

Inspection Report on the London Underground Elizabeth Line

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1. Overview of the Elizabeth Line Inspection

The Elizabeth line is an underground railway line operating east to west through London and its surrounding areas. It connects stations in the western part of London, such as Reading Station and Heathrow Airport terminals, with Abbey Wood Station or Shenfield Station in the east. Originally consisting of only the Great Western Main Line and the Great Eastern Main Line, a new section was constructed in central London to directly connect these lines as part of the “Crossrail” project. After the opening of this new section, the line was renamed the “Elizabeth line” as a collective name. This report details the findings from an inspection of the line that the author conducted.

2. Basic Information on the Elizabeth Line

The basic information is as follows:

- Route length: 117 km (of which 42 km are underground)
- Number of stations: 41 (including 11 underground stations).

A new station is scheduled to open around 2030.

Source: Elizabeth line map

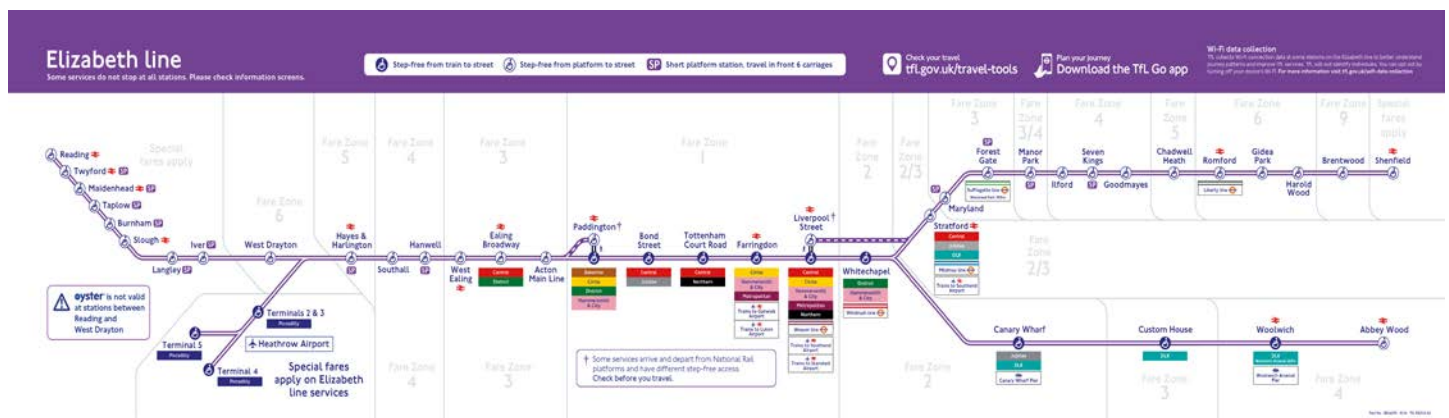
- Number of train cars: 630 cars (70 trains of 9 cars each). An

additional 10 trains have been ordered as of June 2024 and are scheduled for delivery in 2026. All trains are of the “Class 345” type and are manufactured by Bombardier (now Alstom).

- Daily ridership: Approximately 600,000 passengers per day (FY2023)
- Line color: Purple
- Other: During peak hours, a high-frequency service operates with up to 24 trains per hour on major sections of the line.
- Business scheme:
 - Transport for London (TfL) owns and maintains the railway infrastructure, while operations are managed by MTR Elizabeth line (MTREL), a wholly owned subsidiary of Hong Kong’s MTR.

The current operations contract was signed between TfL and MTREL (then MTR Crossrail) in 2014 and is set to expire in April 2025.

- From May 2025, operations will be taken over by GTS Rail Operations Limited, a joint venture established by three companies: The Go-Ahead Group Limited (UK),



Tokyo Metro (JPN), and Sumitomo Corporation (JPN).

- The shareholding ratio is: The Go-Ahead Group Limited 65%, Tokyo Metro 17.5%, and Sumitomo Corporation 17.5%. This change was announced on November 20, 2024.

- History:

- 2001: Full-scale examination of the Elizabeth Line project began.
- 2008: The Crossrail Act passed in the UK Parliament, officially approving the project.
- 2009: Construction of Crossrail began.
- 2014: Operations and maintenance contract signed between TfL and MTR Crossrail.
- 2015: Partial sections opened in stages, depending on construction progress.
- 2022: In May, the entire Crossrail project was opened, and the line was renamed the Elizabeth line.
- 2023: Through-services with existing lines began.
- 2024: In the bidding process for the next operator, a joint Japan-UK consortium was selected to take over operations.

3. Site Visit

The author conducted an investigation by comparing several aspects between newly built stations that opened with the launch of the Elizabeth line, existing stations that predate the line, and stations on other lines during a site visit. These aspects included accessibility, station facilities such as ticket gates and vending machines, onboard features such as seating and Wi-Fi, and the status of development around the stations. All photographs were taken by the author.

3.1 Accessibility

TfL promotes the Elizabeth line as offering a high level of accessibility. With this in mind, attention was paid to the accessibility of new stations (Paddington, Custom House) during the inspection. Compared with the Washington, D.C. Metro system in the United States, where the author

resides, there appeared to be a greater number of elevators. In addition, signage guiding passengers to the elevators was large, easy to read, and frequently placed, making it easier to navigate even for first-time users.



Figure 1: Entrance of Paddington Station, a new station on the Elizabeth line. An elevator lobby is visible in the back.



Figure 2: Elevator descending from the ground floor to the ticket gate area (Paddington Station)



Figure 3: After passing through the ticket gates, there is an elevator leading to the platform (Paddington Station)

The station platforms are wider compared to those of other lines, providing sufficient space for wheelchair users to pass comfortably. However, depending on the station, there are still cases on the Elizabeth line where the gap between the train and the platform is wide, requiring support from station staff for wheelchair users to board or deboard. At such stations, ground markings indicate the car locations designated for boarding. As of the time of inspection, the ten stations where step-free access is available from street to platform (without the need for staff assistance) were Bond Street, Canary Wharf, Custom House, Farringdon, Heathrow, Liverpool Street, Paddington, Tottenham Court Road, Whitechapel, and Woolwich.

In terms of the trains, those on the Elizabeth line are wider and taller than those on other underground lines, such as the Jubilee line. This design likely considers the presence of Heathrow Station on the line and anticipates travelers carrying suitcases. Based on the author's impressions, the train width of the Elizabeth line is comparable to that of the Washington, D.C. Metro. In contrast, the seats on other London Underground lines felt more cramped due to the close proximity of passengers facing each other.

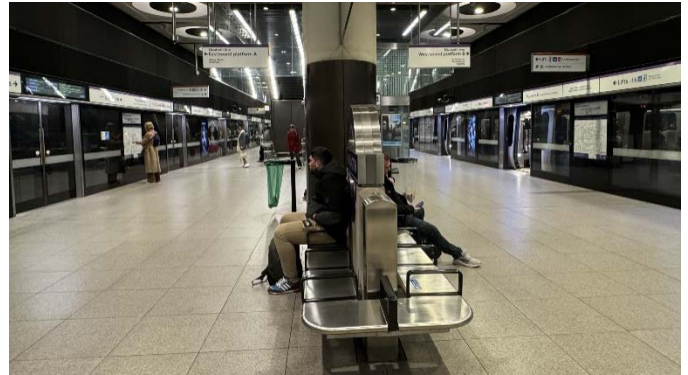


Figure 4: Platform at Paddington Station



Figure 5 (Reference): Green Park Station on the Jubilee line

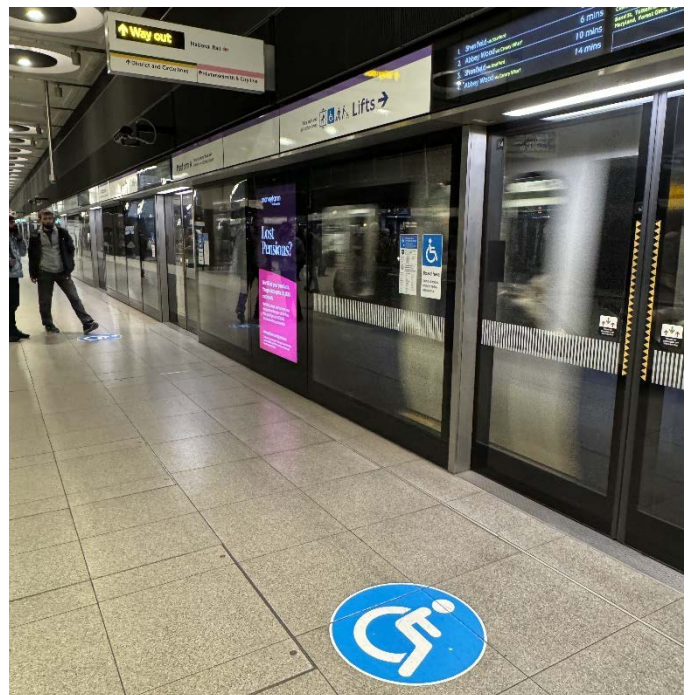


Figure 6: Markings for wheelchair users indicating cars requiring staff assistance (Paddington Station)



Figure 7: Gap between train and platform (Paddington Station)



Figure 8 (Reference): Southall Station, an existing Elizabeth line station



Figure 9: Inside an Elizabeth line train



Figure 10 (Reference): Inside a Jubilee line train

3.2 Station Facilities: Ticket Gates and Vending Machines

With regard to station facilities such as ticket gates and vending machines, there were no major differences observed between the new stations, existing stations, and stations on that are not along the Elizabeth line.

In London, many public transportation systems, including the Underground and other rail lines, allow passengers to enter using contactless payment with credit cards, which is highly convenient for travelers. Additionally, vending machines located near the ticket gates sell transportation IC cards and paper tickets.

At most of the stations the author passed through, station staff were positioned near the ticket gates, observing passengers as they passed through. This seemed to function as a deterrent against fare evasion. In the Washington, D.C. area, by contrast, station staff do not appear to monitor the ticket gates as closely, and fare evasion, such as jumping over the gates, occurs from time to time. Moreover, it is rare to see staff members reprimand or stop such individuals. Therefore, the presence and vigilance of staff at London stations left a strong impression.



Figure 11: Ticket gates at Custom House Station.

Passengers can pass through by tapping the circular pad labeled “G Pay,” etc., with a contactless credit card.

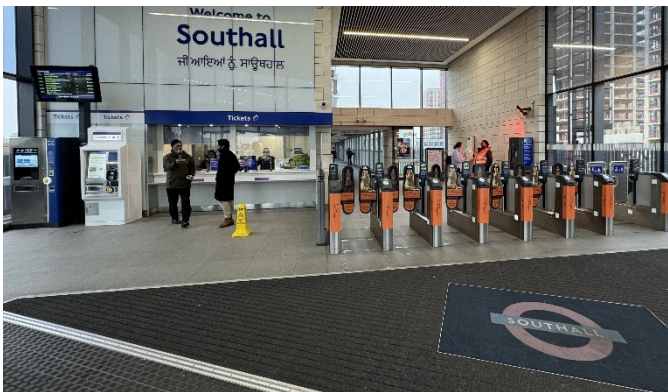


Figure 12: Ticket gate area at Southall Station, an existing Elizabeth line station

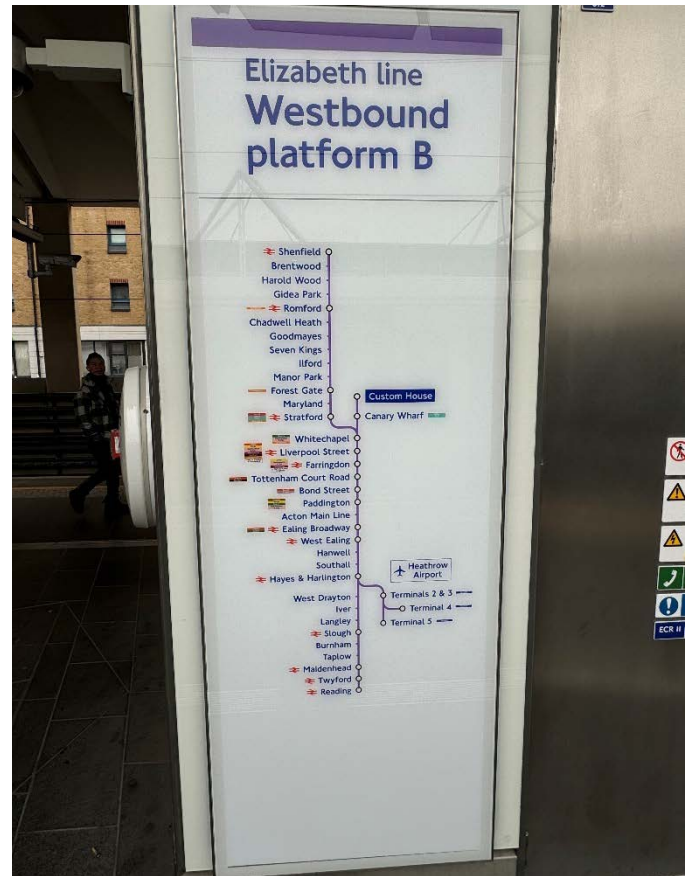


Figure 13: Route guidance signage at Custom House Station. Large and easy to read.

3.3 Onboard Features: Seating, Wi-Fi, and Other Equipment

The Elizabeth line trains, being new, were comfortable to ride. While some of the trains on other lines felt older, there were no instances where the author felt unable or unwilling to sit. Regarding Wi-Fi, the author was able to connect at the stations passed through during the visit. Moreover, on the Elizabeth line, Wi-Fi was available and usable even onboard the trains.



Figure 14: Inside an Elizabeth line train. The next station and final destination are displayed on an electronic signboard.



Figure 15 (Reference): Inside of a DLR train operating in East London

3.4 Development Around the Stations

As for the area surrounding Custom House Station—a newly opened station under the Crossrail project—no particular signs of accelerated development were observed compared to other lines. However, since some buildings were under construction in the vicinity, it is possible that development is planned for the future. This station is located slightly to the east, away from central London.



Figure 16: Area surrounding Custom House Station



Figure 17: Area surrounding Custom House Station



Figure 18: Area surrounding Custom House Station, with buildings under construction visible

4. Impressions from the Elizabeth Line Inspection

Since the Elizabeth line is a newly established route with full service commencing in 2022, the onboard environment, such as seating and Wi-Fi, was functional and provided a comfortable travel experience. In addition, the stations, particularly the newly built ones, were designed with accessibility in mind, which gave the impression that the line enables many people to travel easily by train. Furthermore, the availability of contactless credit card payments was particularly convenient for foreign travelers, as it eliminates the need to research, purchase, or recharge a transportation IC card. Among the cities the author has visited, both London and New York City in the United States support contactless payments. Recently, this system has been increasingly adopted in Japan as well. Notably, Washington, D.C. is scheduled to introduce contactless payment in 2025. As such, the author will be watching closely to see how the use of contactless credit cards in public transit continues to evolve.

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