

# Aspirations for Rail Services in London

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18<sup>th</sup> July 2024

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# What we are going to cover

## A BRIEF MOMENT LOOKING BACK:

- Demand recovery & sustainable mode share
- Elizabeth Line – benefits realisation: importance of benefits realisation in future case making

## LOOKING FORWARD - OUR ASPIRATIONS FOR RAIL SERVICES IN LONDON:

- Modal Upgrade Plans:
  - **Elizabeth Line**: New Trains, HS2 implications and Ebbsfleet
  - **London Underground**: Piccadilly, Bakerloo Extension, Stations
  - **Overground**: HIF Schemes, West London Orbital
  - **DLR**: HIF Schemes: New Trains , Thamesmead, Stations
  - **Croydon Tram**: Tram Fleet
- Devolution and Metroisation of National Rail in London.
- Ticketing and Fares
  - Results of the Friday Off-peak trial.
  - Future and extension of Oyster/Bankcard / Project Oval
  - Extension of Travelcards zones such as St Pancras to Stratford international
  - Paper tickets.
- Step Free Access – Access for All

## CONCLUSIONS



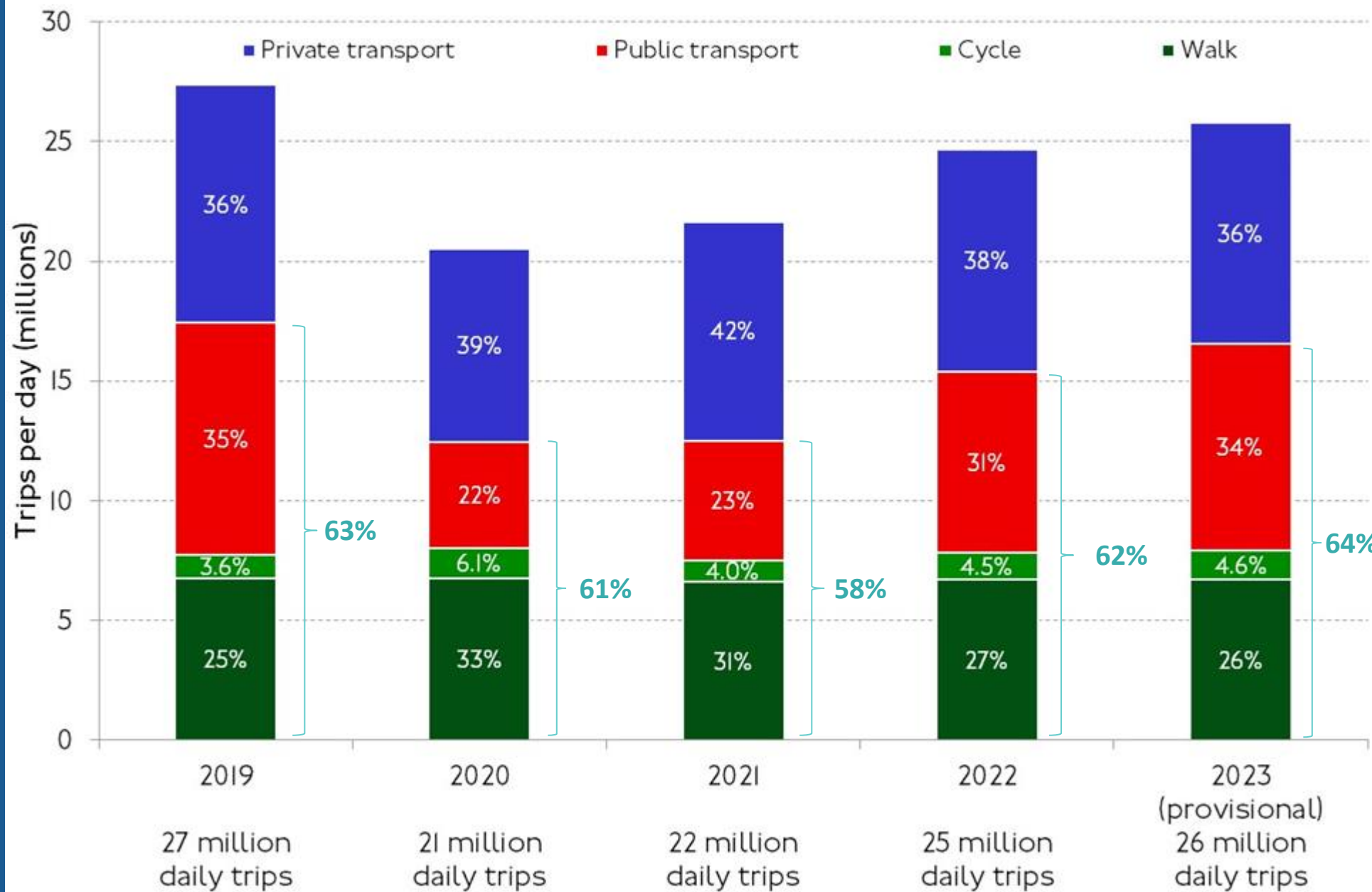
# A BRIEF MOMENT LOOKING BACK





# Demand recovery & sustainable mode share

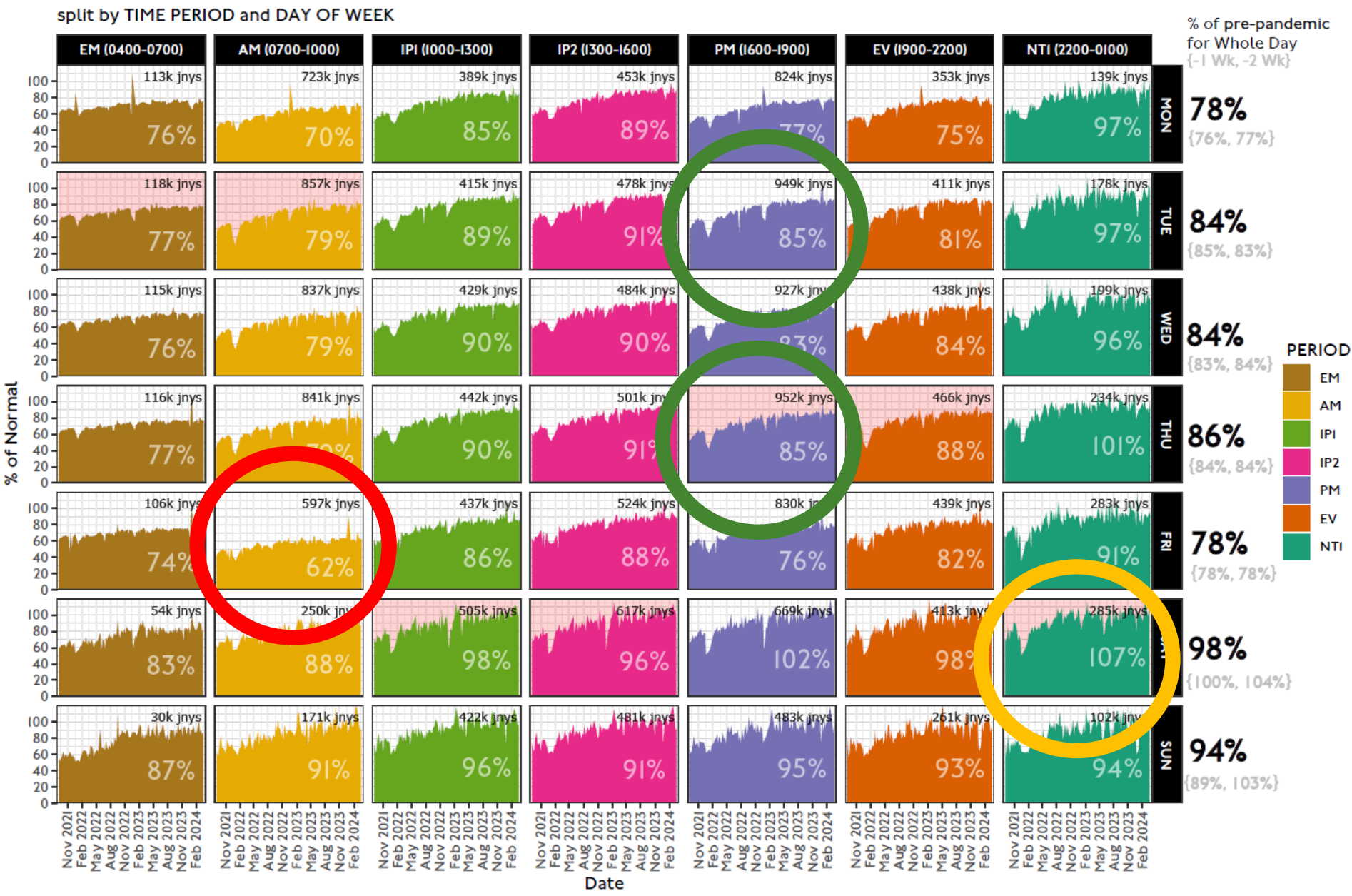
Sustainable mode share is back to 2019 levels.  
Elizabeth line has played a role in the recovery that we have seen.





# Rail usage trends in the round

The busiest three-hour period is the Thursday evening peak. Monday and Friday morning peaks have the slowest recovery rate. Saturdays have the fastest rate of recovery of any day. Interpeak and late evening have the fastest rate of recovery of any time period.





Elizabeth Line:  
What have we  
seen since  
opening?



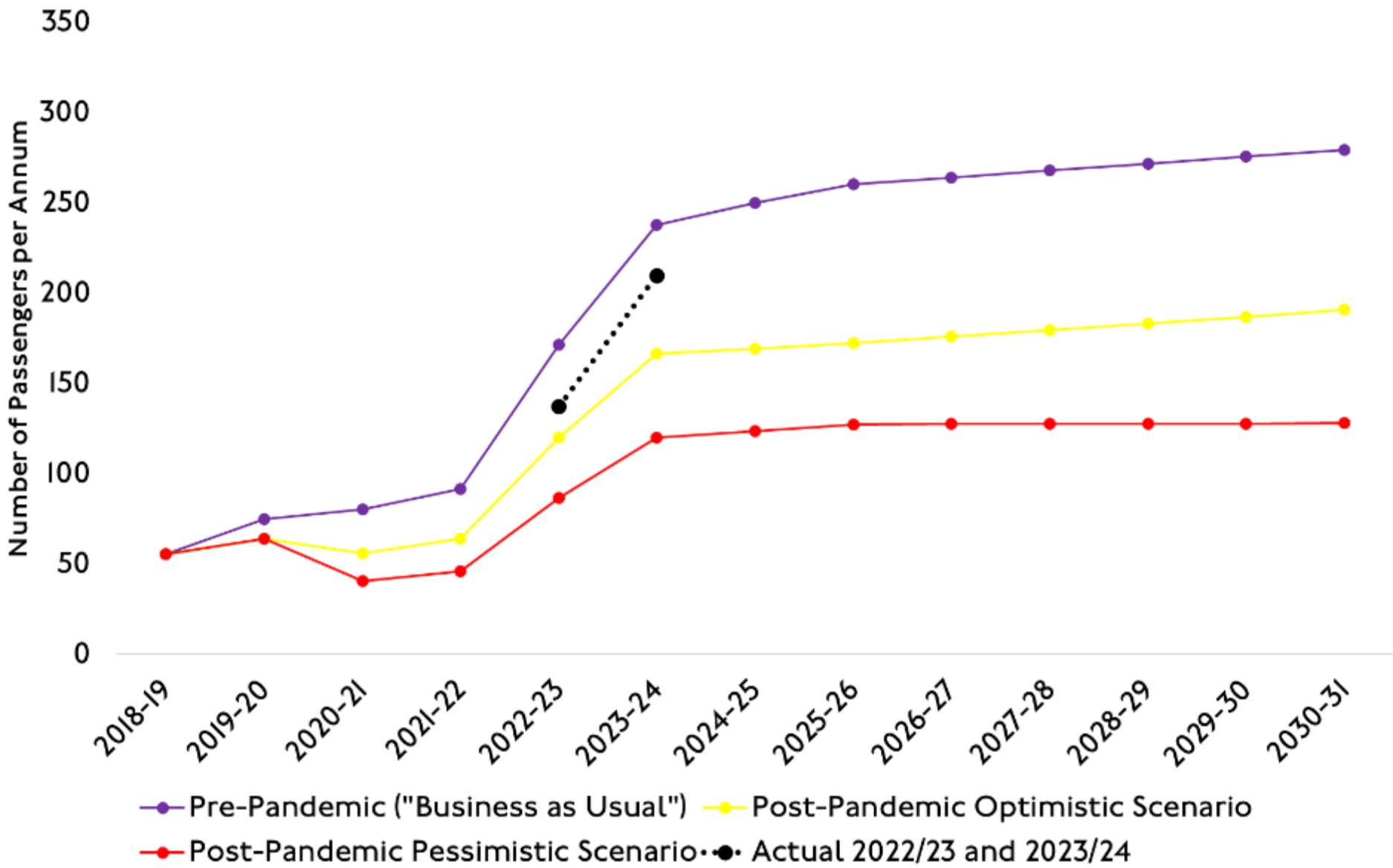


# Long Term Demand

Elizabeth line demand is broadly in line with what the business case predicted.

Our planning scenarios indicated a range of 130m to 170m passengers per annum in the first year of operation – 137m achieved in 2022/23.

210m in 2023/24 versus BAU projection of 238m.



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



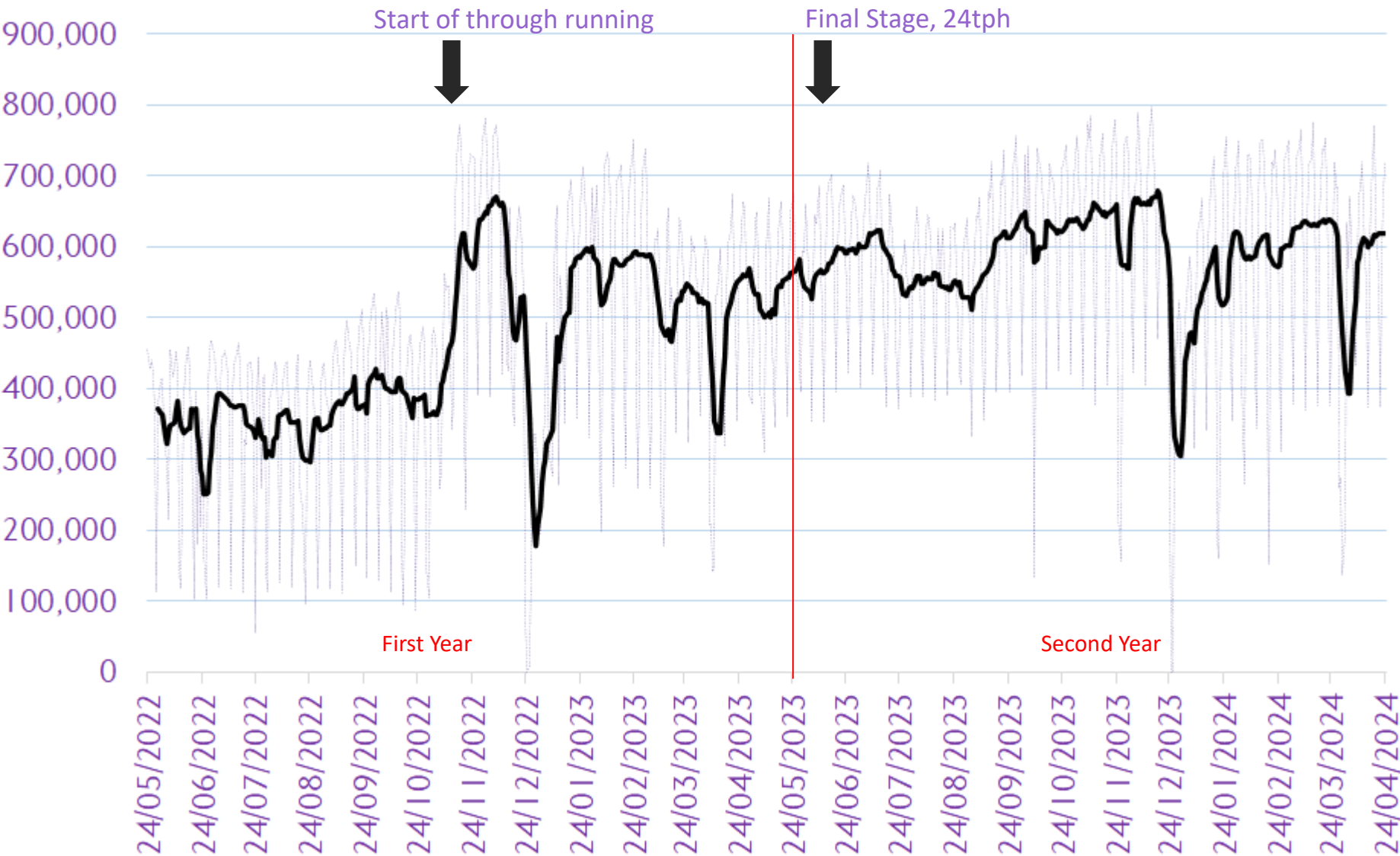
# Daily Demand

Daily demand and ongoing '7-day moving average' trend of demand data.

Currently an average of around 700,000 passengers per mid-week day.

Busiest Day of 796,000 daily journeys on 14th December 2023.

## Elizabeth Line Demand, Journeys



Source: Analysis from Oyster/Contactless and Loadweigh

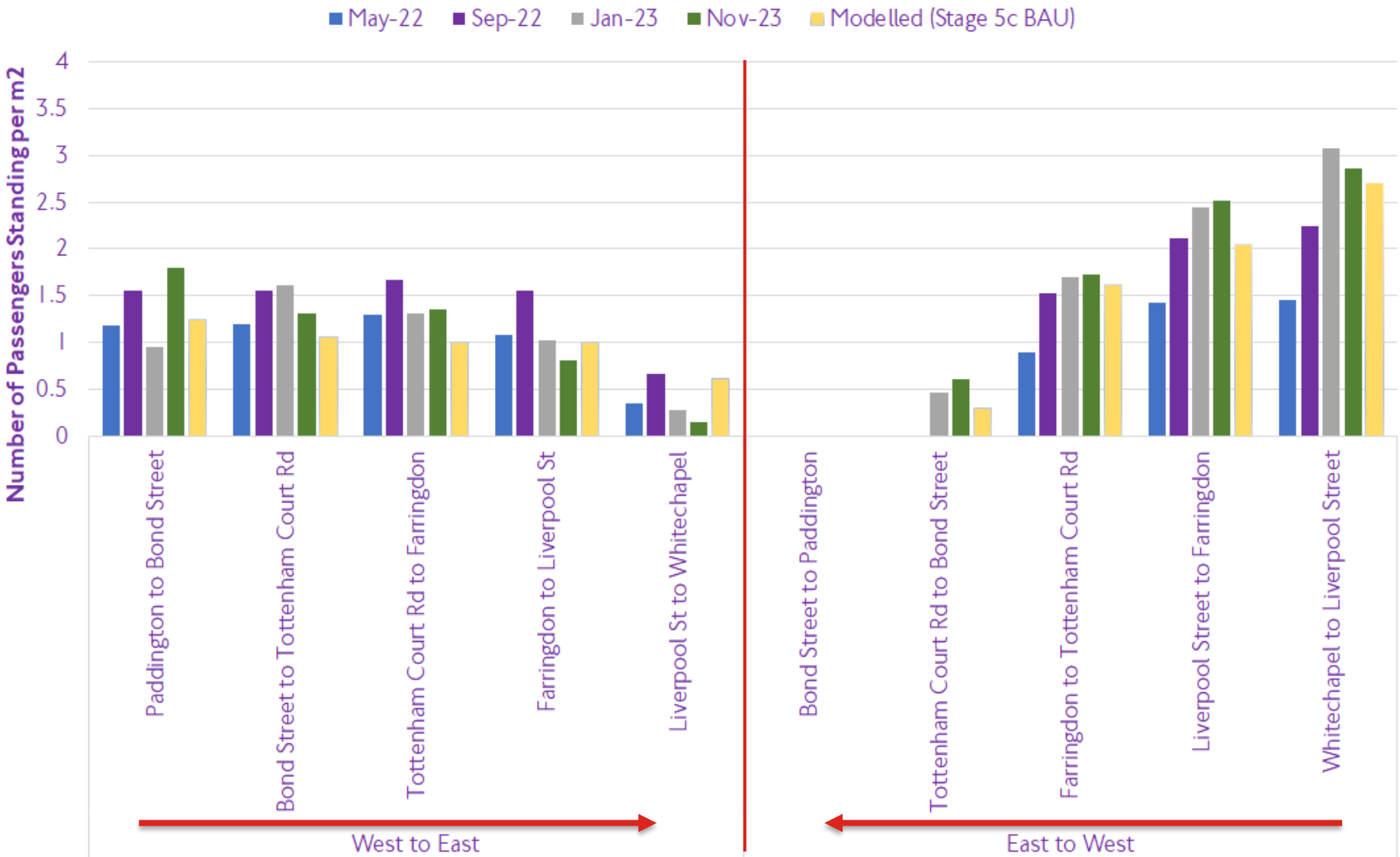


# Central Section Occupancy

Class 345 trains have notional capacity of 1,500 passengers: all seats taken and usable standing space occupied to 4 pax/sqm

Average Occupancy is at or below 3 passengers per square meter at the busiest time, suggesting sufficient capacity for both comfortable travel and future growth.

Number of passengers standing per metre of available standing space at the height of the morning peak



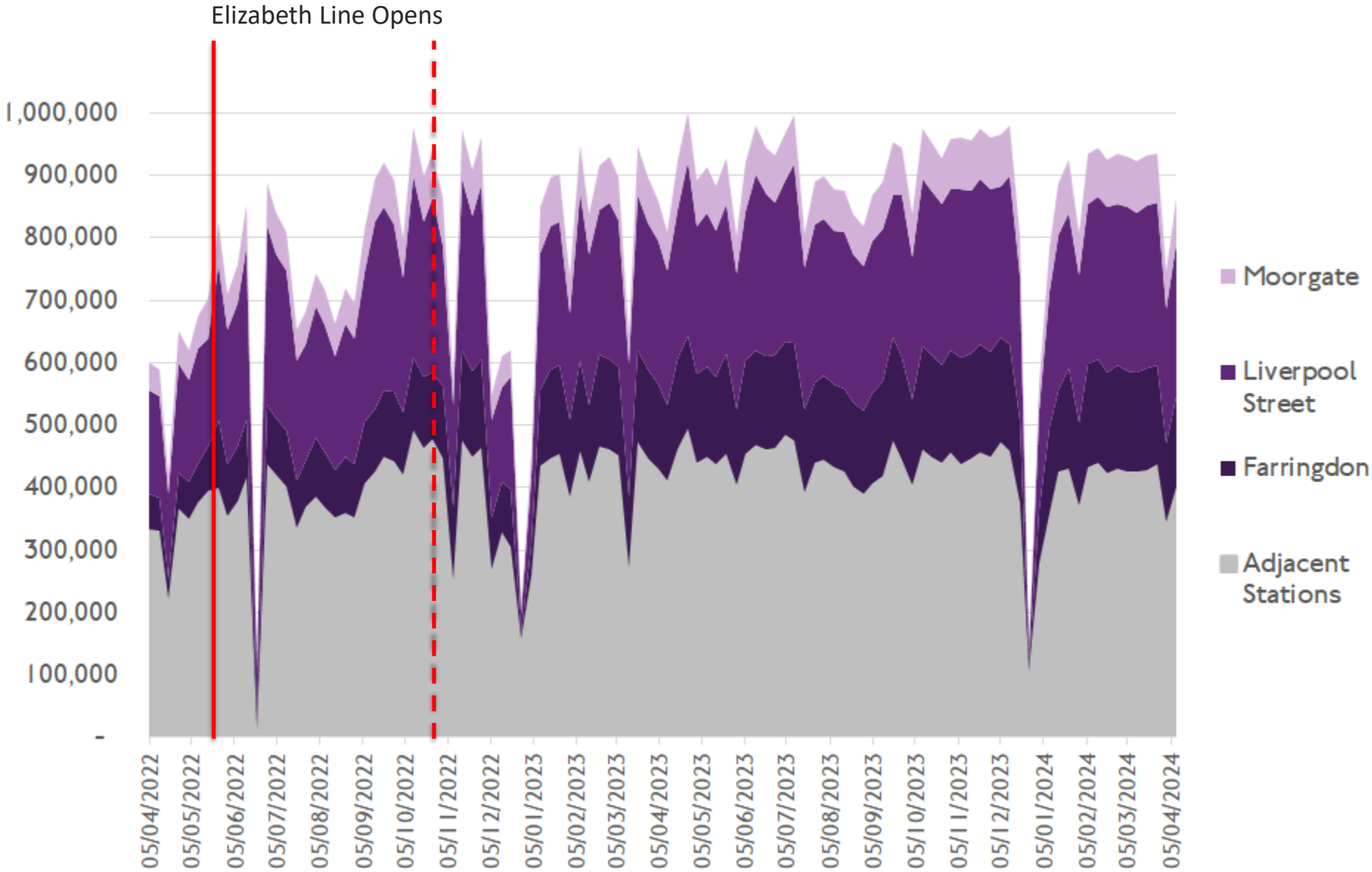
Sources: Railplan projections and DUNNART data



# Demand Generation: Rail in the City

Farringdon: Growth in entries/exits from around 50k per day to around 160k per day. Growth has been steady, with step up at time of line opening in May 2022 and through running in Autumn 2022.

Liverpool Street: Growth from 170k per day to around 250k per day.



Adjacent Stations include: Bank, Monument, Old Street, Tower Hill, Aldgate, Mansion House, Barbican, Chancery Lane, Holborn, St Pauls, Barbican

Sources: TfL DUNNART



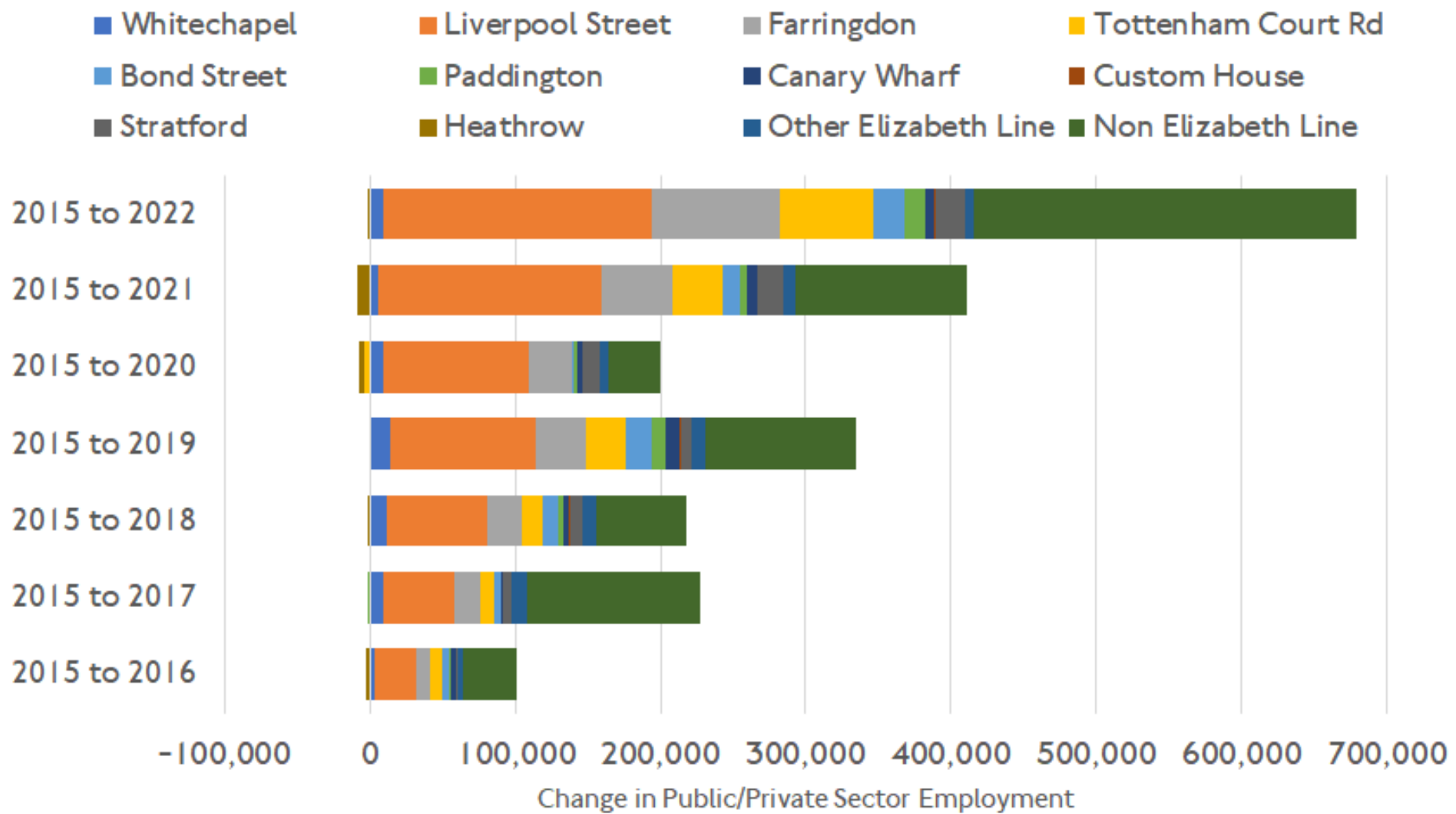
60% of GLA job recent job growth has been within 1km of an Elizabeth line station

Increase in jobs within 1km of Elizabeth Line station between 2015 and 2022

- Canary Wharf (+6,300, +4.5%)
- Stratford (+20,000, +70%)
- Liverpool Street (+185,000, +40%)
- Farringdon (+89,000, +27%)
- Tottenham Court Rd (+64,000, +15%)
- Paddington (+13,000, +17%)

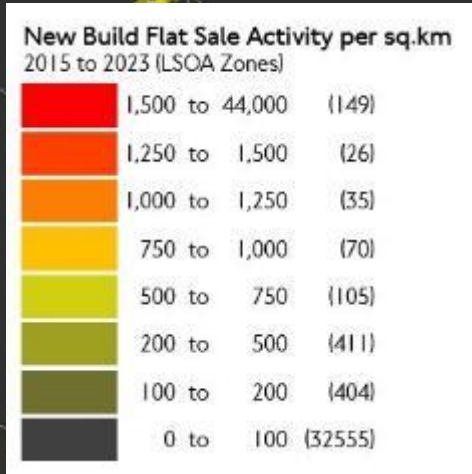
# Growth in GLA area employment from 2015 to 2022 by proximity to Elizabeth Line Stations

Source: Business Register and Employment Survey of Public/Private sector from ONS





Proximity to Elizabeth Line has increased the amount of flat sale activity, especially new build.



	New Build Flat sold per sq. km 2015 to 2022		Flat Sold per sq. km 2015 to 2022
Canary Wharf	1489	Canary Wharf	2711
Stratford	727	Paddington	2077
Woolwich	579	Whitechapel	1323
Whitechapel	294	Stratford	1284
Paddington	278	Woolwich	1228
Slough	250	Romford	1106
Southall	212	West Ealing	1049
Ealing Broadway	186	Maryland	958
Custom House	152	Ealing Broadway	879
Romford	147	Chadwell Heath	874

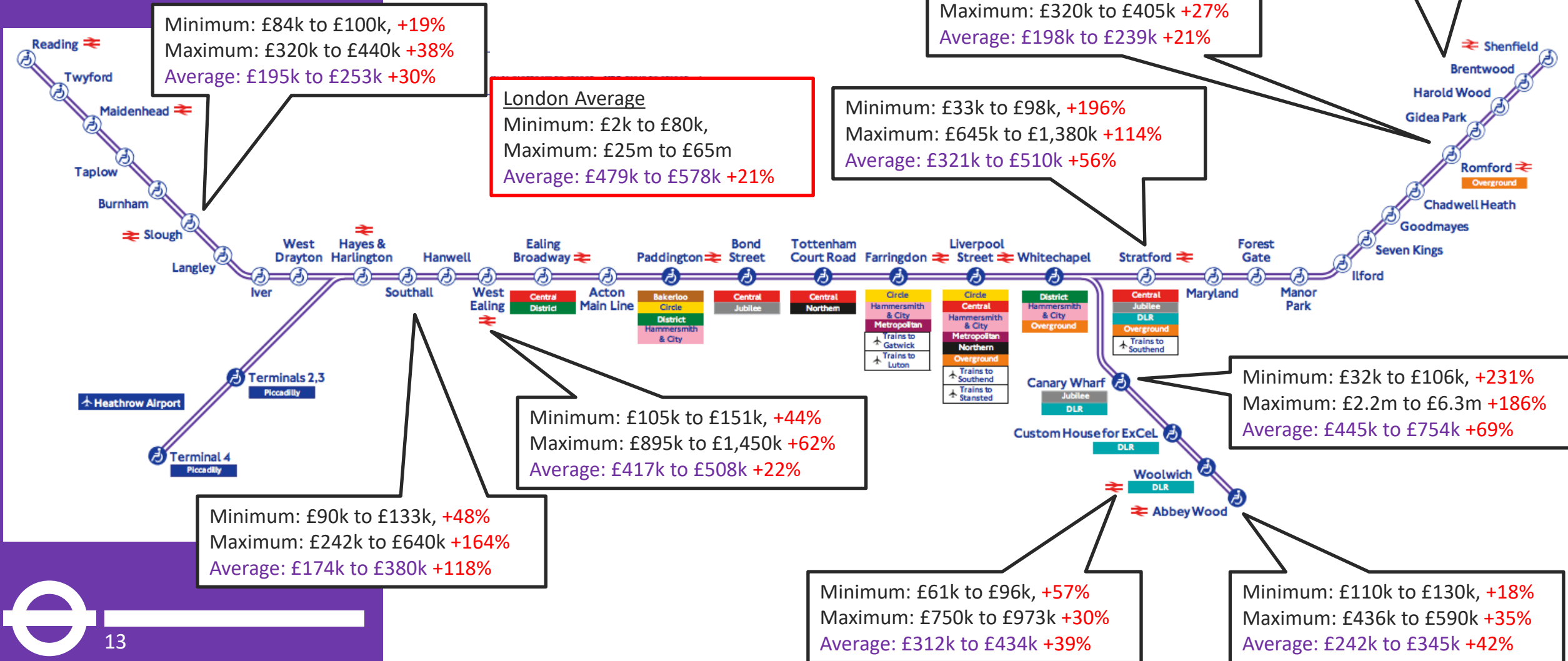


Source: Land Registry Price Paid and Transaction Data



# Signs of higher flat price growth above the London average on the Abbey Wood route, as well as at Southall and Stratford

Source: Land Registry Price Paid and Transaction Data





# So where are we now?



Two post opening studies will take place between 2024 and 2027 undertaken by Arup. Will analyse impacts that take longer to emerge such as transport mode shift and economic growth. Plus it will examine the return on investment using actual observation of benefits.

- **Demand**: broadly in line with business case forecasts
  - **Abstraction** of demand broadly in line with expectations; around 38% is believed to be mode shift from non-PT modes or generation including recovery from COVID)
  - **Generation**: additional demand at stations with little evidence of reductions at adjacent stations.
  - **Accessibility**: Faster and new journey opportunities linking areas of employment growth.
  - **Property**: Evidence of higher sale activity around Elizabeth line stations. Value impacts less obvious.
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- Wider benefits to be realised over the longer term. Some may have started before line opening.
  - Issue is separating Elizabeth line impacts from other transport schemes, as well as external factors/events





# LOOKING FORWARD - OUR ASPIRATIONS FOR RAIL SERVICES IN LONDON









# TfL Aspirations for Rail services in London

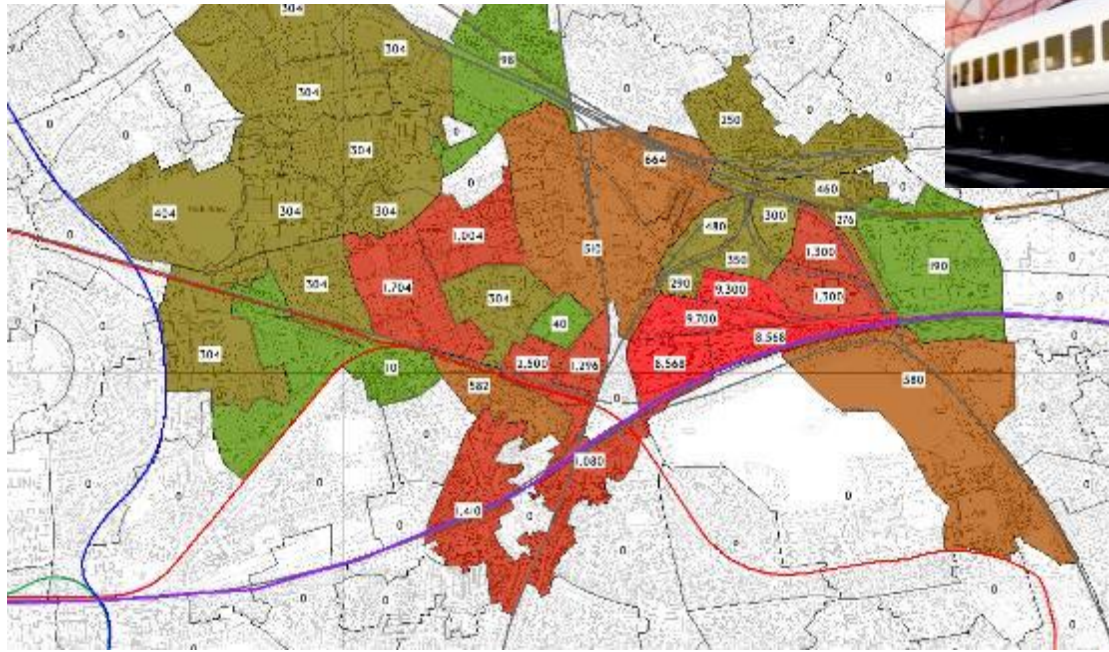
Elizabeth Line

DW





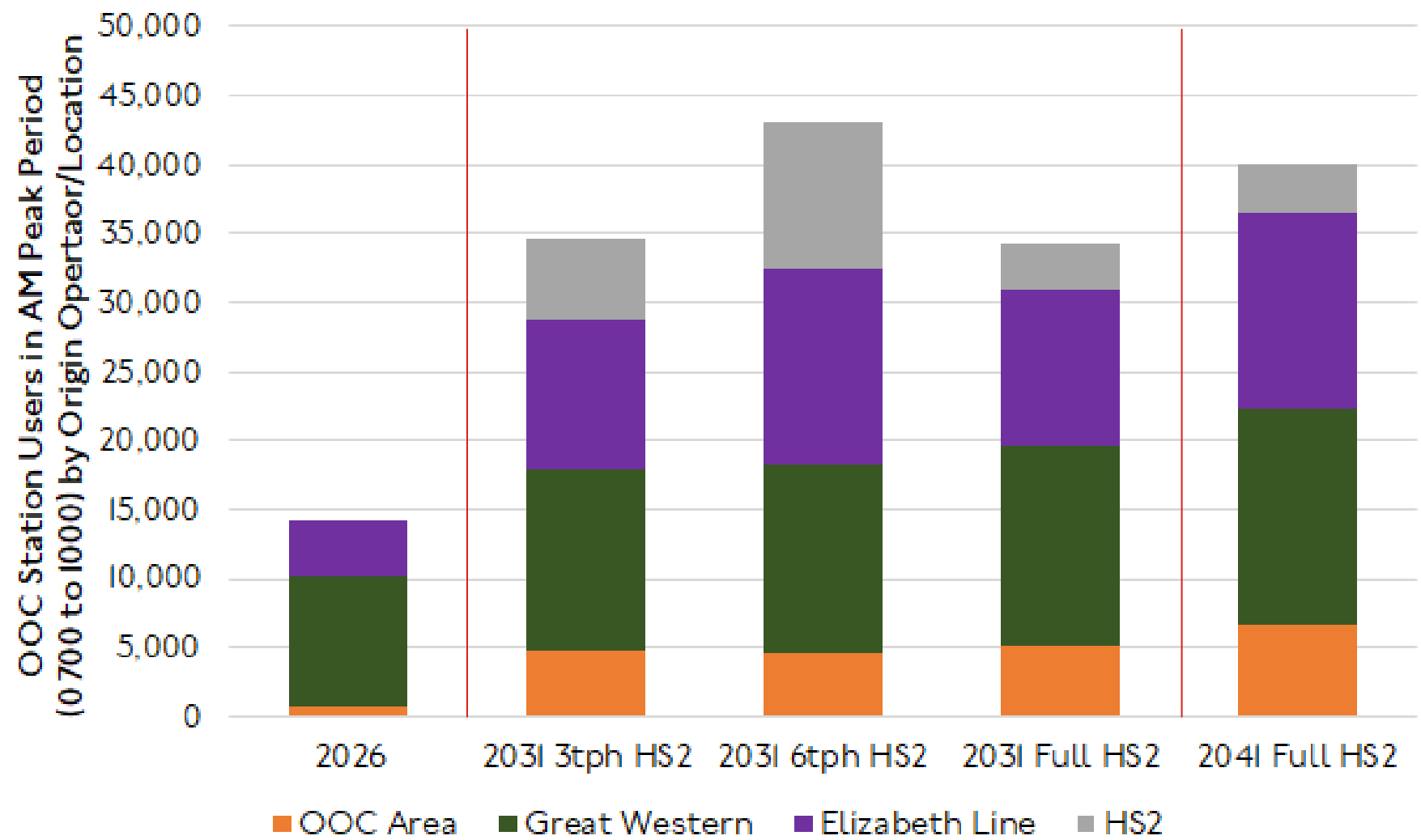
To which further pressures/changes could be added from @2030..





How many passengers might use Old Oak Common and where would they come from?

OOO Station Users in the AM Peak Period by Origin Operator or Location

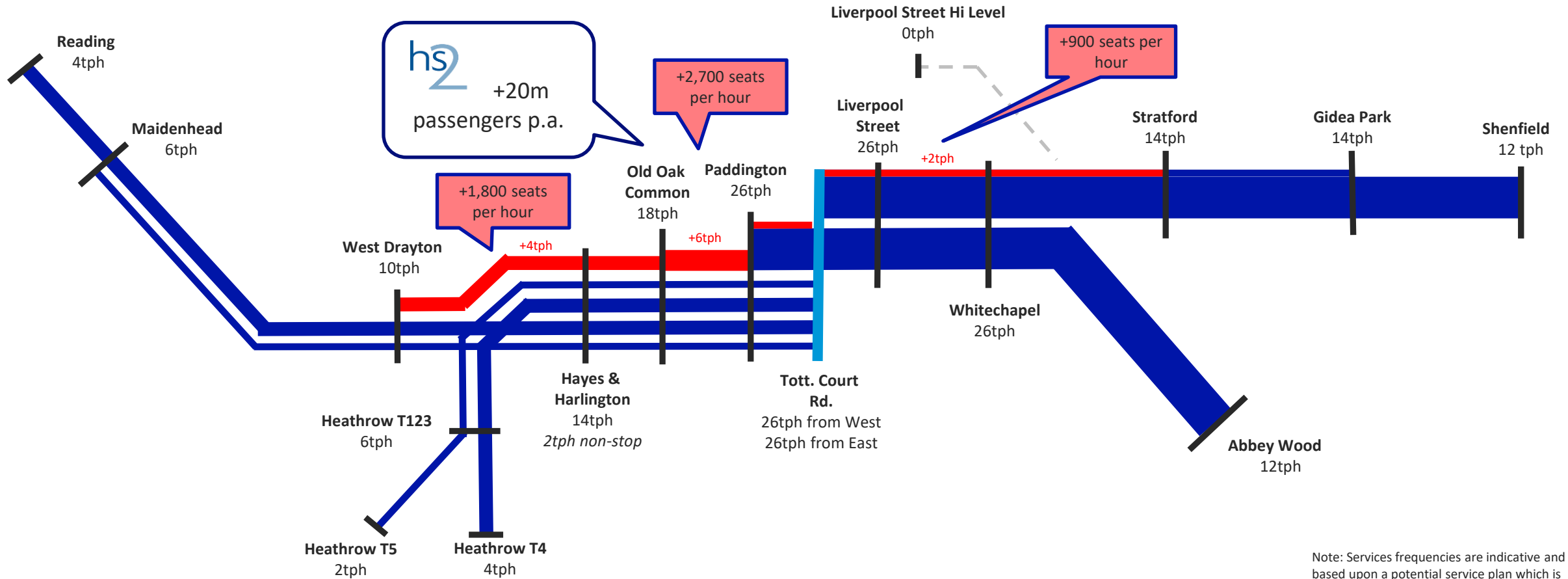


Source: Railplan 8.1 OOC version, Winter 2022



## Option 1, Enhance West:

Western, Old Oak Common and Core additional tph  
(based upon Westbound/Eastbound arrivals at Tott. Court Rd 0800 to 0900)



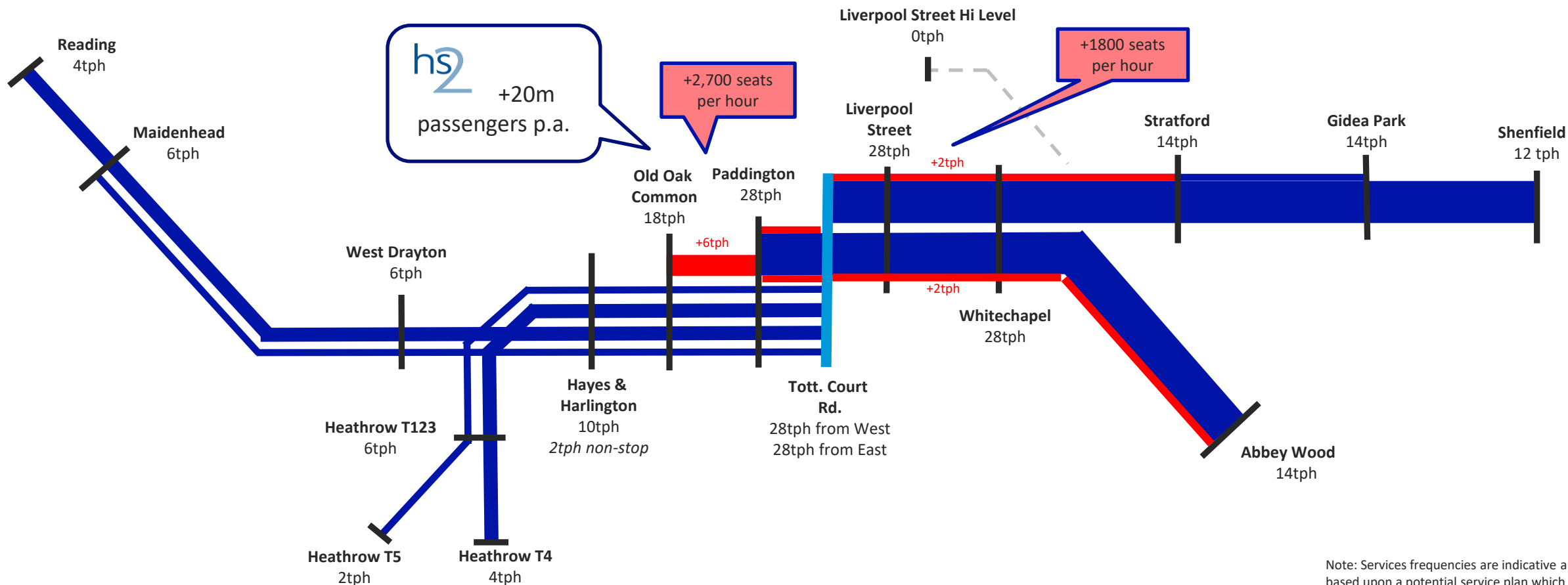
Note: Services frequencies are indicative and based upon a potential service plan which is subject to rail industry planning processes.

- Agreement with Alstom for 10 new trains and options for 13 more (70 trains in existing fleet).
- Cost of £220.5m, with train arriving between 2026 and 2028.
- Stabling required.



## Option 2, Enhance East:

Eastern, Old Oak Common and Core additional tph  
(based upon Westbound/Eastbound arrivals at Tott. Court Rd 0800 to 0900)



Note: Services frequencies are indicative and based upon a potential service plan which is subject to rail industry planning processes.



# TfL Aspirations for Rail services in London:

## London Underground





# Rolling stock and signalling replacements

The London transport network is vital to the UK's economic success. Government support has alleviated managed decline. However, continued capital support beyond March 2025 is needed for major renewals.

## Piccadilly line fleet

TfL is already in contract to replace the fleets on the rolling stock on the Piccadilly. This will bring 23% increase in capacity.

Ongoing investment is required beyond March 2025 to ensure this can be completed.



## New Bakerloo line trains

The Bakerloo line fleet is the oldest in regular operation in the UK. The Siemens contract for the Piccadilly includes a timed option for the Bakerloo line fleet. This continued investment would bring economic benefits to Yorkshire where the factory is located, as well as ensure the lines continues to be an important part of the London's network.



**\*\*SUBJECT TO FUNDING\*\***

## Piccadilly line signalling

The renewal of signalling on the Piccadilly line is one of TfL's most pressing capital investment priorities. It follows from the initial programme – with new trains and enabling works.

This second phase will result in signal upgrades that will deliver new automatic signalling and train control, enabling up to 36 trains per hour resulting in a train every 1m40s.

The Piccadilly Line covers fours lines, over 250 trains and 350km of signalling. Providing critical links for the City, West End, and Heathrow.



**\*\*SUBJECT TO FUNDING\*\***



# 4 Lines Modernisation





# Central Line Improvement Programme (CLIP)







Key Benefits: Transforming transport in the South-East

Significant increase in public transport capacity and connectivity, mode shift drives carbon and air quality benefits



Supports c47,500 new homes in South-East London, 20,000 in the old Kent Road Opportunity Area. Over 85,000 jobs within 45 minutes



£5 - 8bn (2021 prices) extension to Lewisham. BCR of up to 4.8-2 to 1



Scheme Safeguarding & Next Steps  
TfL received safeguarding directions in March 2021

Single preferred option & funding finance work ongoing, completing strategic business case, single option – mid 2025



2030s – Construction, 2040 – services commence\*





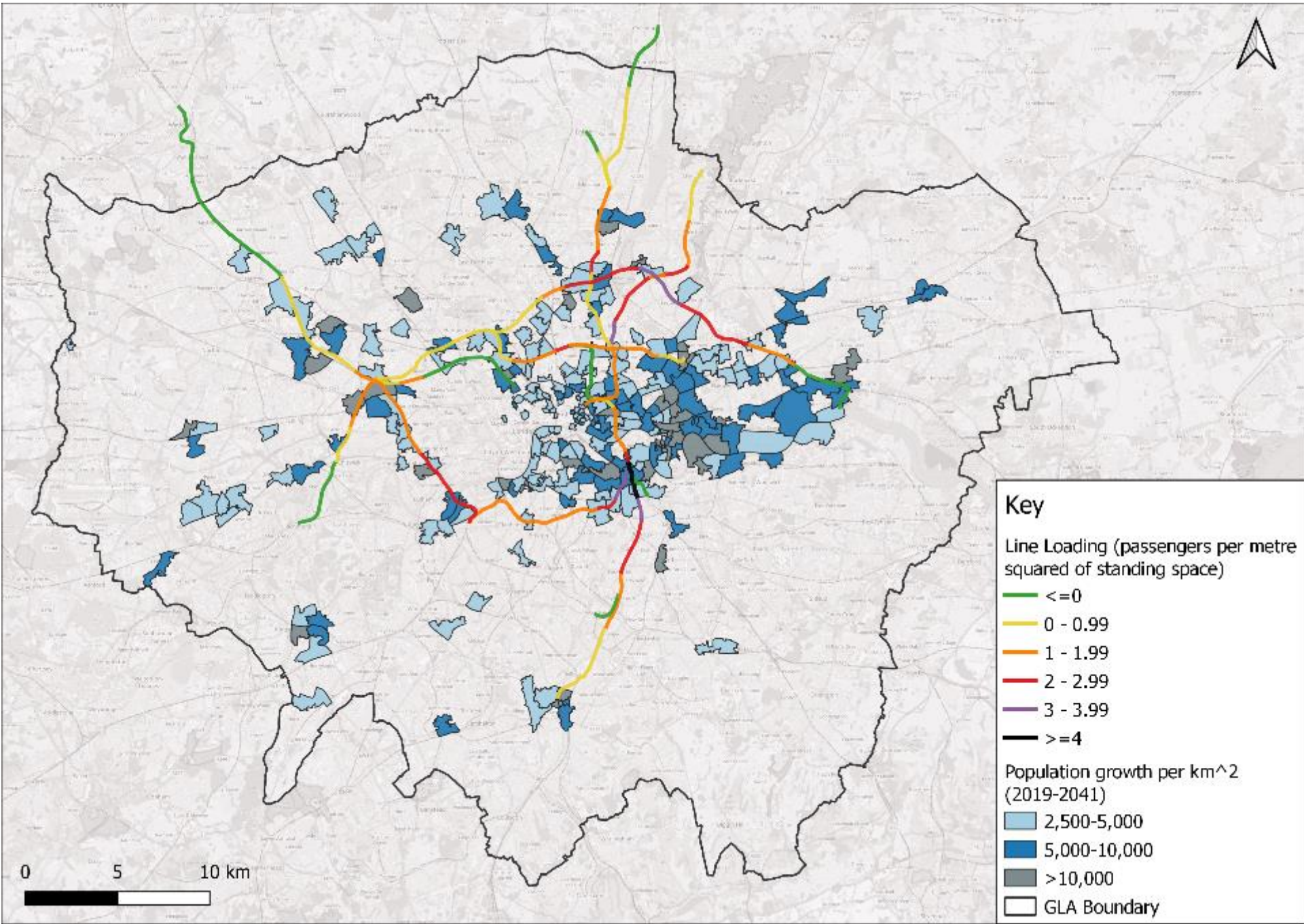
# TfL Aspirations for Rail services in London

## London Overground



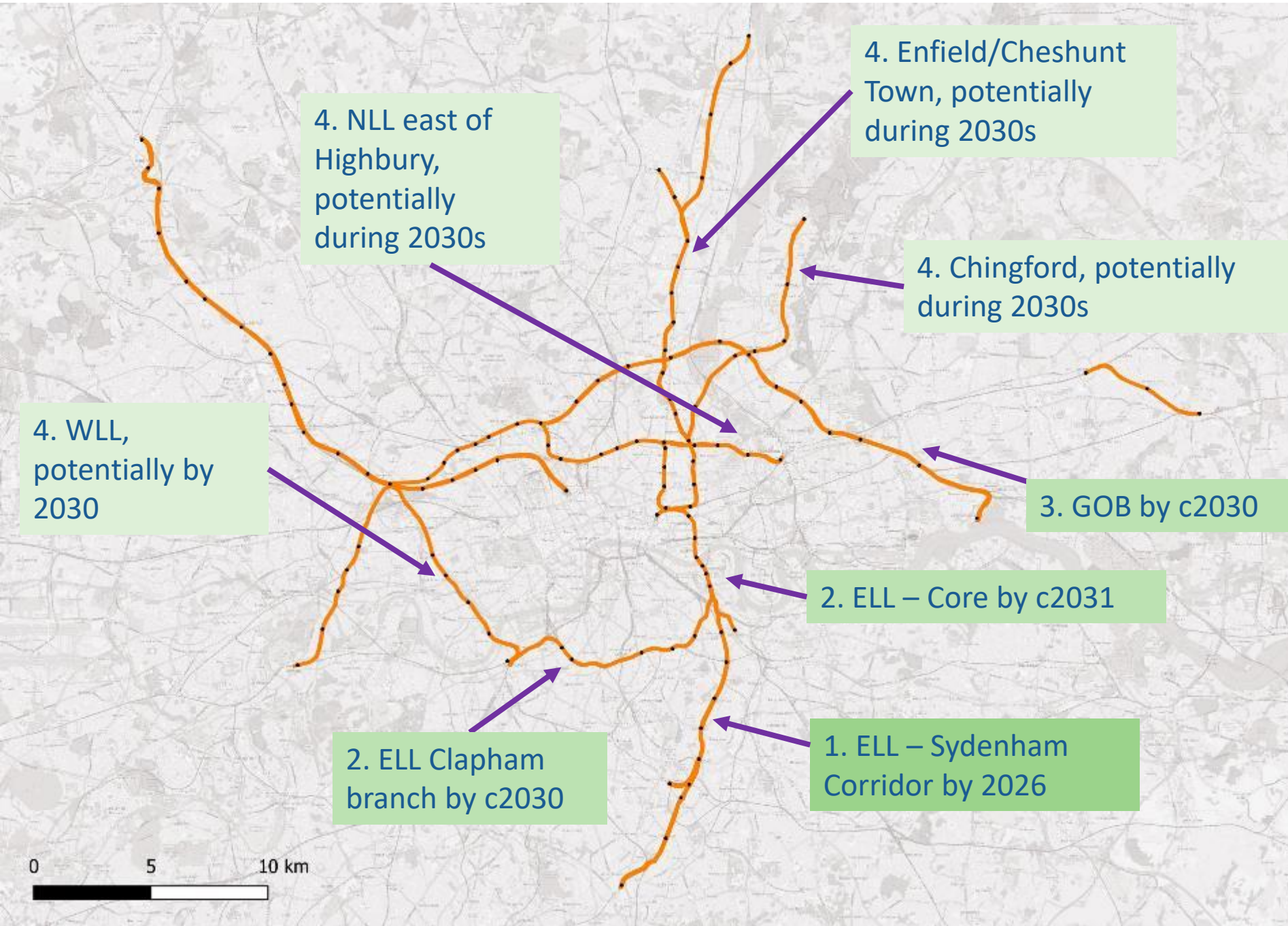


# Overground AM Peak Hour Direction On Train Crowding and Forecast Population Growth





When may target AM  
Peak Hour train  
capacity be  
exceeded?





# East London Line (ELL) HIF and Signalling

 14,000

## Headlines:

Enables a future service increase from 16tph up to 20tph.

BCR of 1.7 to 1 not including the significant housing and wider economic benefits of the programme

**Key stakeholders:** GLA, DLUHC, LB Southwark, LB Lewisham, British Land, Renewal



Canada Water Bus Station Upgrade



Surrey Quays New Station Entrance



Surrey Canal New Overground Station



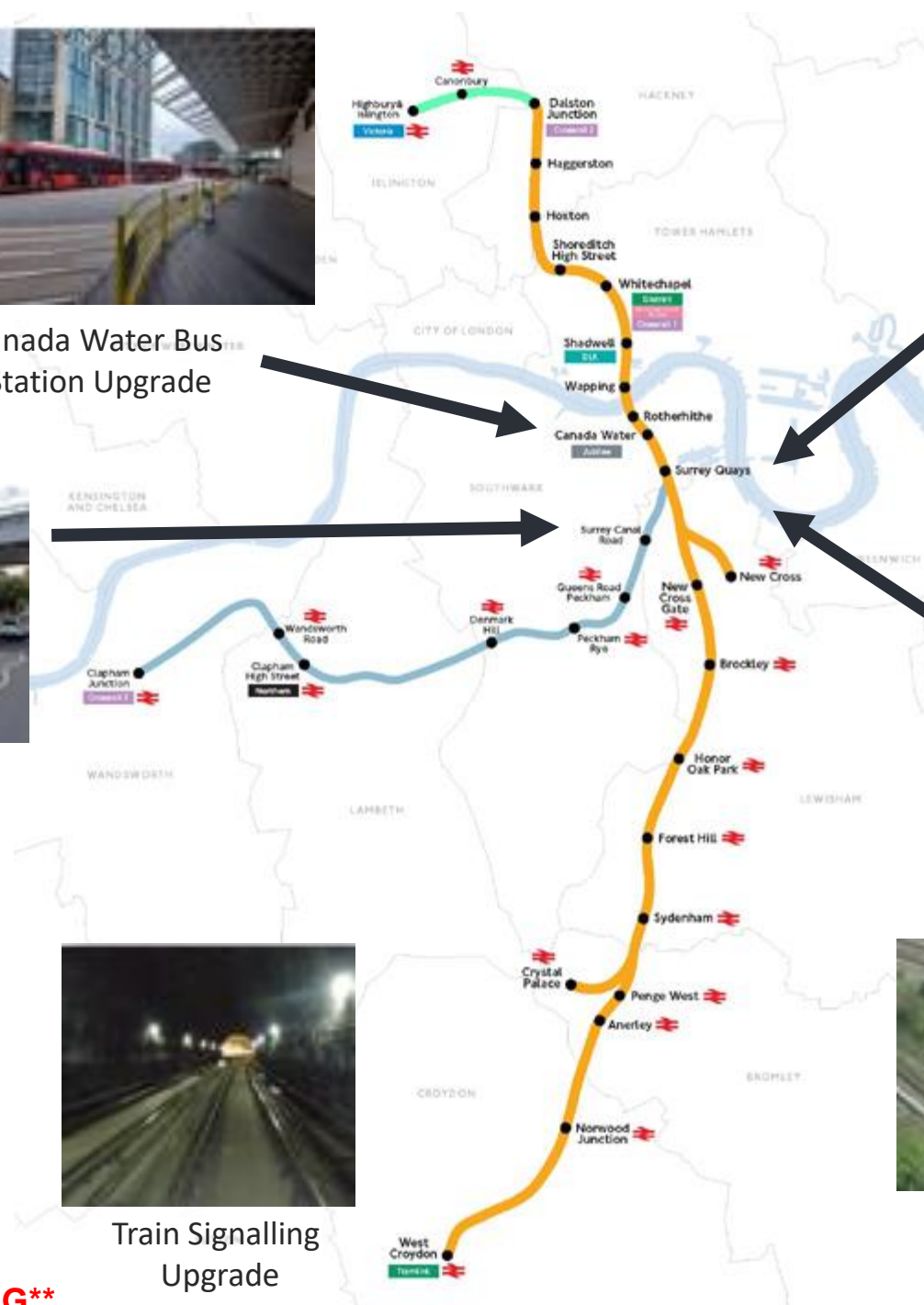
Additional Train Stabling



Train Signalling Upgrade



Traction Power Upgrade



**\*\*SUBJECT TO FUNDING\*\***







**Key Benefits: Connectivity, Levelling Up & Environment**  
Reduction in public transport journey times, mode shift driving carbon and air quality benefits, creation of an economic spine for West London, connecting some of the nationally most deprived areas



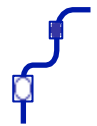
Supports sustainable growth of up to 15,800 homes across five Opportunity Areas, increases jobs accessible to local residents by 20%



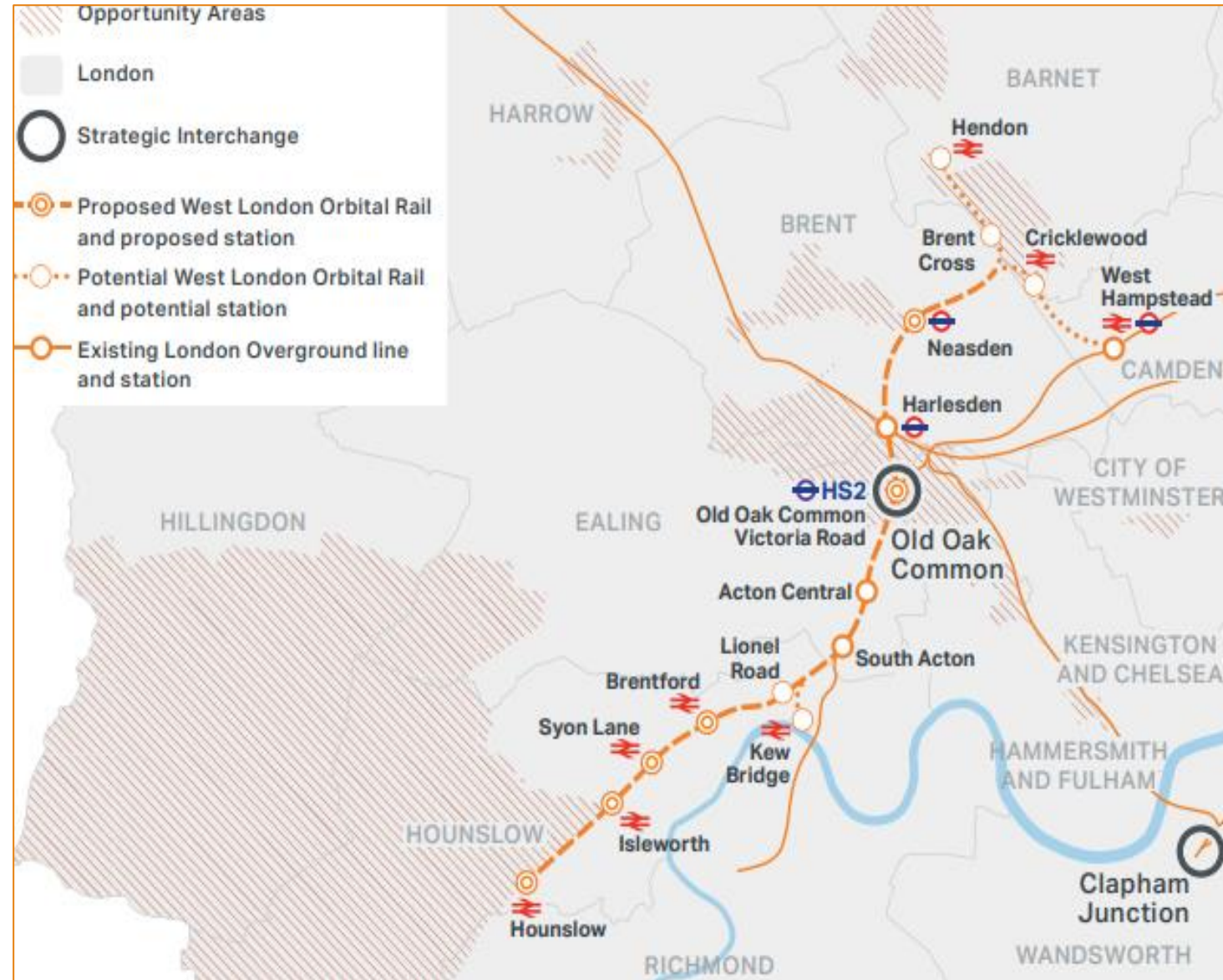
£500m-£690m (2021 prices)



**Scheme Status & Next Steps**  
Working towards single preferred option, decision point Apr 2024 whether to progress to TWA0



2026 – TWA0 submission, 2031-33 – services commence\*





# TfL Aspirations for Rail services in London

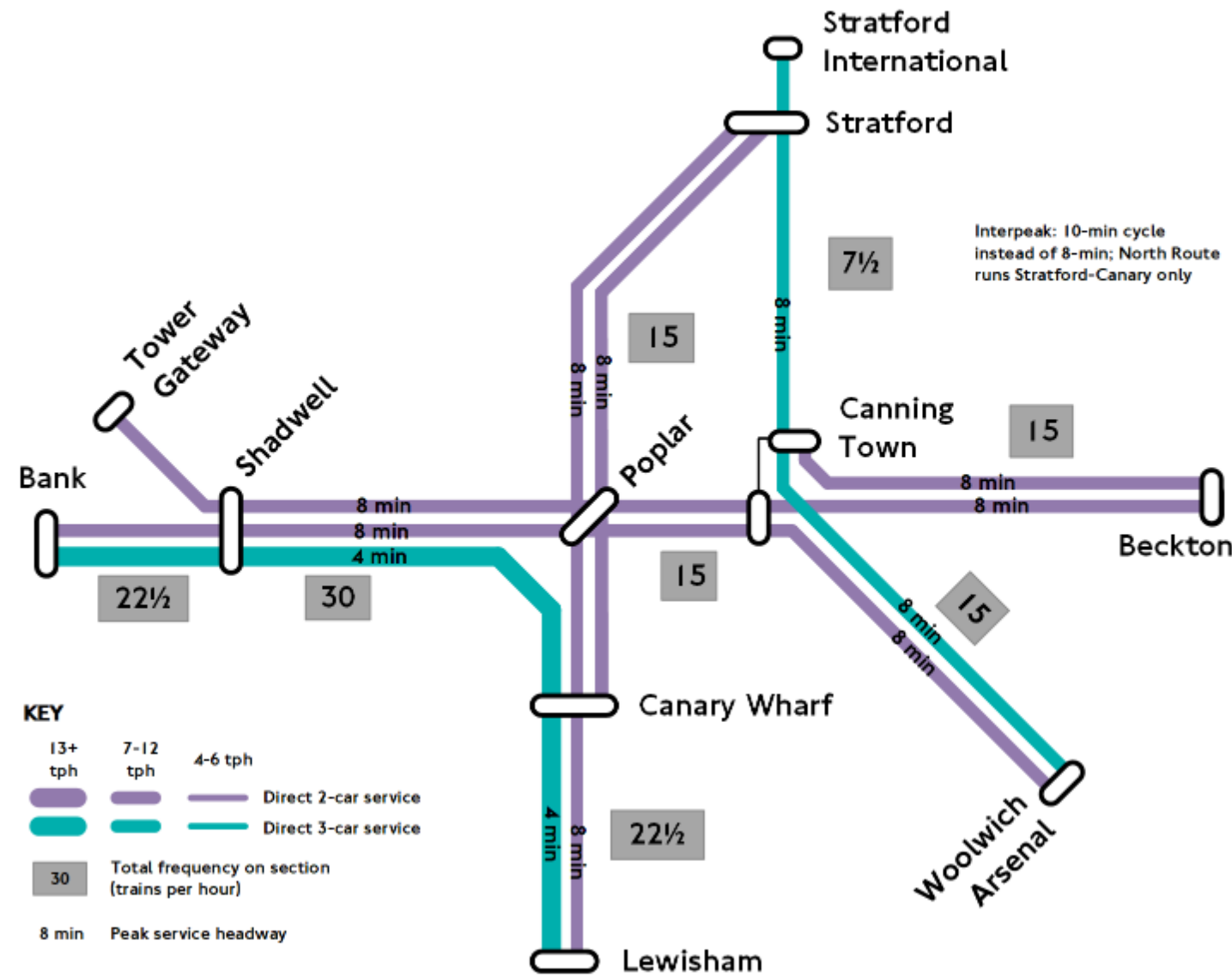
## Docklands Light Railway





# Current Level of DLR Service prior to New Train Deployment

## Peak service (weekday AM and PM)



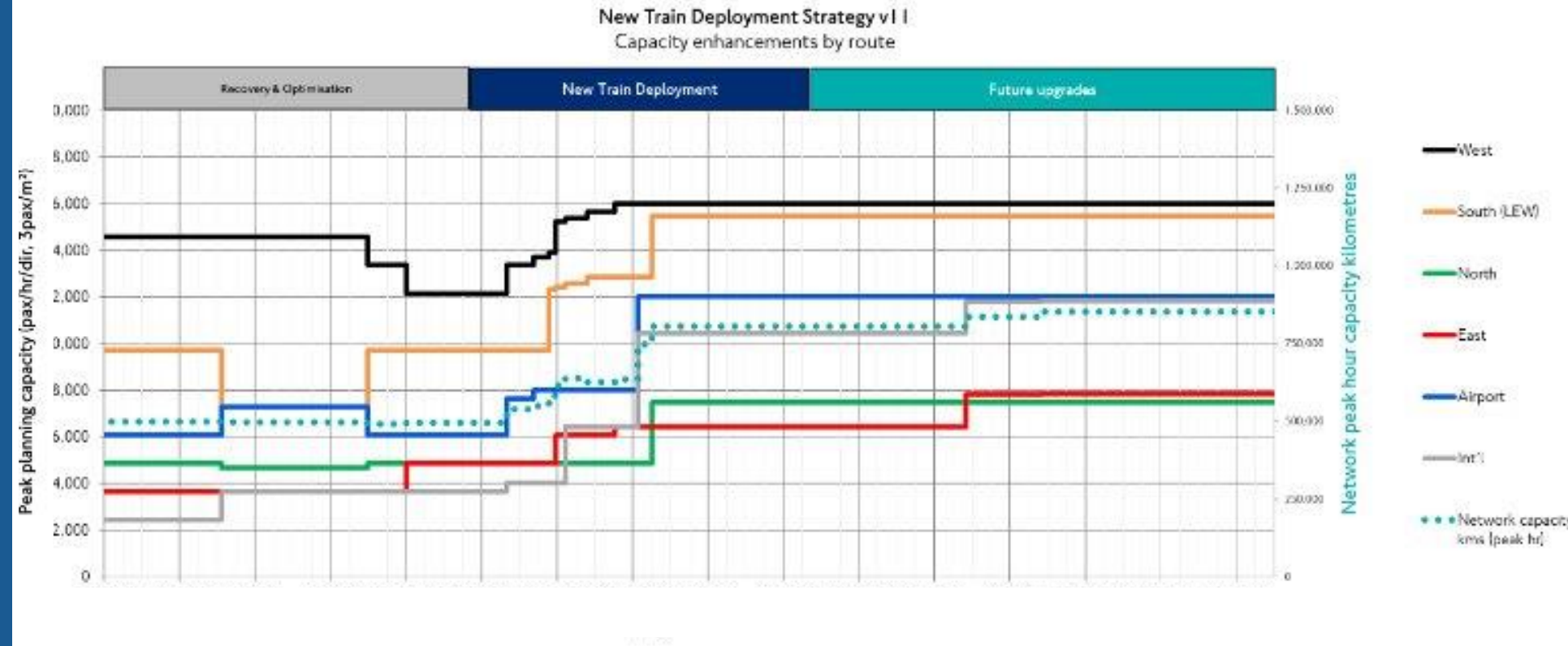






# DLR New Trains Deployment

- Total peak capacity of the DLR will be 28% higher than today with 43 new trains; or 63% higher with 54 new trains (RSRP+HIF)
- The full programme (including HIF) will be enable 16k pax/hr/dir between Canary Wharf and Lewisham and 12k pax/hr/dir between Stratford and Woolwich



**\*\*SUBJECT TO FLEET TESTING\*\***





## Key Benefits: Tackling Deprivation & Empowering Communities

Supports the Government's Levelling Up Agenda by investing in the most deprived areas of London



Potential to unlock up to 25,000-30,000 homes and 10,000 jobs in two major Opportunity Areas, access to 500,000 additional jobs within 45mins

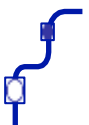


DLR £900m-1.1bn (2021 prices), BRT £40-60m

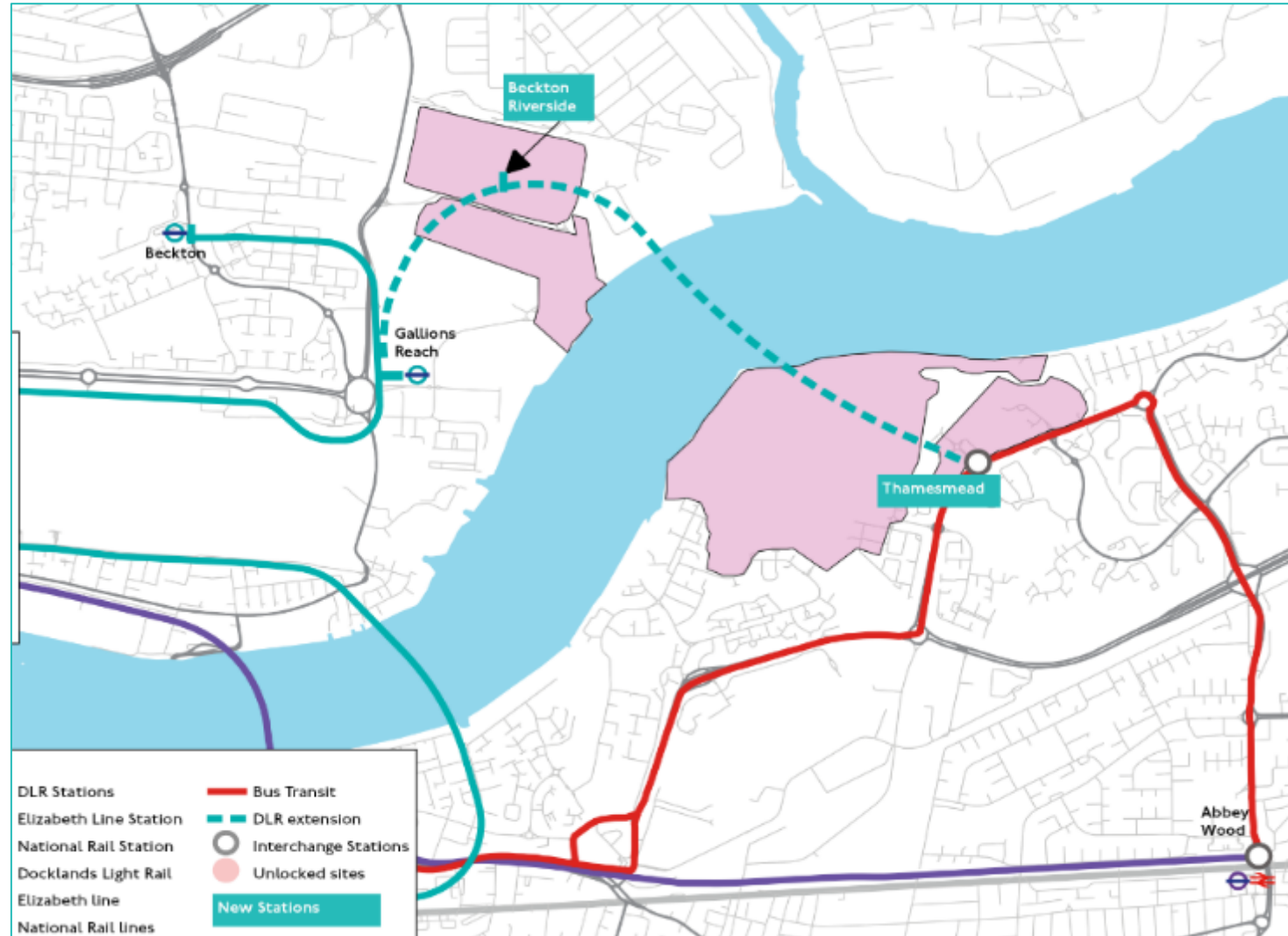


## Scheme Status & Next Steps

Single preferred option identified, May 2023 SOC to Government - £6m ask of £12m, TWA0 submission 2025/26



Mid 2020s – Construction commences, 2031-33 – services commences\*



\*subject to funding and agreement to proceed at pace

**\*\*SUBJECT TO FUNDING\*\***

EVERY JOURNEY MATTERS



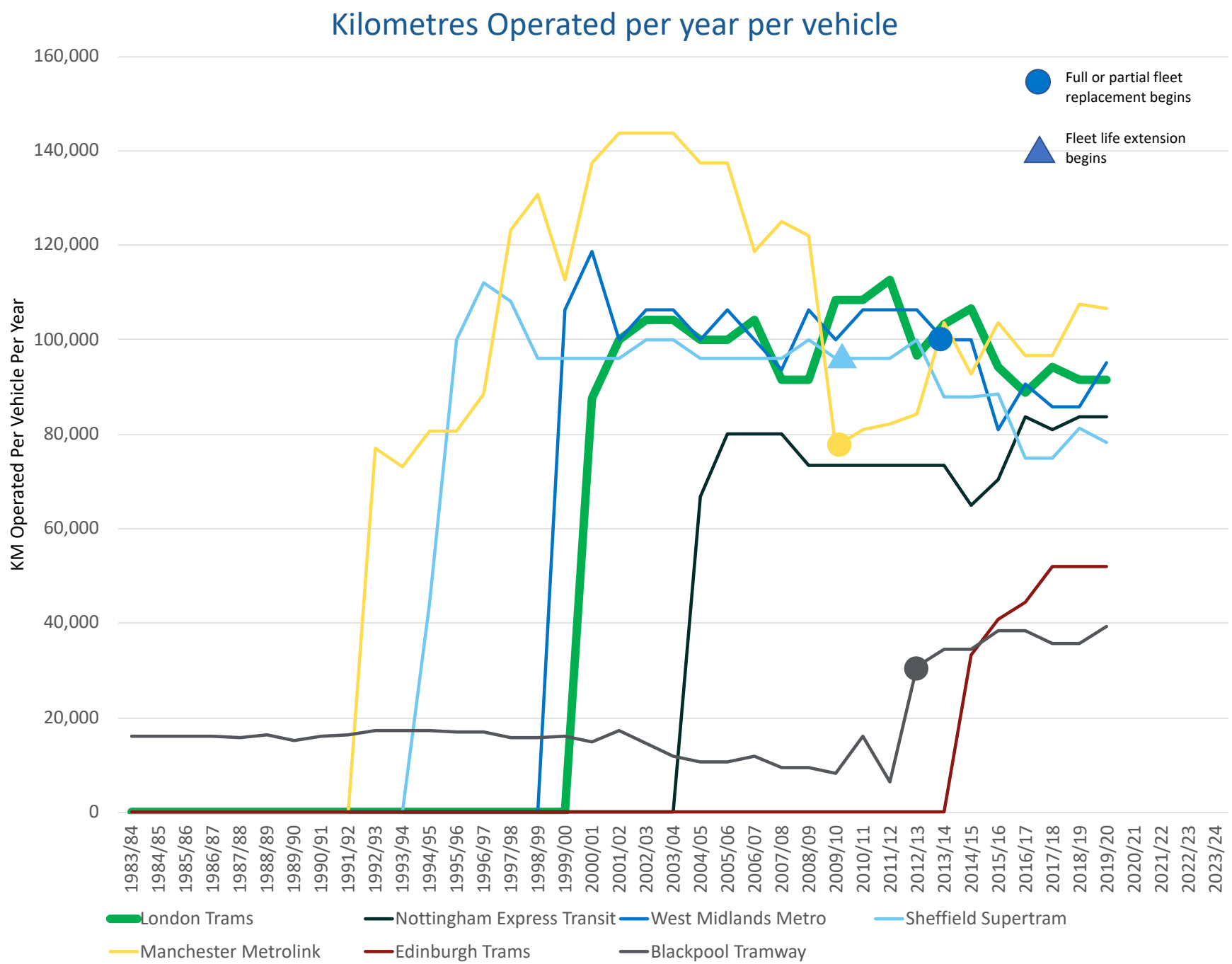
# TfL Aspirations for Rail services in London

## Trams





Britain's Oldest  
Unmodified Tram  
Fleet which is going to  
be operating beyond  
its design life and its  
starting to have  
reliability issues.





Devolution and  
Metroisation of  
National Rail





Overground Stations  
have been revitalised

West Hampstead



Acton Central

Kensal Rise





# The Benefits of Devolution

Benefit	Detail	Evidence
Station Ambience	Increased Staff Presence, WiFi, Platform Shelters, Ticket Machines, Customer Information, Better Cleanliness etc.	West Anglia CSS scores improved following similar changes, by @25% more than anticipated.
Journey Time (Service Reliability)	Enhanced Service Performance by applying TfL's concession approach	Up to 3% gain to PPM anticipated based on performance of transferring services compared to achieved performance on TfL services.
Journey Time (Service Enhancements)	Opportunity to use existing fleet to run higher frequencies during off peak periods. 4tph instead of 2tph on each branch on GN. Limited uplift on Saturdays on SE network.	Current fleet utilisation levels should permit this increase
Consumer Surplus from Fares Change	Delivering lower fares through application of TfL's tariff, plus expanded Freedom pass availability.	TAG (1.6Xfares reduction). Revenue loss included as a cost.
Integrated Network Benefits	Improved branding and marketing generating additional demand and revenue	Residual element of demand growth observed on West Anglia
Reduced Fraudulent Travel	Due to improved management driven by TfL's revenue protection regime	Comparison of performance on SWR to TfL operations
Housing	TfL better able to influence land use policy decisions and optimise housing delivery.	Barking Case Study



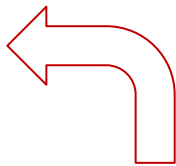
# Rail Devolution and Metroisation – “strategic fit”

## **“Devolution” is...**

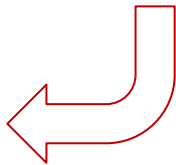
Transfer of rail services from the DfT’s franchise model to TfL’s concession model. In some specific cases, the transfer of infrastructure may also be possible.

## **“Metroisation” is...**

The creation of more frequent, reliable & integrated rail services in south London, Surrey, Kent & parts of north London (with associated aims of unlocking housing capacity / density)

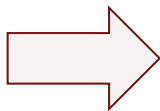


Metroisation & Devolution can occur separately, but Devolution puts us in a stronger position to fund and deliver the interventions necessary to realise the benefits of Metroisation



**Our focus is to align with likely national priorities for long-term investment**

- 1. Productivity
- 2. Housing
- 3. Decarbonisation



National Rail devolution and Metroisation is an opportunity to deliver all of these outcomes



# What is Metroisation?


Step-change in the service frequency, rolling stock and quality of service of local rail services within South London, including:

- 

**1. Predictable, ‘turn-up-and-go’ services**, identifiable ‘lines’, consistent stopping patterns, even intervals
- 

**2. Better connections** higher frequencies & upgraded interchanges
- 

**3. More capacity** longer trains, new infrastructure & simpler service patterns
- 

**4. Shorter journey times** trains that accelerate and decelerate faster & wider doors for efficient boarding and alighting
- 

**5. More reliable services** simplified service patterns
- 

**6. Better customer service and experience** - London Overground



## Relevant Previous TfL Experience

### Elizabeth Line

This involved the upgrade of the existing 2tph service between Paddington and Heathrow to 6tph plus new high capacity trains and modernised stations

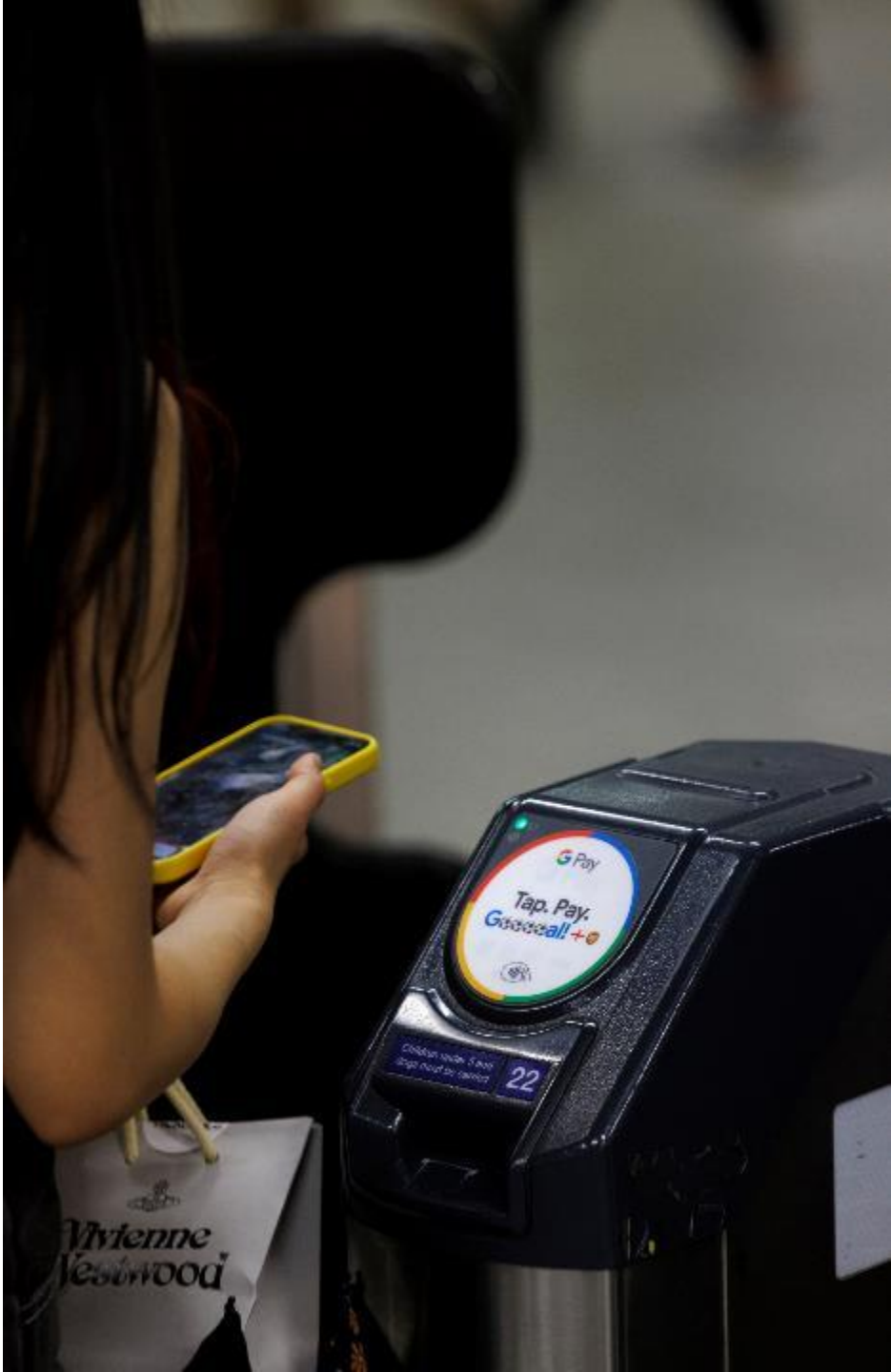


### London Overground

In 2015 TfL completed upgrade works on the North London Line. This included train lengthening (from 3-car trains to 5-car trains) and frequency improvements (4tph to 10tph in the peak, 3tph-8tph in the off peak)

Both examples resulted in significant increases in patronage and development activity







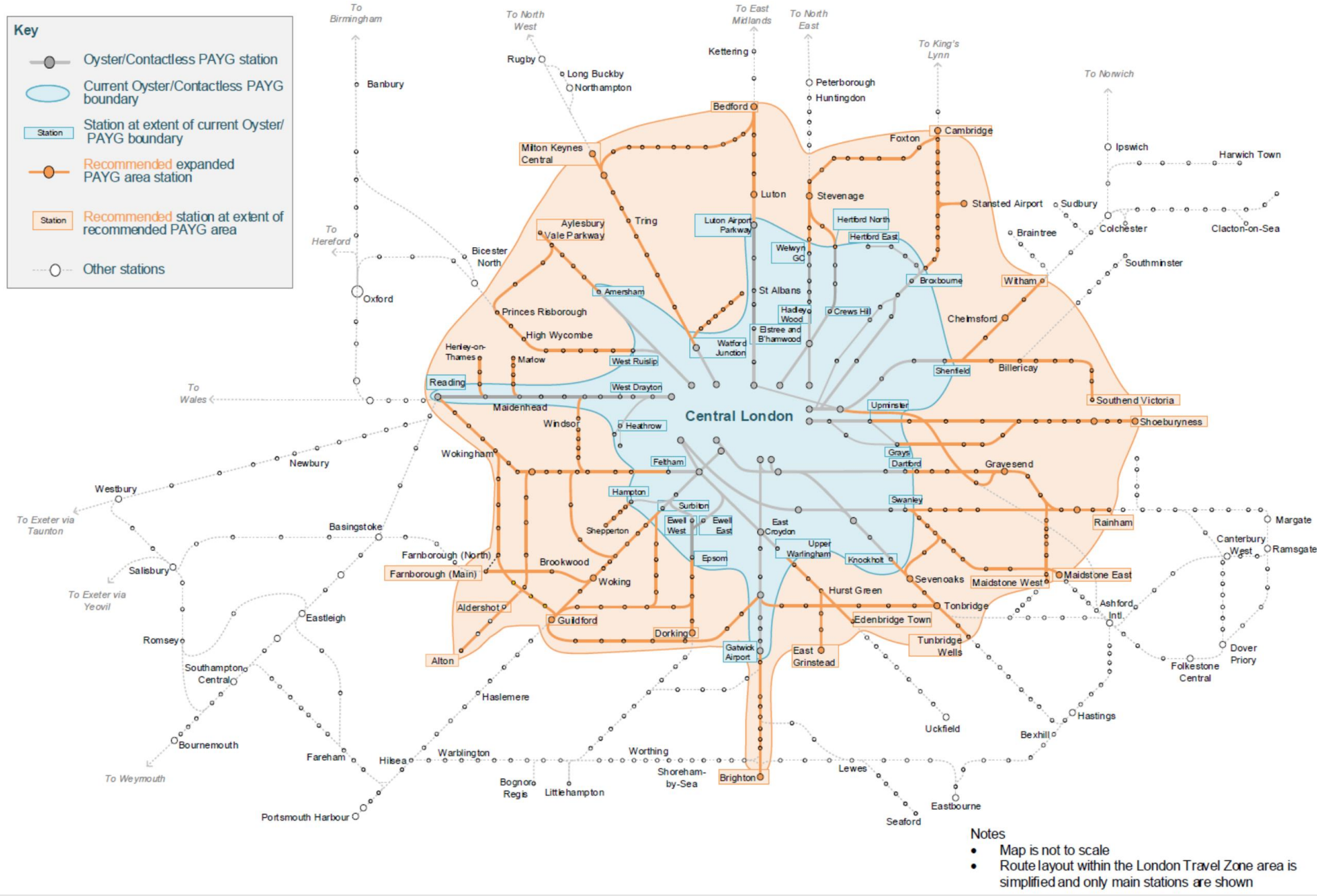
# Ticketing (1)

## PAYG Extensions

- Oyster is at its limits and will not be extended further
- Continue to work with the DfT on the delivery of Project Oval.
- First 6 stations have now gone live (Chiltern).
- More later this year/next year.

## Extension of Travelcard zones

- This would be a National Rail issue, so is for the DfT to define.
- HS1: carries premium pricing which would be undermined if part of the Travelcard scheme.





# Ticketing (2)

## Paper tickets

- Working with RDG/DfT to develop a pilot to enable TfL to accept National Rail issued barcode tickets
- Working with RDG on a long-term strategy to replace printed tickets. TOC alignment and funding for barcode infrastructure across TfL network required.
- TfL would like to retire magnetic tickets, ideally before 2030. Need for a walk-up ticket of “last resort” non Oyster or contactless users (probably barcode).





# Step Free Access

- Dalston Kingsland
- Gunnersbury
- Kew Bridge
- Kidbrooke
- Raynes Park
- South Croydon
- Upminster





# Conclusion

We welcome all support in making the case for investment in rail!



Demand has stabilised post-pandemic and we are returning to incremental growth driven by tourism, employment growth and service quality/quantity



We are addressing the current legacy of underinvestment and exclusion. Whilst we always operate safely, this had led to higher costs, diminished VfM from investment and impacts on reliability



Government support for longer term capital investment is critical - investment brings wider benefits (TfL supply chain of £5.9bn in GVA per annum and 100,000 jobs across UK)



Mayoral and Governmental political alignment is potentially transformational, but the financial challenge remains



Our funding extends as far as 31/3/25 - we have submitted our case to government for funding beyond that



# Questions and Discussion





# Leyton and Colindale

## Colindale

- Ticket hall relocation, capacity increase and step-free access.
- EFC: £29m-£35m
- Homes: 10,000
- Earliest start date: 2024
- Key stakeholders: LB Barnet (Majority funder), TfL Commercial Development, Redrow (developer), RAF Museum



## Leyton

- Step free access project
- EFC: £18m
- Homes: 6,800
- Key stakeholders: LBWF, GLA, MHCLG





# 50 years of transformational transport projects





What have these projects delivered for London?



Isle of Dogs



Dalston Jcn



Southall



Kings Cross



Barking Riverside



Woolwich





# Elephant & Castle station capacity upgrade

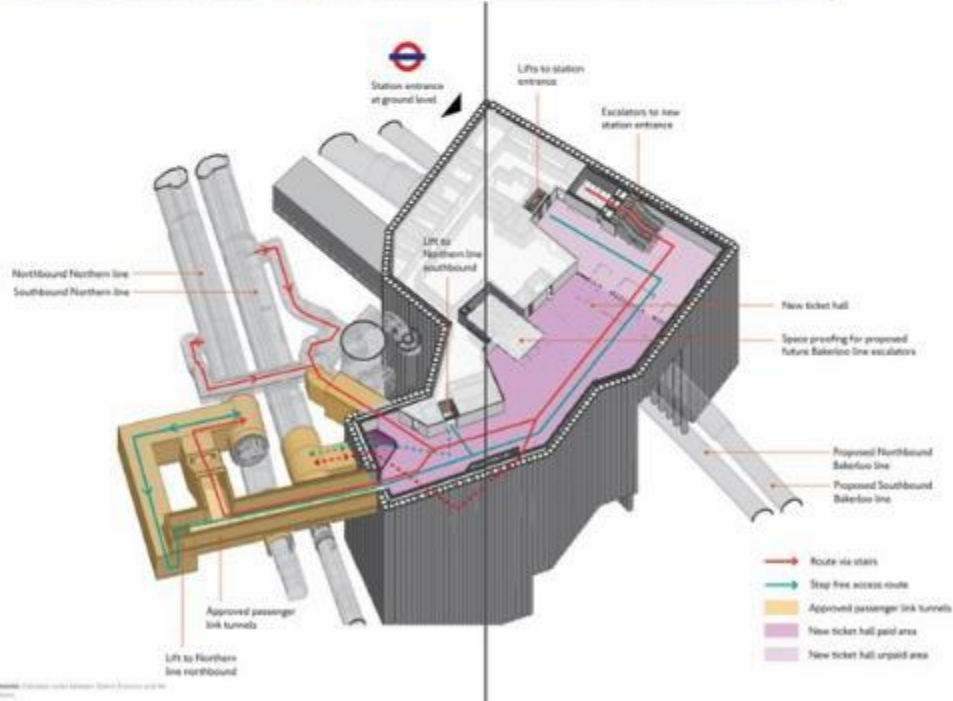
 7,000

## Headlines:

EFC: £195.1m

Homes: 7,000

**Key stakeholders:**  
Delancey (Developer), LB Southwark, GLA, University of the Arts London (anchor tenant)





# Some New Trains?



- Agreement with Alstom for 10 new trains and options for 13 more (70 trains in existing fleet).
- Cost of £220.5m, with train arriving between 2026 and 2028.
- Stabling required.



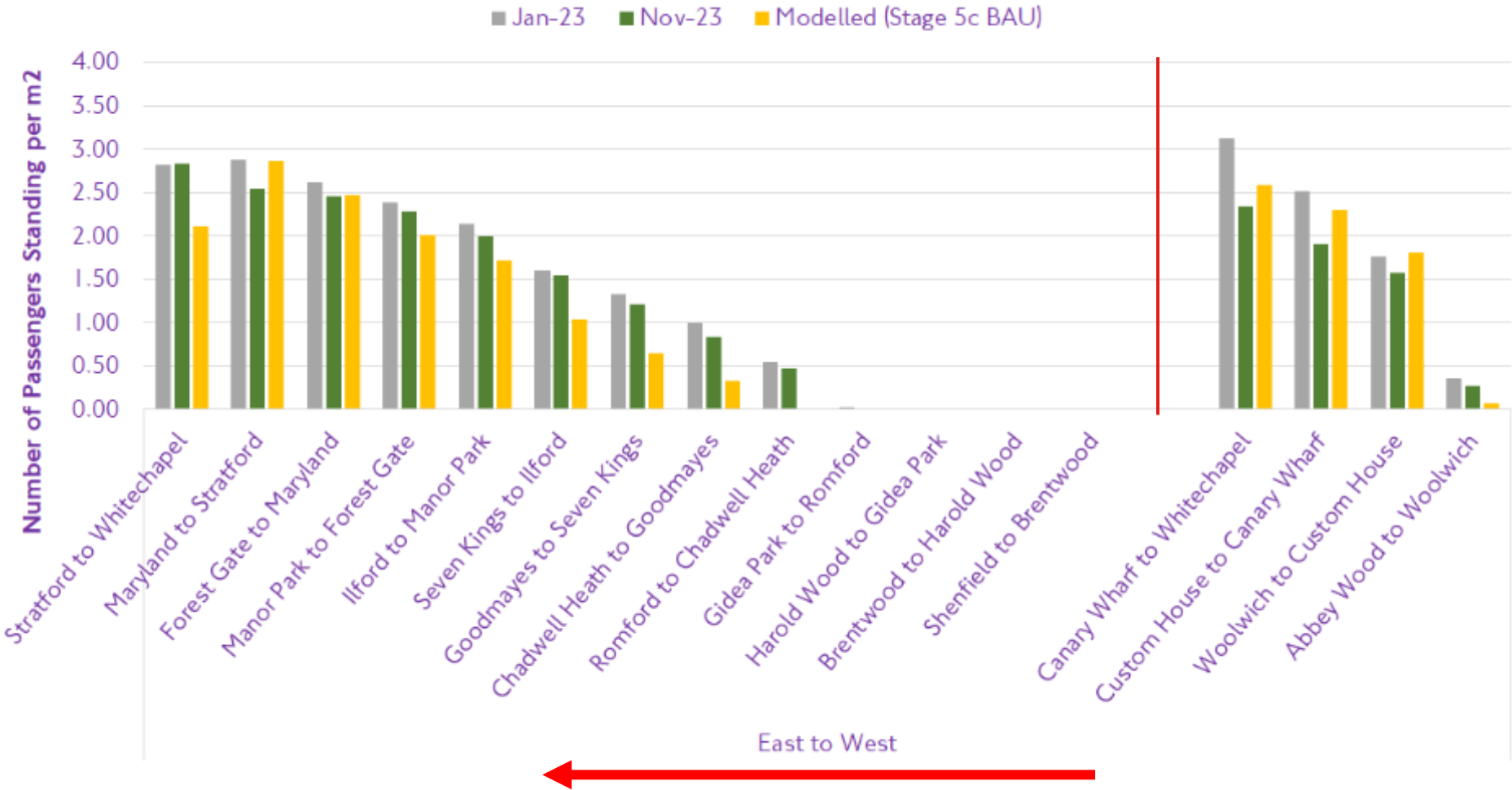


# Eastern Section Occupancy

The eastern side of the network has the busiest trains. Passengers start to stand from Romford and crowding levels reach 2.5 per metre of standing space in the AM Peak Hour at the busiest point which is Stratford.

A similar level of crowding is seen on the Abbey Wood branch with all seats taken from Abbey Wood.

Number of passengers standing per metre of available standing space at the height of the morning peak



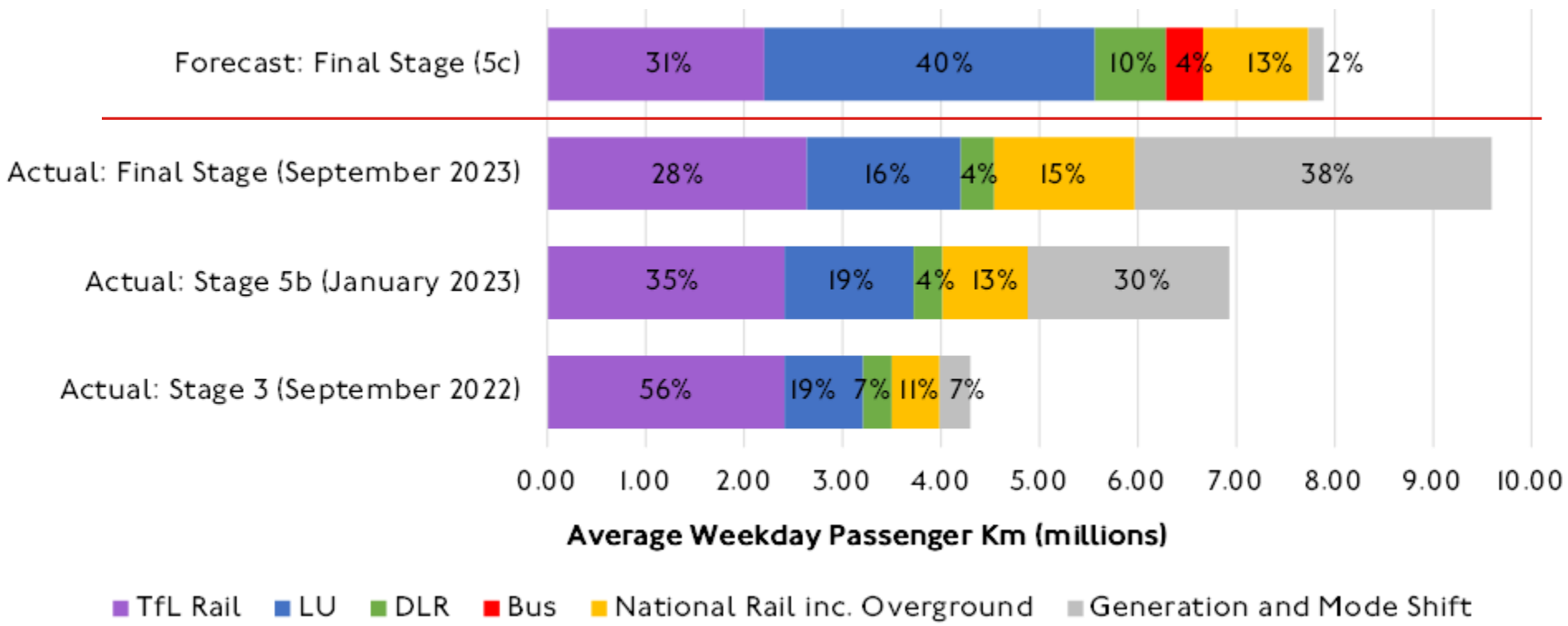


# Abstraction

38% of Elizabeth line passenger kilometres is from:

- demand whose previous source cannot be allocated;
- demand that didn't exist before i.e. generation;
- stronger covid recovery on OD pairs served by Elizabeth line;
- mode shift from non-PT options.

Source of Elizabeth Line Average Weekday Passenger km: Tuesday to Thursday by Stage/Time of Opening



Sources:  
TfL Railplan Stage 5b projections and PTSP Analysis using DUNNART and Oyster data



# What I will cover

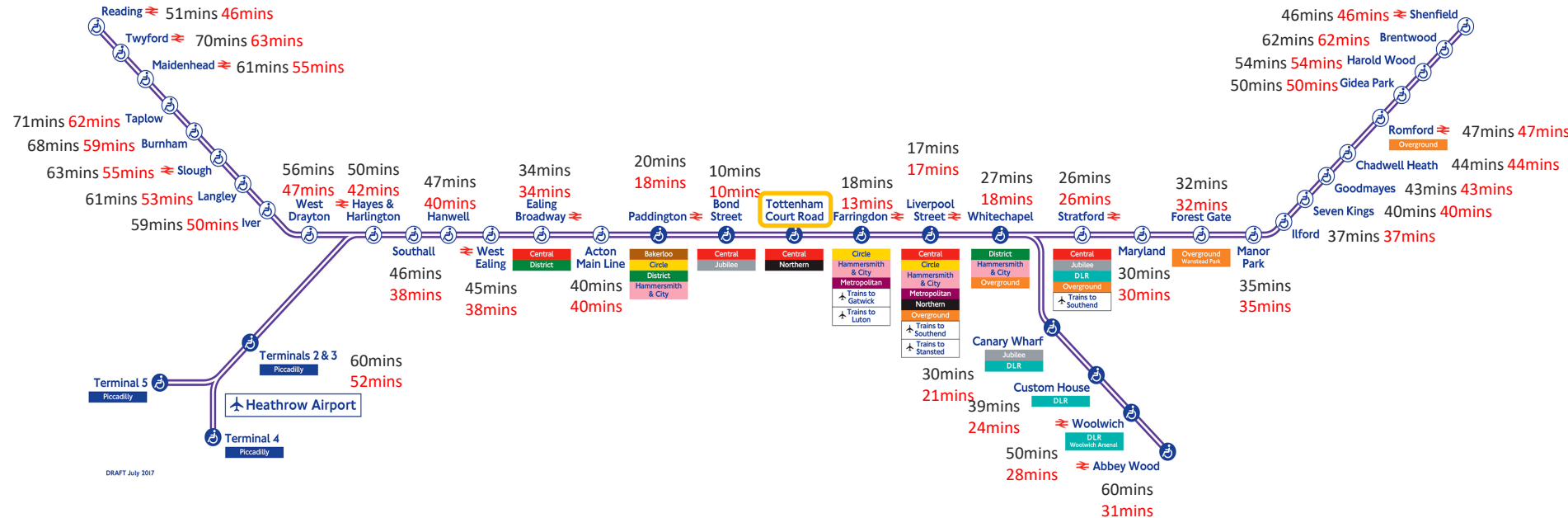
- How many passengers are currently travelling on the Elizabeth line and how does this compare to forecast?
- Is the predicted switch from other transport modes taking place? Are passengers taking advantage of transformed journey times and are we seeing demand generation?
- What may be some of the initial wider socio-economic outcomes such as access to jobs and leisure opportunities?
- Has the Elizabeth Line encouraged development and in which areas?

Observed data will be from readily available sources covering the first two years of operation. Answers the 'what' but not the 'why'.



# What has Elizabeth line meant to passengers?

## Change in AM Peak Journey Times to Tottenham Court Rd



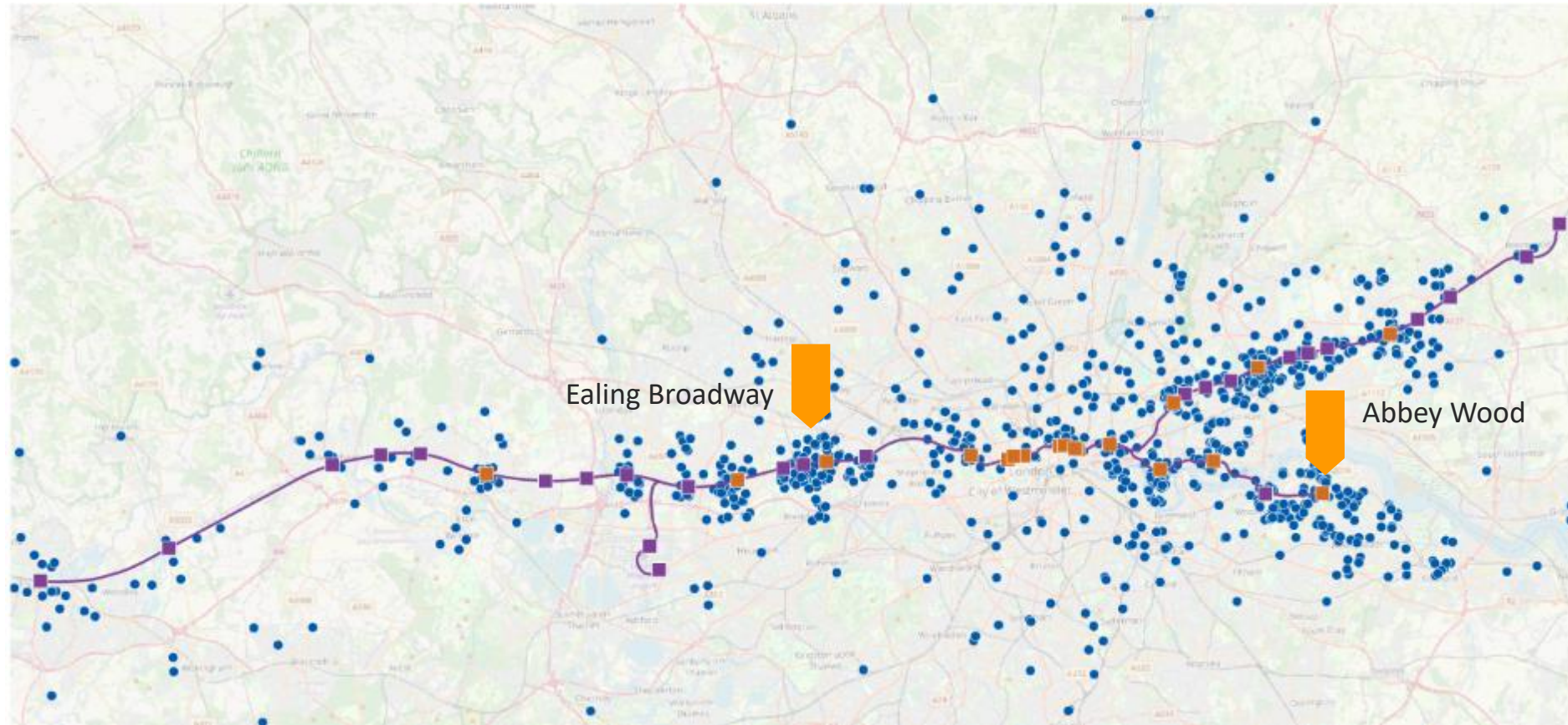
- ‘With’ times are calculated via Elizabeth Line and ‘No Elizabeth Line’ assumes the prior (stopping) service pattern and routing to destination. In some cases other operators such as Heathrow Express, Greater Anglia and Great Western offer a faster journey time than Elizabeth Line for part of the journey.
- The time shown is an unweighted generalised journey time assuming a random station arrival. Generalised journey time includes waiting time, in vehicle time (excluding on train crowding) and any walk time at interchanges. Fares are not included.



Survey data is showing that Elizabeth line is influencing where people work.

The ability for people to access jobs and employment has been enhanced by the Elizabeth line.

Map showing the home postcode of passengers who agreed that the opening of the Elizabeth line had influenced where they work

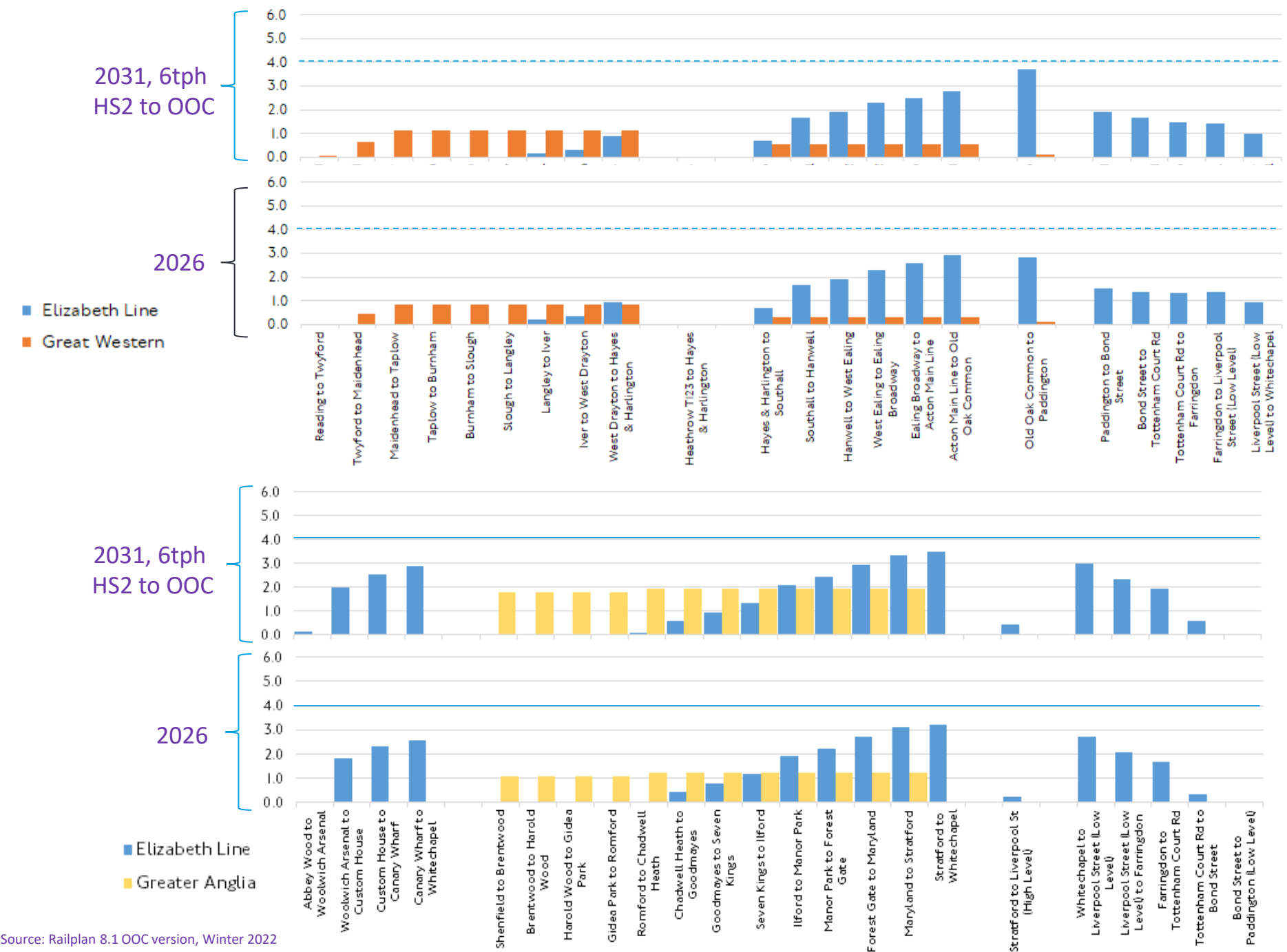


*"My journey home (from Bond St to Canary Wharf) is quicker, quieter, less sweaty. I'm more likely to stay with my current employer for longer."*

*"I wouldn't have taken my job if it hadn't been for the Elizabeth line. It has had a very positive effect on my enjoyment of travelling to and from work."*



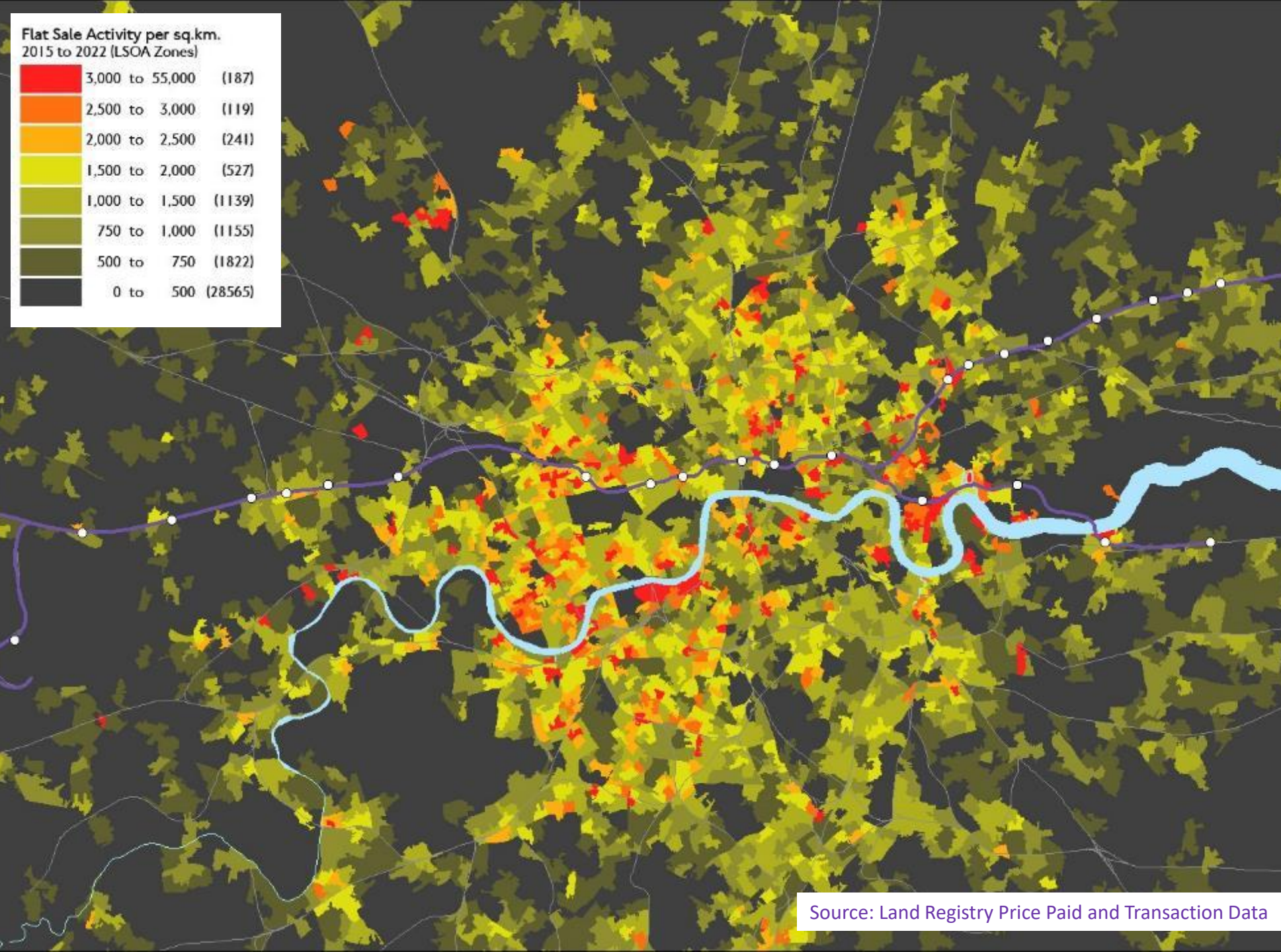
What could this mean for AM Peak Hour crowding levels to the west and east of London?



Source: Railplan 8.1 OOC version, Winter 2022



# Making a link between the Elizabeth line and residential price changes is difficult



- External factors such as interest rates
- COVID
- Variation in the size and type of properties sold each year
- Needing to look at a localised small area where number of sales is small.



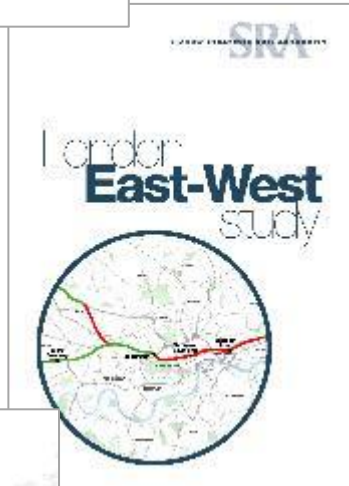
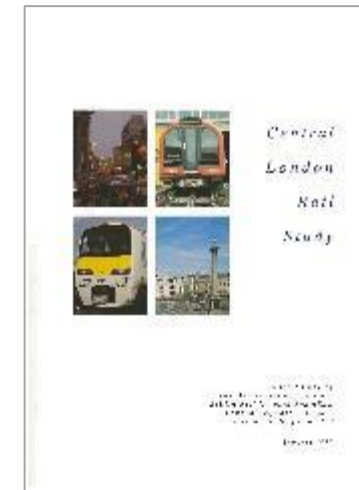
# What was the Elizabeth Line looking to achieve?

## Objectives of Elizabeth Line from 2005 Hybrid Bill:

- support the development of London as a World City and its role as the financial centre of Europe and the UK;
- support the economic growth of London and its regeneration by tackling congestion and the lack of capacity on the existing rail network; and
- improve rail access into and within London.

## The business case

- Many iterations over the decades
- Updated at key milestones: changes in scope, timing and cost
- £42bn in wider benefits
- 1.90 to 1 BCR (latest view)





And impacting  
commercial  
development...

Elizabeth line has  
complemented commercial  
development near stations.

*"It has had a significant impact on the office market. The office market increase was definitely driven by the benefits of Crossrail, as it's quite a different service".*  
(Developer, Paddington)

*"The development activity is linked to the Elizabeth line opening... we're hoping that all this added economic activity will lead to regeneration of the local area."*

(Local Authority, Central Branch)







## Key Benefits

200,000 new homes and regeneration across South East and London



60,000 jobs across UK supply chain, 200,000 new jobs once operational



c£30bn (outturn cost)  
2014 prices

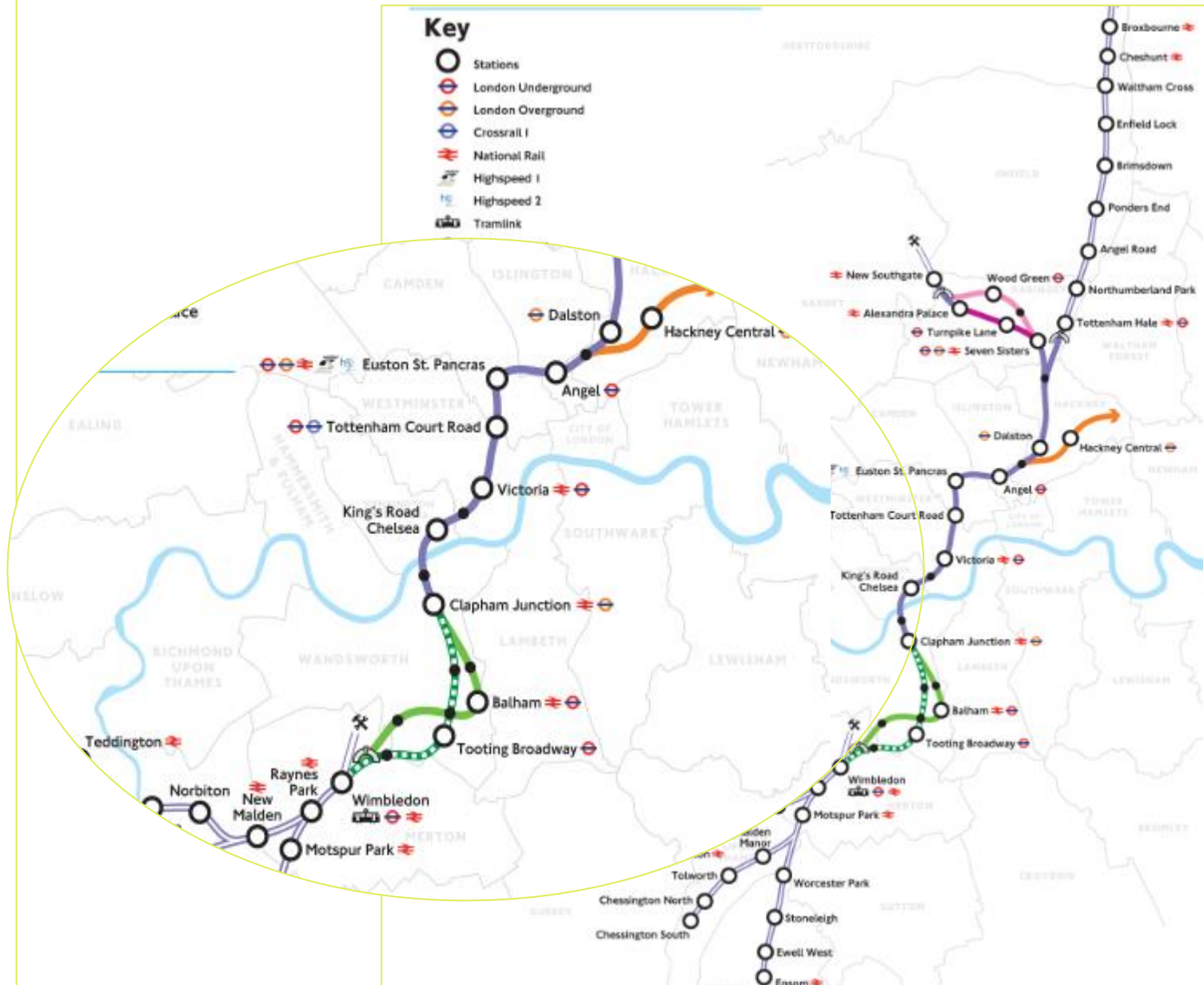


## Scheme Safeguarding & Next Steps

TfL continue to protect safeguarded route responding to planning applications impacting the route



Work continues with the Secretary of State to refresh the safeguarding directions in order to safeguard the scheme's latest proposed route from future developments









One of a series of service options...

Headlines:

(March 2021)

**EFC:** £1.73Bn (2020 prices) but Unfunded

**BCR:** 1.52:1 (including dependent development and wider economic impacts)

**Homes:** 30,000 by 2050 (14,200 within Greater London)

**Jobs:** 21,000

**Earliest start date:** 2030

**Earliest completion date:** 2035

