal DLR and NR.

LIFTS AND ESCALATORS

Asset	Make	Between
Lift No.1	Kone	Ticket Hall and Elizabeth Line platforms

Asset	Make	Between
Escalator No.1	Otis	Ticket Hall and Elizabeth Line platforms
Escalator No.2	Otis	Ticket Hall and Elizabeth Line platforms
Escalator No.3	Otis	Ticket Hall and Elizabeth Line platforms

ABBEY WOOD

The original Abbey Wood station was opened in 1849 by the South Eastern Railway. It was rebuilt by BR in 1987 and again from 2014 by NR in preparation for Crossrail, with construction complete by 2017. Management of the station was transferred from Southeastern to TfL Rail the same year. As such, it remained an anomaly for some years, as the nearest TfL Rail train service was across the Thames in Chadwell Heath. The existing North Kent Line tracks were slewed to the south to provide the extra space required for the Elizabeth Line.

The present-day station building is sited on Harrow Manorway flyover, a bridge provided in the 1970s to eliminate the old level crossing. Viewed from above, the station is said to have a 'Manta Ray' shape, with a wavy roof that also forms a canopy above the main entrance and over the main stairs to the platforms. The front of the building has a glass entrance to maximise light in the ticket hall, with the walls on either side clad in light grey glass panels. The north and south sides are finished in blue brick at ground level and varnished slatted wood above. External stairs each side of the main entrance lead to either Felixstowe Road or Wilton Road. The main ticket hall has a curved ceiling made of larch wood and a staffed ticket office. Beyond the gateline are public toilets, and two sets of stairs to island platforms 1 & 2 for National Rail services or 3 & 4 for the Elizabeth Line. A secondary ticket hall serves Felixstowe Road and leads directly to platforms 3 & 4.

Platform canopies are of a modern functional design with glass roofs and grey metalwork. Two further footbridges are provided mid-way and at the west end of the platforms to facilitate interchange. The middle footbridge is also served by two escalators, one to each island platform, and are reversed depending on traffic flow. The Elizabeth Line platforms have full-size 'panel' roundels in glass. On the

National Rail platforms, the signs are of the rectangular ‘banner’ type and bear the station name in white lower-case Johnston on blue.



Above: (Left) The distinctive larch wood roof of the main ticket hall.

Above: (Right) National Rail platform 2 and Elizabeth Line platforms 3 & 4 viewed from the middle footbridge.

The station has six lifts, two between main entrance level and Felixstowe Road, and two between main entrance level and Wilton Road. All of these are outside the gateline and can also be used by pedestrians. A further two lifts are within the paid area, one between the main ticket hall and platforms 1 & 2 and the other between the main ticket hall and platforms 3 & 4.

The north, south and east sides of the station each bear an external Elizabeth Line roundel and a National Rail double arrow, but those at the east (main) entrance sit behind glass so do not have the usual prominence. The main entrance retains a blue name fascia, despite that in Felixstowe Road being purple.

TICKETING EQUIPMENT

Main (Harrow Manorway) ticket hall		
Equipment	Amount	Device Nos.
Touchscreen ticket vending machine	2	1 – 2
Slimline reversable electric E2 gate	4	50 – 53
Wide aisle gate	2	21 – 22

Felixstowe Road ticket hall		
Equipment	Amount	Device Nos.
Touchscreen ticket vending machine	2	37 – 38
Slimline reversable electric E2 gate	4	40 – 43
Wide aisle gate	1	23

LIFTS AND ESCALATORS

Asset	Make	Between
Lift No.1 (Lift B)	Stannah	Harrow Manorway and Felixstowe Road †
Lift No.2 (Lift A)	Stannah	Harrow Manorway and Felixstowe Road †
Lift No.3 (Lift D)	Stannah	Harrow Manorway and Wilton Road †
Lift No.4 (Lift C)	Stannah	Harrow Manorway and Wilton Road †
Lift No.5 (Lift E)	Stannah	Ticket hall and platforms 3 & 4
Lift No.6 (Lift F)	Stannah	Ticket hall and platforms 1 & 2 †

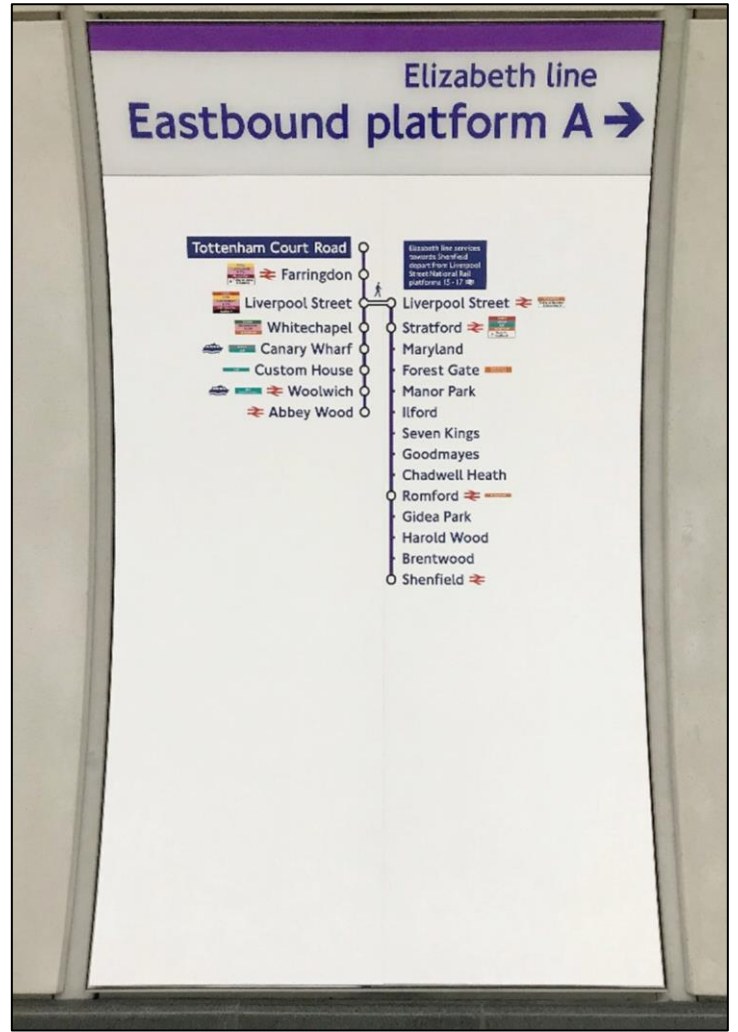
† Lift in service prior to commencement of Elizabeth Line services

Asset	Make	Between
Escalator No. ?	Stannah Anlev	Middle footbridge and platforms 1 & 2
Escalator No. ?	Stannah Anlev	Middle footbridge and platforms 3 & 4

The station facility operator is MTR-Elizabeth Line and station infrastructure management is by Rail for London Infrastructure.

SIGNAGE

Signage is, as would be expected, consistent with the TfL corporate identity brand, and aligns generally (but not wholly) with that used on the Underground. The official typeface is Johnston 100, which is exclusive to TfL and has replaced New Johnston. One area of mild controversy was the decision to use the full title ELIZABETH LINE on roundels and for interchange flag boxes, with some wags and pedants claiming this meant it was actually named the “Elizabeth Line *Line*”. TfL’s repeated social media response was that it was “not just another Tube (sic) line”, but rather a separate ‘mode’ in its own right, and thus the full name had to appear. This reply does not really make sense, as neither London Buses, London Overground, London River Services, London Trams, London Underground, Docklands Light Railway or Victoria Coach Station follow this convention. How much simpler it would be had the Crossrail name been retained? Another subtle difference on the COS is the widespread use of glass for the types of sign usually fashioned in vitreous enamel.



Above: Station line diagrams carry temporary vinyl overlays to reflect the initial Paddington – Abbey Wood service and the need to change at Liverpool Street or Paddington for other destinations. For some reason Shenfield is shown in black instead of blue on the westbound sign.

Previous Page: (Lower Left) A 'panel' platform roundel at Liverpool Street. This is a 'switchable sign' where arrows can be illuminated as required to direct passenger flow.

Previous Page: (Lower Centre) The 'silhouette' version platform roundel with the bar and circle set within a metal frame. These appear in both standard and small sizes at Canary Wharf and Paddington.



A combined Elizabeth Line roundel and National Rail double arrow 'totem' sign on Praed Street, Paddington.

Whitechapel's exterior 'totem' with the Elizabeth Line and London Overground 'modes' shown below the LU roundel.

The external roundel at Woolwich is another of the 'totem' type.

MAPS AND DIAGRAMS

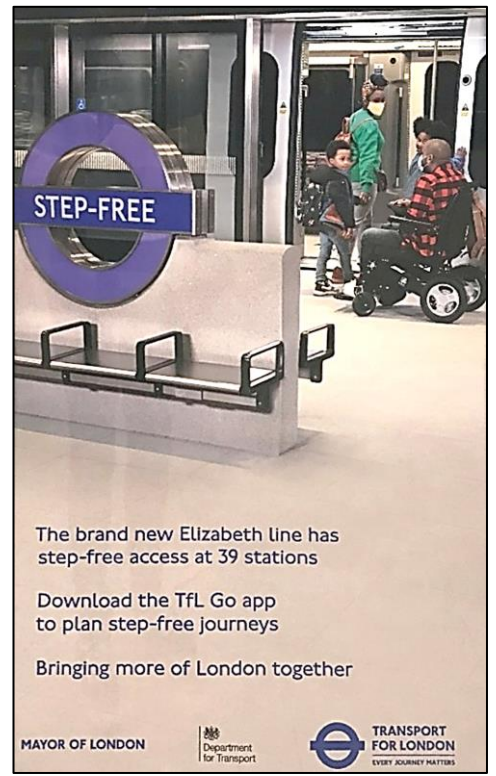
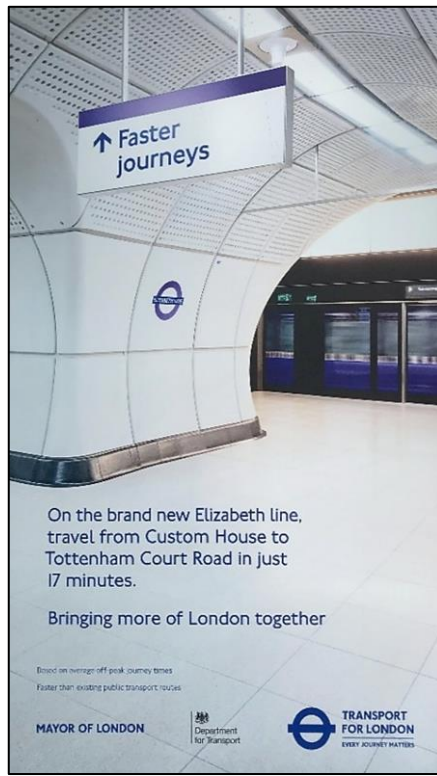
New versions of the 'Tube map' and the 'London's Rail & Tube services' map featuring the Elizabeth Line were issued dated May 2022. The line is shown in cased purple on the former whilst the latter uses solid purple. Station line diagrams were observed as being amended towards the end of April, apparently on a line-by-line basis, and using various sizes of self-adhesive sticker. Car line diagrams followed a little later in early-May. All rolling stock will need new 'Central area' diagrams, though these had not started to appear in mid-June. The existing line-specific car diagrams on the Piccadilly, Victoria and Waterloo & City lines will remain, as these lines have no interchange with the Elizabeth Line.



Part of the May 2022 leaflet 'Tube map' with the Elizabeth Line added.

POSTERS AND PUBLICITY

Opposite: (Top) Three posters produced to publicise the new service.



Paddington and Liverpool Street have temporary signs directing passengers to and from the 'High Level' platforms.

A poster displayed across TfL during the first weeks of the new service.

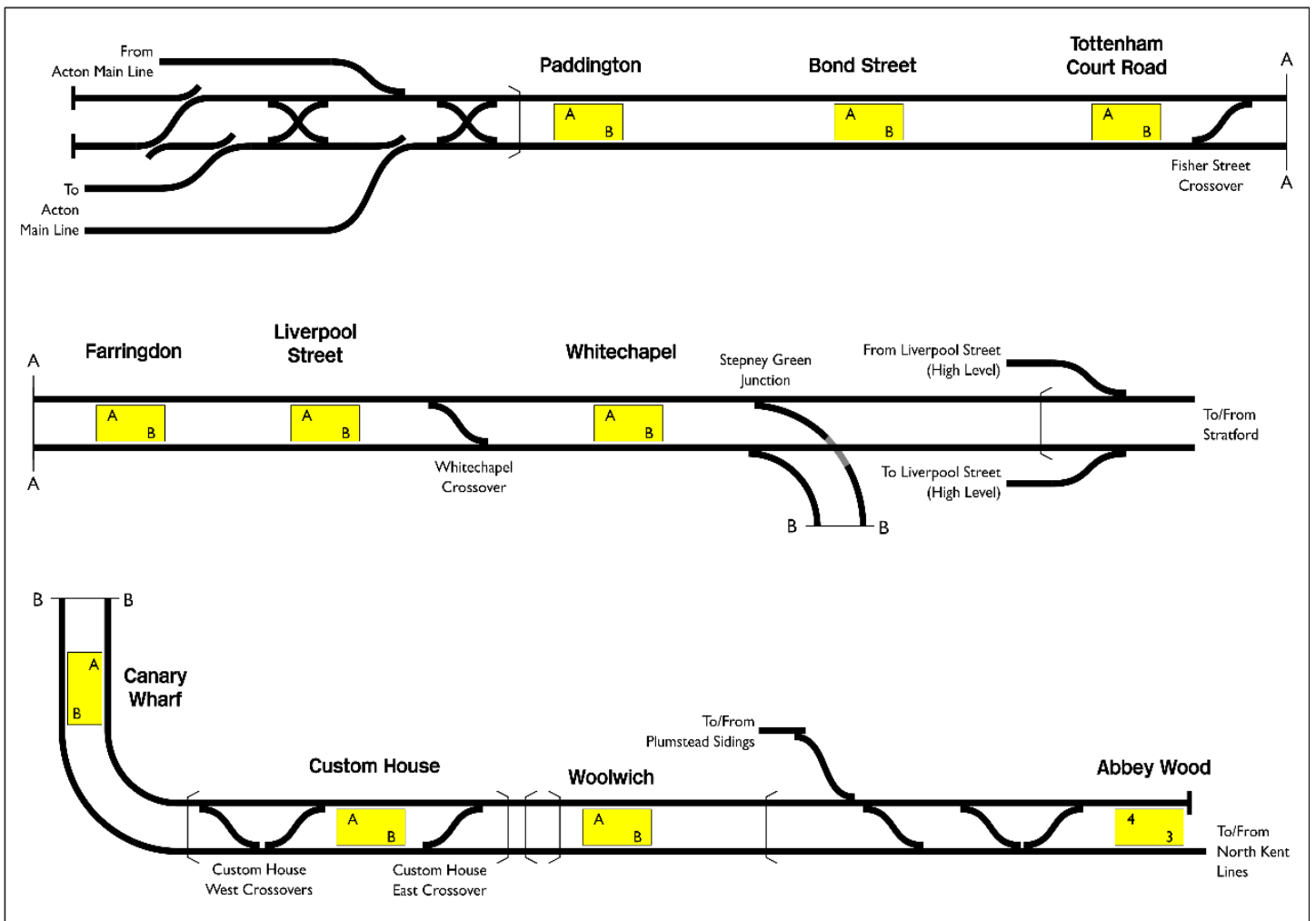
Promotional material issued during the evacuation trials and after opening.



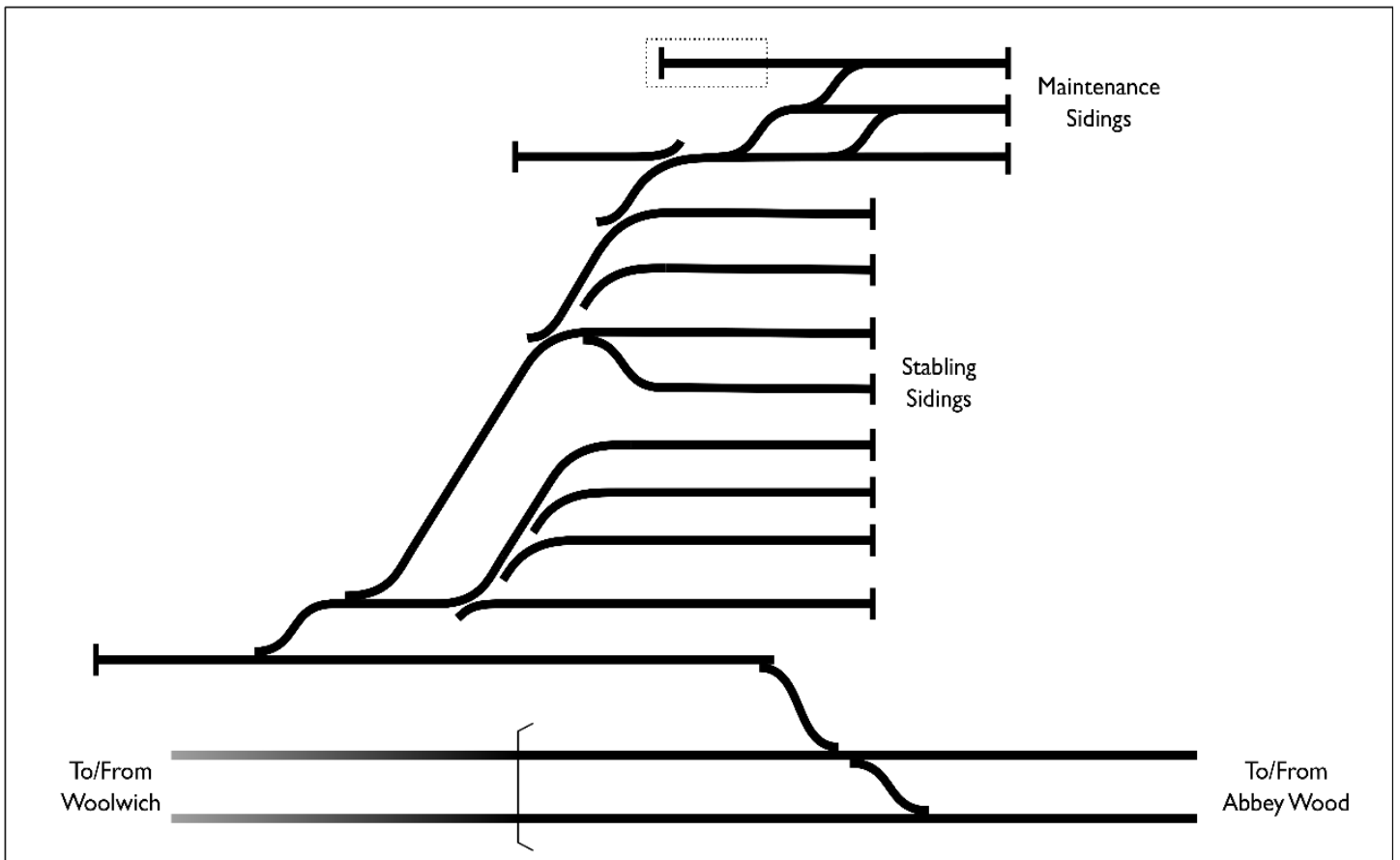
To mark the opening of the Elizabeth Line on 24 May 2022, TfL designed new Elizabeth Line themed Oyster cards, which were dispensed from machines at all stations opening on the line as well as stations in central area Zone 1. The cards feature the design of fabric of the seats of the line's trains and feature the official distinctive purple colour of the new railway. A total of 1.2 million of the new cards were issued, but undoubtedly, they could run out quickly as some are likely to be purchased as a souvenir.

Photo: Ian Grainger

ELIZABETH LINE – TRACK PLAN OF CENTRAL OPERATING SECTION



ELIZABETH LINE – TRACK PLAN OF PLUMSTEAD SIDINGS



Drawings: Thomas Crame