

Crossrail baseline study and pre-opening evaluation

Summary report

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Sponsors' foreword

As the most significant addition to London's transport network in a generation, the Elizabeth line is expected to transform travel for the locations it serves in London and the South East by dramatically improving transport links, cutting journey times, providing additional capacity, and transforming accessibility with spacious new stations and walk-through trains.

It will also bring wider benefits to our economy, communities and environment. The new railway is set to be crucial to London's recovery from the pandemic, helping to avoid a car-led recovery by providing new journey options, supporting regeneration across the capital, and adding an estimated £42bn to the UK economy.

Exploring the nature and extent of these outcomes will be essential to understanding the overall impact of the Elizabeth line, and will provide robust evidence to inform future investment decisions on major infrastructure schemes.

Commissioning of study

In 2016, the Department for Transport (DfT) and Transport for London (TfL), joint sponsors of the Crossrail project, commissioned Arup and Volterra to deliver the Crossrail Baseline Evaluation study. The work involved collecting comprehensive baseline data for future post-opening evaluation, as well as evaluation of the pre-opening impacts of Crossrail. The study considered a range of areas that will be impacted by the new railway, from transport and construction to land, property, the local economy and regeneration. We are grateful to Arup and Volterra for their work, and are excited to be able to now publish the results of the Crossline Baseline Evaluation study.

The study findings highlight a number of positive pre-opening impacts relating to Crossrail's construction – including the job opportunities created, the environmental targets achieved or exceeded, and the mitigation of biodiversity losses. They also point towards early pre-opening property impacts, with an increase in residential house prices in the areas closest to stations (0-500m away), and a positive impact on office rent values in the same areas. We will investigate how such impacts develop after the railway has opened.

Developments

While the Crossrail Baseline Evaluation study is the starting point for evaluation of the programme, it is important to note that, since this study was commissioned, several significant developments have occurred, such as the publication of the Mayor's Transport Strategy in 2018 and the emergence of the coronavirus pandemic in 2020.

Therefore, while this study will provide a foundation for post-opening evaluation, future studies will build on this work by providing updates to the baseline analysis and developing additional measures, datasets and analytical approaches to ensure we understand the impact of the Elizabeth line over time.

Post-opening studies

At present, we expect the post-opening evaluation studies to be split into two phases. The first of these studies will look at transport impacts and how journeys have changed as a result of the Elizabeth line. A subsequent report on the wider economic impacts, including regeneration and property, will be commissioned around three years after opening to allow enough time for the impacts to materialise. During the study period, we will aim for an annual publication to regularly engage with our findings and the outputs.

Among other questions, the post-opening evaluation studies will consider:

- How are customers using the Elizabeth line after opening? What is their experience of using the railway?
- What economic, social and environmental impacts has the Elizabeth line brought to local communities and different parts of London and the South East?
- To what extent does the Elizabeth line support the priorities set out in the Mayor's Transport Strategy?

Benefits realisation

To help realise the benefits of the Elizabeth line, we are actively building relationships with stakeholders and potential commercial partners, working with them to target specific groups more effectively to make sure that we maximise the potential of the new railway for customers, businesses and communities. We are committed to using evaluation as a tool for understanding, and learning from, the wide-ranging impacts of the Elizabeth line during the post-pandemic recovery and in the years to come.

We look forward to sharing and discussing our findings with you further.

About the study





The Elizabeth line opened on 24 May, transforming travel in the capital

Purpose of the study

The sponsors of the Crossrail programme, TfL and the DfT, commissioned Arup and Volterra to conduct a baseline study to evaluate the pre-opening impacts of Crossrail.

A baseline study is an essential first step towards monitoring and evaluating the full impact of Crossrail and the Elizabeth line. The project team recorded datasets, and gathered contemporary information that would be hard to replicate after

opening of the railway: interviews with local stakeholders, details on the way passengers were using public transport services in London, and the impact of the construction on local communities. The information will be used after the Elizabeth line opens, to help understand the full impact of the new railway.

The study team also investigated the pre-opening announcement and construction-related impacts of Crossrail

on London's economy and property markets. The initial findings provide indications on how the capital has reacted to the new railway before full operational services commence. Once the Elizabeth line is carrying customers, these impacts will be followed by effects that we expect to be of significantly greater magnitude. As such, the findings of this baseline report are not the full evaluation, and analysing these further will be the goal of future post-opening studies.

This summary report is based on the following technical reports (available at tfl.gov.uk):

- Transport baseline report
- Economy, planning and regeneration baseline report
- Construction impacts report
- Pre-opening property impacts report
- Case study report



Farringdon is one of 10 new stations serving the Elizabeth line

Methodology and data sources

The study covers the period from 2008 (the year of the Crossrail Bill receiving Royal Assent, the actual go-ahead for the railway) to 2019 – the baseline period. For the most part, the years 2020 and 2021, which include the period of the coronavirus pandemic, have not been included in the baseline as they would have led to the potential identification of false trends, given the volatility of many variables during the pandemic, and the magnitude of the impact of social distancing restrictions and travel advice. The only exception is the construction analysis (see p.23), which does include impacts from 2020 and 2021, since the pandemic did not heavily impact upon this area.

The Crossrail Study Area was defined as an 80km radius around Charing Cross station. Line-wide impacts, section-wide impacts and station-level case studies were also considered. The areas within 1km and 500m of stations were given particular attention. No station-level quantitative analysis was conducted apart from the Communities around stations section in this summary report.

The study used both quantitative and qualitative research methods, and primary and secondary data sources. This includes Crossrail Ltd's publications on the various construction-related impacts, interviews conducted with local stakeholders, surveys with public transport passengers, public and private business data, and transport microdata sources. These have allowed us to make comparisons across distance and time.

The Pre-opening property impacts report was a standalone research piece consisting of an evaluation of the impact of the Crossrail announcement on property and planning outcomes. Its method was prepared in accordance with impact evaluation standards used by the What Works Centre for Local Economic Growth and other key organisations in the industry. Difference-in-difference econometric models with panel fixed effects were used, classified at Level 3 of the Maryland Scientific Methods Scale¹ and considered a robust impact evaluation technique. The method is intended to provide a foundation for post-opening evaluation of the Elizabeth line.

There is a significant amount of economic and transport data available for the Crossrail Study Area. During the baseline period, the depth and breadth of the available data sources increased, which made it possible to increase the quality of the baselining. More data makes baselining more resilient towards databases being discontinued.

This baseline evaluation monitored a combination of transport, construction and wider impact indicators to create a holistic view of Crossrail's impact. This also meant that various findings could be cross-checked across technical reports to strengthen the evaluation findings.

The study gathered crucially important information on transport and local community perceptions before the opening, making it possible to conduct research after the opening and compare the differences.

Our approach concentrated on understanding the 'big picture', which meant that in some cases important details were missing. Future post-opening evaluation studies may be able to identify additional research questions for in-depth analysis. For instance, our study observed a decrease in deprivation around stations; however, we were unable to assess whether this was due to gentrification, or whether the existing local population was also benefiting from any improvements. A future analysis could also include more focus on home building around stations and evaluate the importance of various local planning policy constraints.

¹ www.whatworksgrowth.org/resources/the-scientific-maryland-scale/



Crossrail background

Crossrail timeline

Pre-2008 History

Following an unsuccessful scheme in the 1990s, the Crossrail Bill was submitted in 2005 and received Royal Assent in 2008.



2009 Design and start of construction

Crossrail Ltd was set up to manage the build of the railway. Design work started and main contractors were procured. Enabling works began as utility diversions and demolitions. The formal start of construction was 15 May 2009.

2011 Main construction

Main construction started in 2011 with eight tunnel boring machines tunnelling 42km of new rail tunnels between 2012 and 2015. Further works on stations, platform tunnels, shafts and portals continued after this tunnelling work finished.

2015 Railway systems

Installation of railway systems such as track, power and signalling began once the tunnels were ready. Systems were also fitted into stations and other structures, then tested and commissioned as an overall system. Trains were introduced into the new tunnels in 2018 for testing.

2016 The Elizabeth line

The railway was officially named the Elizabeth line. This was marked by a visit by Her Majesty The Queen in February 2016.

2016-2021 Station completion

The outstanding construction and systems integration work at stations was completed, followed by commissioning and handover to TfL.

2021 Railway trials

Extensive commissioning of the railway commenced in spring 2021. Trains ran to a timetable, building reliability in the system. At the end of 2021, the railway entered into Trial Operations, the final phase of testing before passenger service.

2022 Opening

The central section of the Elizabeth line, between Paddington and Abbey Wood, opened on 24 May 2022. Full services across the entire route will be introduced within 12 months of the central section opening.

Launch of the new railway

The Elizabeth line is the most significant addition to London's transport network since the opening of the Jubilee Line Extension in 1999. The new railway will transform life and travel in London and the South East, reduce journey times, create additional capacity, transform accessibility and provide a huge economic boost.

The new railway, delivered by Crossrail Ltd, will run for more than 100km through central London – from Shenfield and Abbey Wood in the east to Reading and Heathrow in the west – and has a total of 41 stations, including 10 major new stations. The Elizabeth line will connect London's main employment centres and support new journeys through central London out to Essex, Buckinghamshire and Berkshire. The new railway will be part of the TfL network and has interchanges with London Underground, DLR, London Overground and National Rail services. It is designed for future growth, with stations built to accommodate an additional two carriages per train. When fully open, the railway will increase central London's rail capacity by 10 per cent.

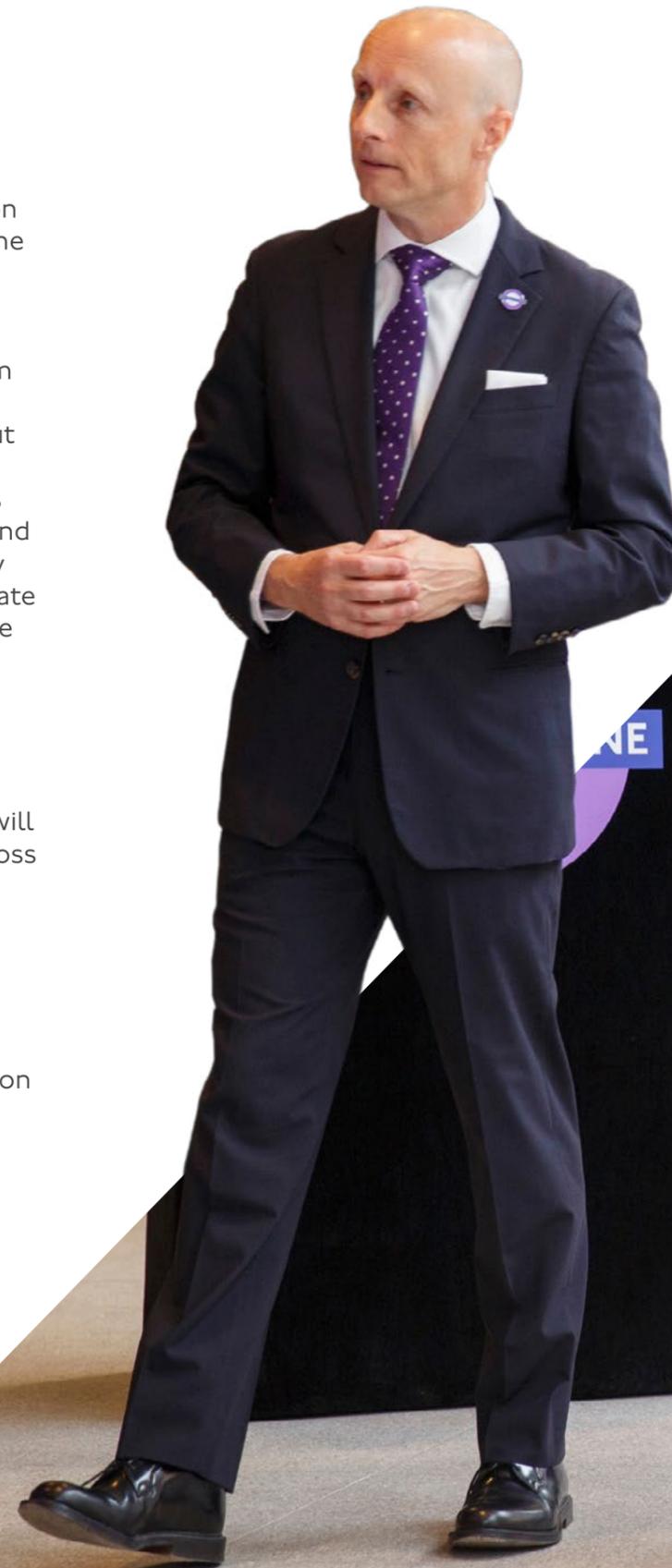
The Elizabeth line launched on 24 May 2022 with services from Paddington to Abbey Wood. Services from Reading and Heathrow to Paddington mainline, and from Shenfield to Liverpool Street mainline have been rebranded from TfL Rail to the Elizabeth line. Customers from the west

will initially need to change at Paddington for services into the central section of the route, and customers from the east will need to change at Liverpool Street.

Later in 2022, Elizabeth line services from Reading, Heathrow and Shenfield will connect with the central tunnels without the need to change at Paddington and Liverpool Street, respectively. When this phase launches, services from Reading and Heathrow will operate through to Abbey Wood. Services from Shenfield will operate through to Paddington. The service in the central section between Paddington and Whitechapel will be 24 trains per hour during the peak.

The final milestone is expected in May 2023, when a fully integrated timetable will be in place, allowing seamless travel across the entire railway.

The Elizabeth line will be crucial to London's recovery from the pandemic, helping to avoid a car-led recovery by providing new journey options, cutting journey times and supporting regeneration across the capital.



Her Majesty The Queen opened the Elizabeth line at Paddington station

Findings

1. Paddington Arrived
2. Paddington Due
3. Paddington 5 mins



Key findings

The primary goal of the baseline study is to gather evidence for the post-opening evaluation of the railway. It is possible to present some key findings, which can be used to provide insights on the pre-opening impact of Crossrail. These findings are as follows:

Transport baseline

- The Jubilee line showed the most significant growth in daily boarders (more than 50 per cent) over the baseline period
- The stations with the most significant footfall growth were in the east of London, coinciding with the high ridership on the Jubilee and Central lines and the development in the areas surrounding these stations
- The Central line has had the lowest customer satisfaction score each year since 2013-14, potentially reflecting growth in demand and crowding, and specific in-station crowding associated with Stratford

Planning and regeneration baseline

- A total of 54,725 new homes were delivered within 1km of future Elizabeth line stations between 2008 and 2021
- Prices of both residential and commercial properties within the Crossrail Impact Area (a 24km radius around each Elizabeth line station), particularly within 1km of the station, rose at a faster rate than in London as a whole
- Housing affordability decreased between 2009 and 2017; however, there was a slight easing between 2017 and 2019, albeit from a low base

Economy baseline

- Employment was on an upward trend over the baseline period, although the impact of the two recessions can be observed in the data
- The population within 500m of future Elizabeth line stations grew by 31 per cent during the baseline period, higher than in London as a whole
- Fewer areas close to Elizabeth line stations were considered among the most deprived by the end of the baseline period

Pre-opening property impacts

- We found statistically significant evidence that Crossrail's announcement had a positive two per cent impact on residential house prices in the areas closest to the stations (0–500m away) in the period between 2008 and 2019. Growth rates were similar to the average in deprived areas, and in areas with wider regeneration or growth initiatives
- Similarly, Crossrail's announcement had a positive three per cent impact on rent values of offices within 500m of stations. The highest levels of increase due to the Crossrail announcement were in deprived areas (10 per cent)
- Factors other than the Crossrail announcement also contributed to the overall increases in both residential house prices and office rent values
- Although planning activity was high around stations, no consistent and statistically significant evidence was found on attributing this directly to the Crossrail announcement

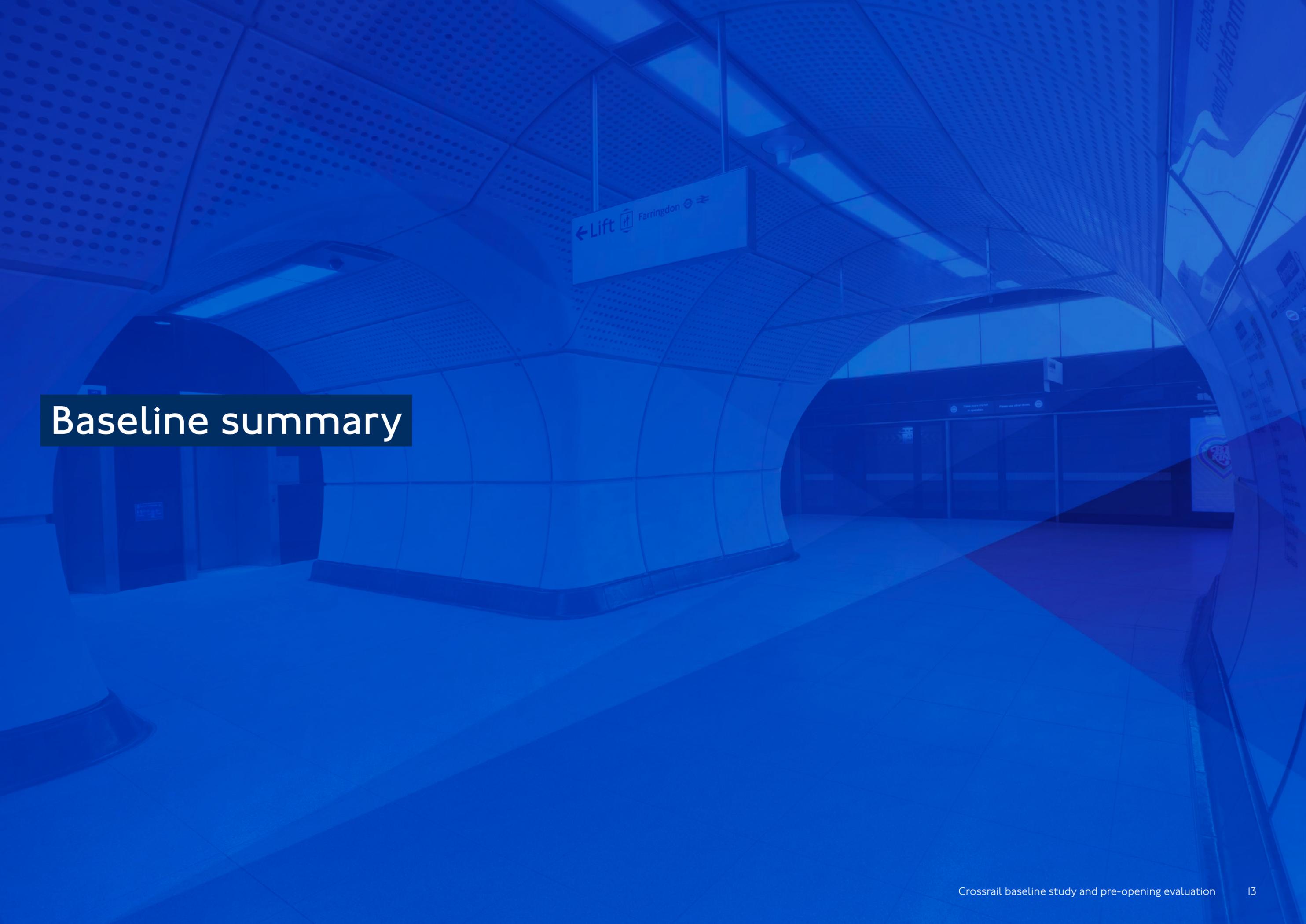
Construction impacts

- Crossrail created 75,000 job opportunities for businesses, generating the equivalent of 55,000 full-time jobs for the duration of construction
- Crossrail provided more than 5,000 job starts by local or previously unemployed people
- Crossrail's environmental targets for air quality, recycled content, and carbon emissions were achieved or exceeded
- Crossrail's construction resulted in the emission of an estimated 1.7m tonnes of carbon dioxide
- The overall biodiversity losses around work operations were mitigated by the habitat creation project of Wallasea Island in Essex

The remainder of this report discusses the individual findings in more detail.



The new railway's environmental targets were achieved or exceeded



Baseline summary

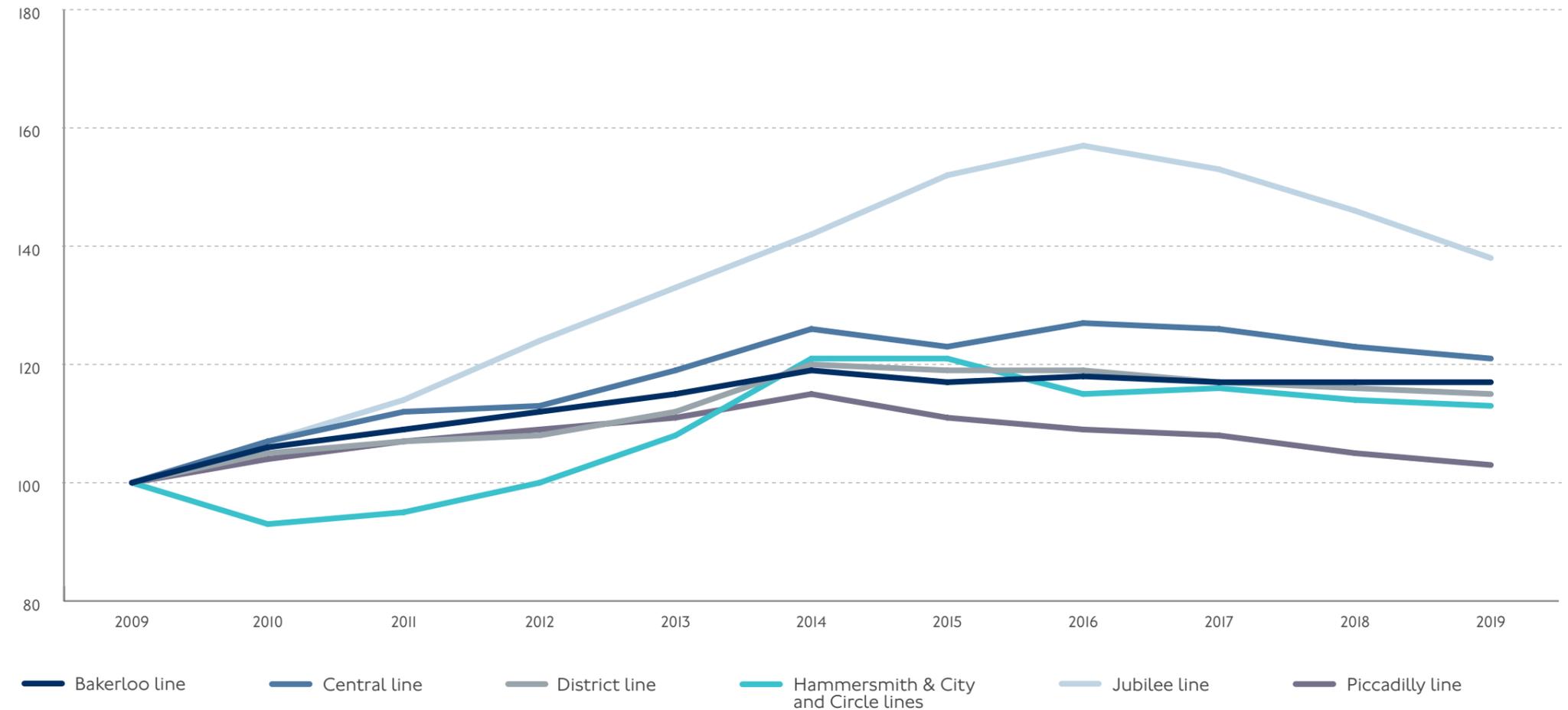
Transport baseline

This report sets out the baseline for transport in the years leading up to the opening of the Elizabeth line.

Transport findings are as follows:

- In London, shares of journeys made by walking and cycling have increased since 2016, potentially due to initiatives around active travel. Car mode share was significantly higher in outer London, with cycling and walking attracting a much higher proportion in inner London (46 per cent) than in outer London (32 per cent)
- Bearing in mind the above point, the Elizabeth line may be more likely to influence mode choice in outer London, and route (or additional public transport mode) choice in inner London. The increase in rail capacity afforded by the Elizabeth line of around 10 per cent into central London is likely to further increase the public transport mode share in this area, with a switch from car, motorcycle and taxi
- One of the key objectives of Crossrail is to provide relief from on-train crowding on the London Underground network, primarily on the Central, District, Jubilee, Hammersmith & City, Circle, District, and Bakerloo lines
- All of the Underground lines listed above have seen strong increases in demand and consequential increases in crowding levels over the period of the transport baseline, although it should be noted that this stopped in 2019, before the period of the coronavirus pandemic

Number of daily Underground boarders against 2009 benchmark (2009=100)



Source: Rolling Origin and Destination Survey, TfL

- The Jubilee line showed the most significant growth in daily boarders (more than 50 per cent). This reflected the introduction of seven-car services in 2006; the signalling system upgrade that enabled increases in peak frequencies; and demand increases associated with the opening of the Westfield Stratford

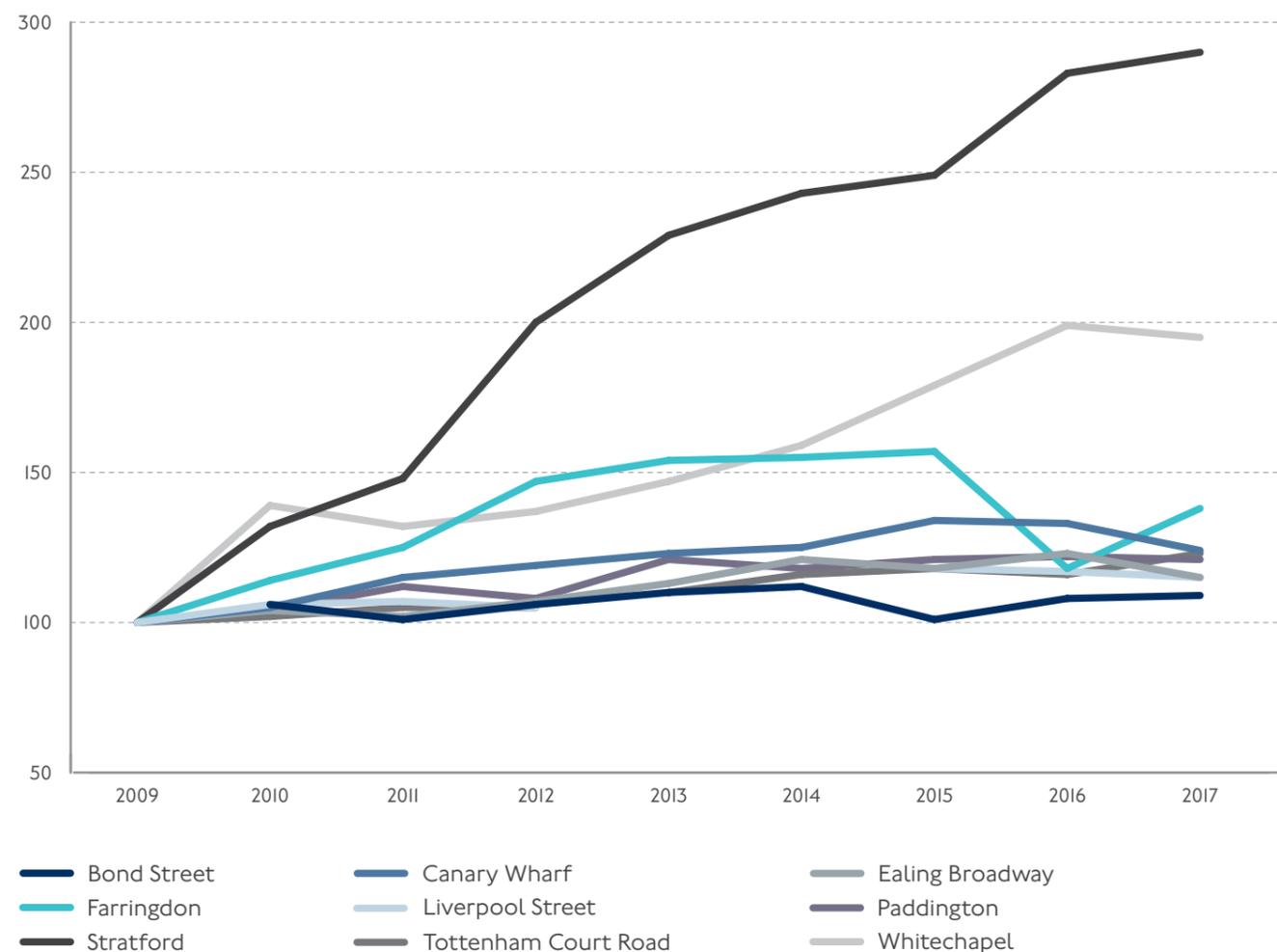
shopping centre and the ongoing development of the Queen Elizabeth Olympic Park

- In 2017 (the last year for which consistent data was available at the time of writing in the first half of 2022), the Jubilee line had approximately the same number

of daily boarders as the Central line – approximately one million per day

- The Hammersmith & City, Circle, District and Bakerloo lines all experienced 15-20 per cent growth over the same period

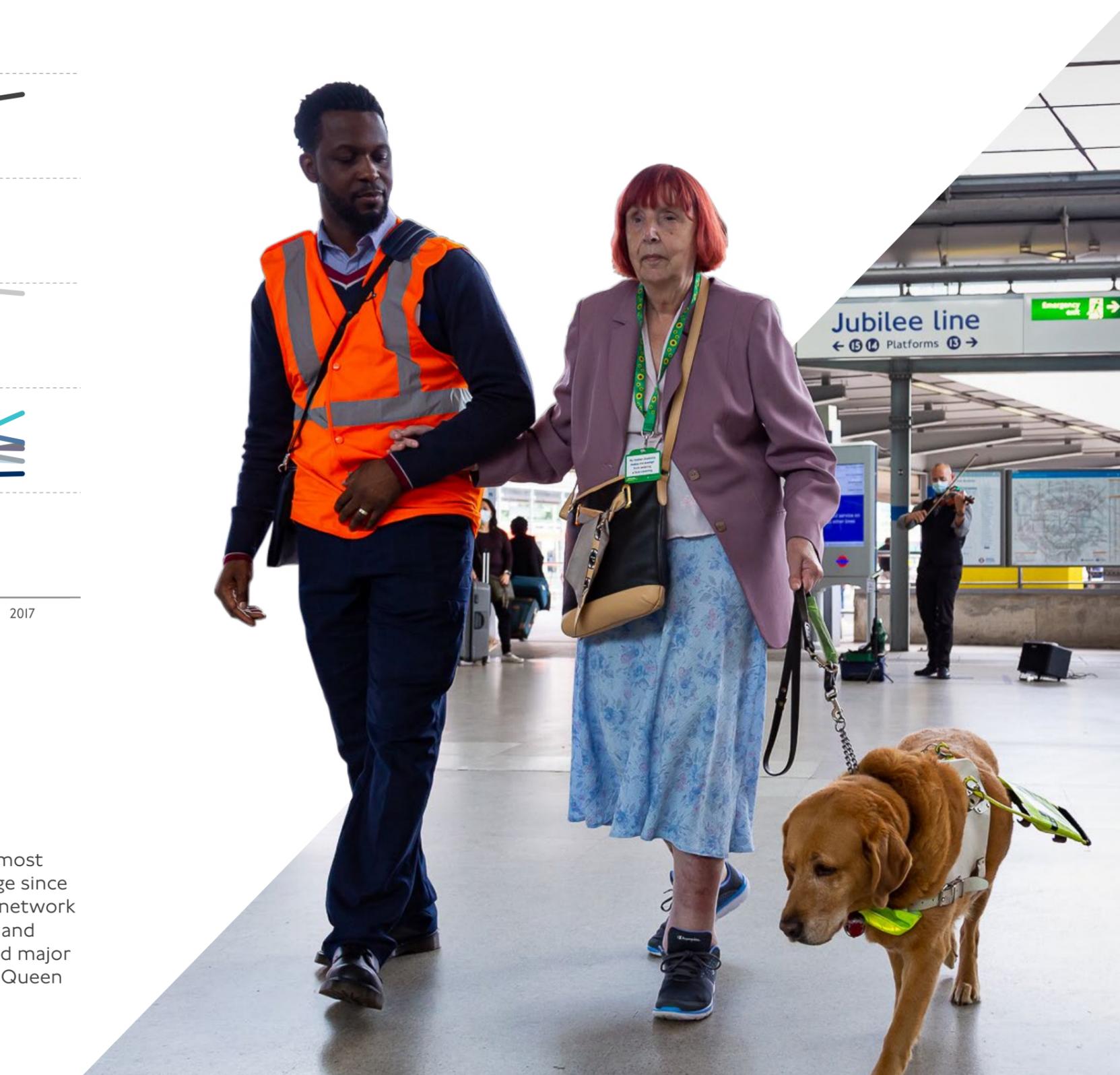
Jubilee line: number of customers accessing stations since 2009 (2009=100)



Source: Rolling Origin and Destination Survey, TfL

• The stations with the most significant footfall growth were in the east of London – including Stratford, Whitechapel, Canary Wharf and Liverpool Street – coinciding with the high ridership on the Jubilee and Central lines, and the development in the areas

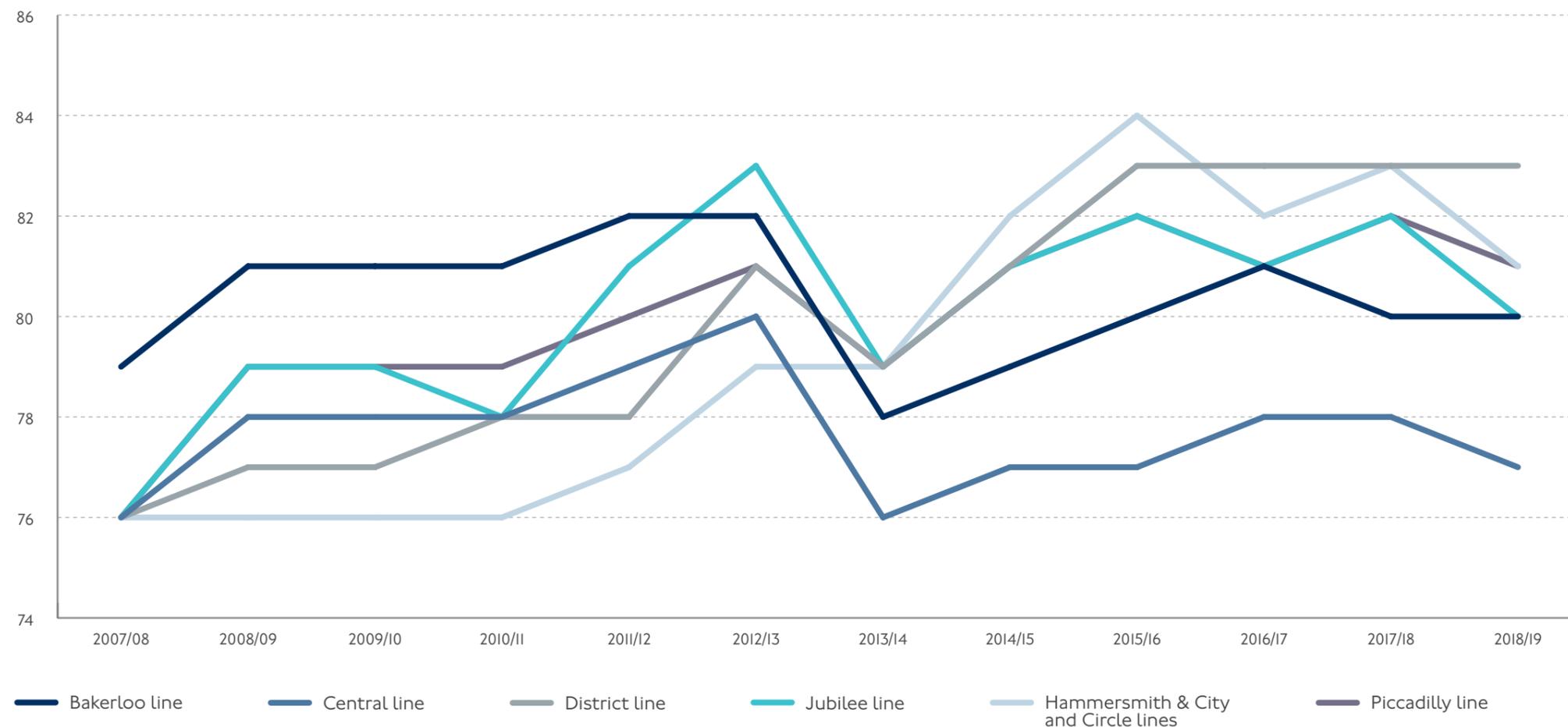
surrounding these stations. The most noticeable growth in station usage since 2009 was at Stratford, reflecting network improvements (DLR, Jubilee line and major station redevelopment) and major development (Westfield and the Queen Elizabeth Olympic Park)



A turn up and go service is offered to anyone needing assistance

- The Central line has had the lowest customer satisfaction score each year since 2013-14, potentially reflecting growth in demand and crowding, and specific in-station crowding associated with Stratford. Customer satisfaction on the Hammersmith & City, Piccadilly and Central lines fell by around one to two per cent from 2017-18 to 2018-19. Crowding relief on the Central line as a result of customers switching to the Elizabeth line may lead to an improvement in Central line customer satisfaction
- Journey purpose by station remained relatively constant since 2008, with the exception of Stratford, where the opening of the Westfield Shopping development coincided with a significant increase in the percentage of shopping trips from 2009 to 2017
- The opening of the Elizabeth line in 2022 and the consequential increase in capacity should result in improvements in Passengers in Excess of Capacity (PiXC) scores into both Paddington and Liverpool Street. Morning peak crowding on Greater Anglia was reasonably static from 2010 to 2018, but GWR services into London Paddington experienced the highest morning peak PiXC values for five consecutive years (2010 to 2014). TfL Rail has had the highest PiXC values each year from 2016, a year after commencing its services

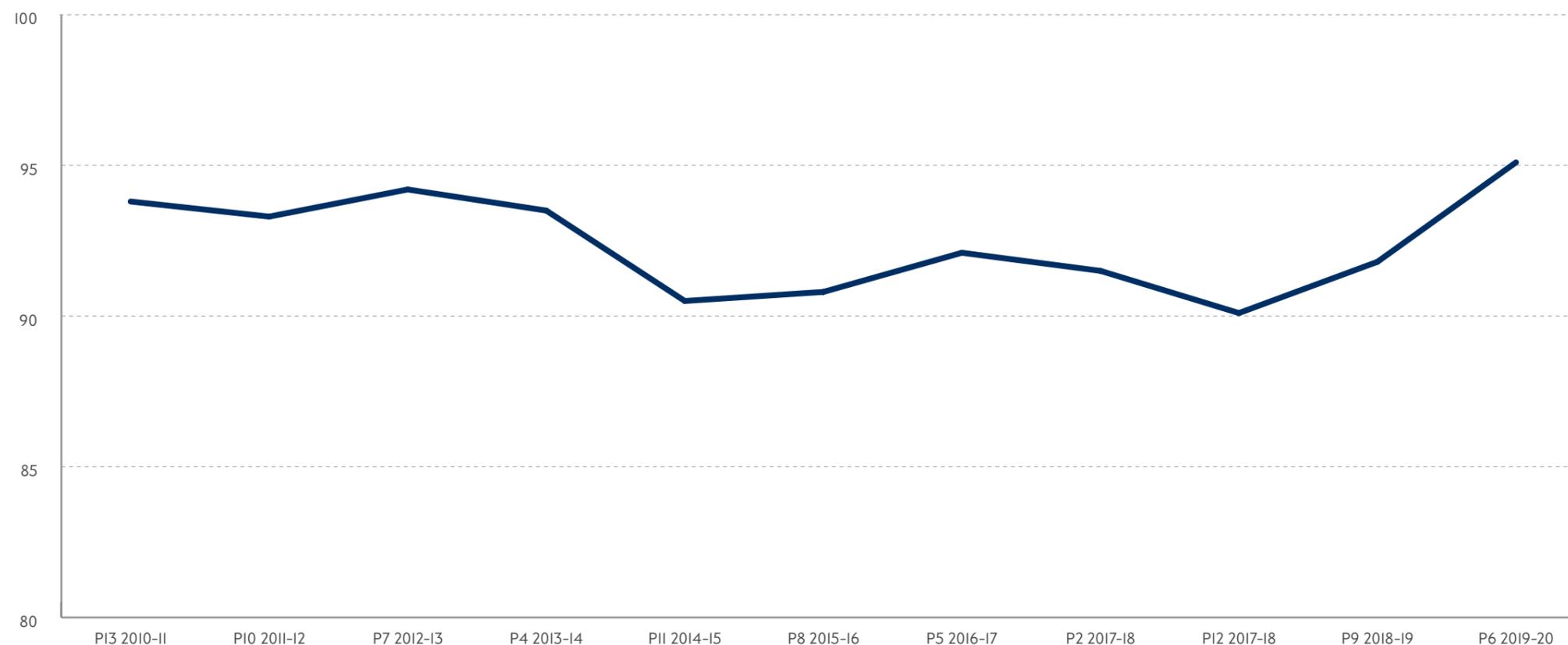
London Underground customer satisfaction score (out of 100)



Source: TfL London Underground Performance Data Almanac

- Rail performance for the service groups into Liverpool Street and Paddington indicated that the Public Performance Measure (PPM)² was worsening over time until early 2018. It improved after this date, potentially reflecting the reductions in the number of weekend closures
- The PPM for GWR and Greater Anglia fell to around 90 per cent by early 2017-18 before significantly improving in the 2018-19 period. The PPM for TfL Rail Crossrail East fell from around 94 per cent in late 2012-13 to about 90 per cent in late 2017, reflecting essential weekend closures for works to accommodate Elizabeth line services. Once the number of closures fell, the PPM improved substantially, rising to around 96 per cent by late 2019
- Further information can be found in the Transport baseline report.

TfL Rail Public Performance Measure: moving annual average percentage



Source: ORR (2010-20)

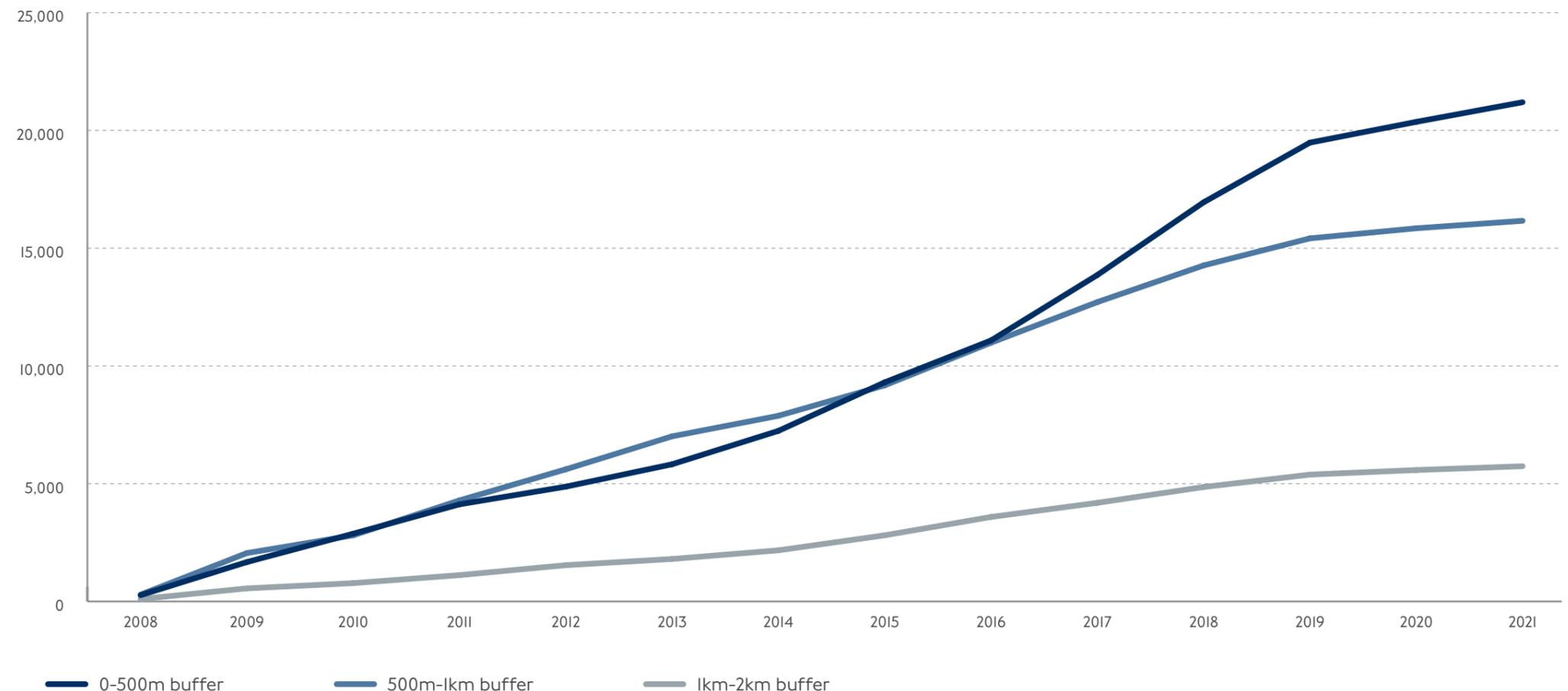
² Public Performance Measure (PPM) – the percentage of trains that arrived at their final destination within five minutes of their scheduled arrival time

Planning and regeneration baseline

The Economy, planning and regeneration report presented the following key findings:

- There was a strong pro-growth policy context during the baseline period, with a number of key Government & mayoral initiatives supporting large-scale housing delivery across London. The identification of Opportunity Areas in the London Plan 2021³, several of which are along the Elizabeth line route, may help respond to the significant housing need across the capital
- The baseline period was also characterised by local policy transition, with many London boroughs undergoing consultation or examination of their Local Plans in view of new regulations and of the London Plan
- A total of 54,725 new homes were delivered within 1km of future Elizabeth line stations between 2008 and 2021 (and 51,600 until 2019), which is around the same as the 57,000 estimated by the Crossrail Property Impact Study in 2012⁴ for the same time period
- This drive for housing delivery and the subsequent release of large-scale brownfield sites favoured certain outer London locations, with higher numbers of new build housing in outer London compared to inner London

Cumulated new dwellings per square kilometre around Elizabeth line stations



Source: Energy Performance Certificate data for England and Wales by Department for Levelling Up, Housing & Communities

³ The London Plan 2021, Mayor of London

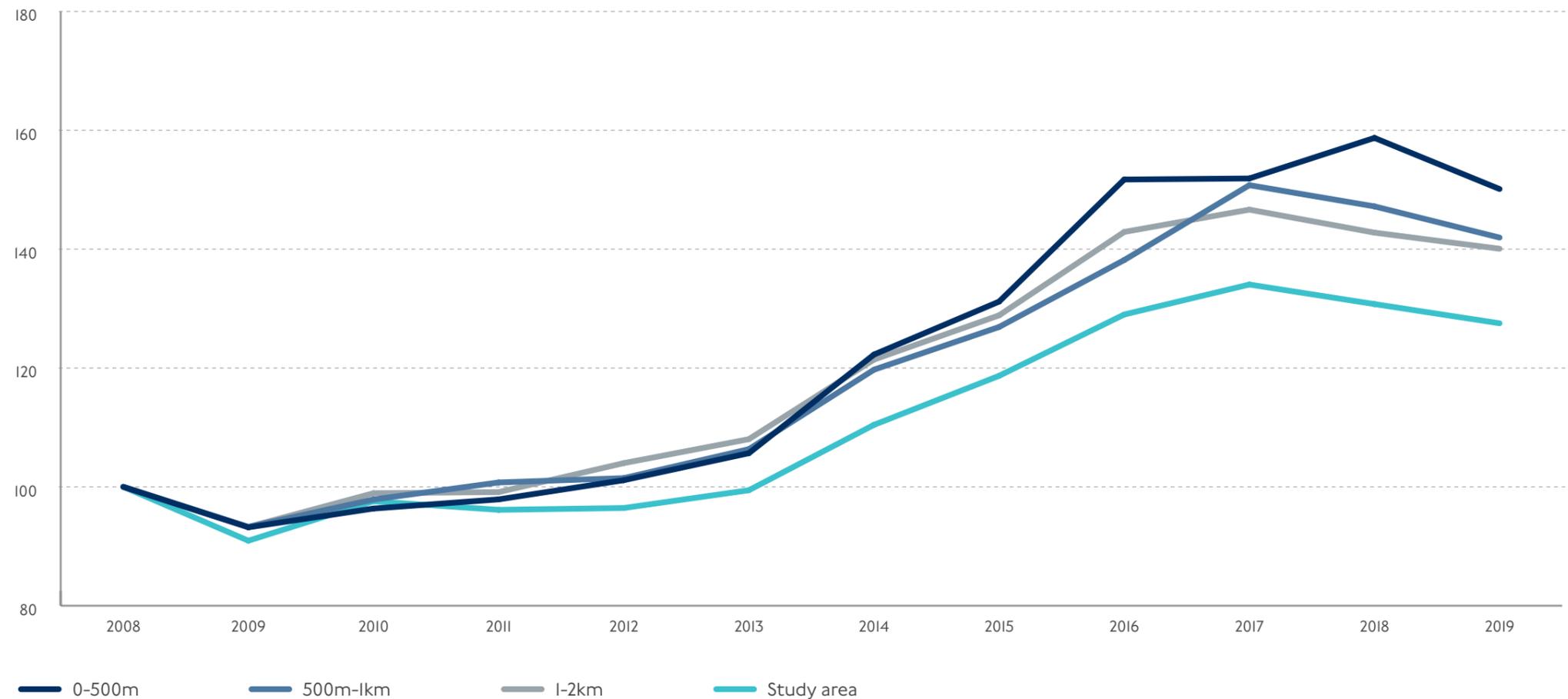
⁴ 2012 Property Impact Study, GVA, Crossrail Ltd

‘Southall was very limited in development. I think the knock-on effect was the designation as a Crossrail station and in turn the GLA then designated it an Opportunity Area on the back of that. I think Crossrail is absolutely fundamental, and it unlocked density of such a scale.’

Property Agent, Southall

- Total housing stock in the Crossrail Impact Area remained relatively stable over the baseline period, even in the context of rapidly rising demand. Total housing stock increased by eight per cent in local authorities impacted by the new railway (from 1.5m to 1.6m dwellings from 2010 to 2019). Housing completions have been highest in Greenwich, Ealing, Tower Hamlets and Newham
- There have been high levels of planning activity around stations along the railway, particularly around centrally located Elizabeth line stations. The funding package for the Crossrail programme partly relied upon wider economic impacts for businesses through the Business Rates Supplement and Mayoral Community Infrastructure Levy, which is calculated based on the net additional floorspace for all new planning permissions granted within 1km of an Elizabeth line station

Residential prices around Elizabeth line stations (2008=100)



Source: House price statistics for small areas, ONS

- Prices of both residential and commercial properties within the Crossrail Impact Area, particularly within a 1km buffer of future Elizabeth line stations, rose at a faster rate than in inner and outer London as a whole. Residential prices followed a similar trend regardless of distance to the stations, however the closer to the station, the higher the rate of increase observed
- Between 2009 and 2017, housing affordability decreased, measured by the national ratio of property prices to income. There was a slight easing between 2017 and 2019, albeit from a low base
- Residential transactions reflect the general strength of the property market. After the 2008 financial crisis, the number of transactions increased in the period to 2014
- within the buffers around stations (0-500m, 500m-1km, 1km-2km). The number of transactions then dropped for the period 2014-2019, reflecting a decline in consumer confidence, potentially influenced by the change in stamp duty in late 2014, and the aftermath of the Brexit vote

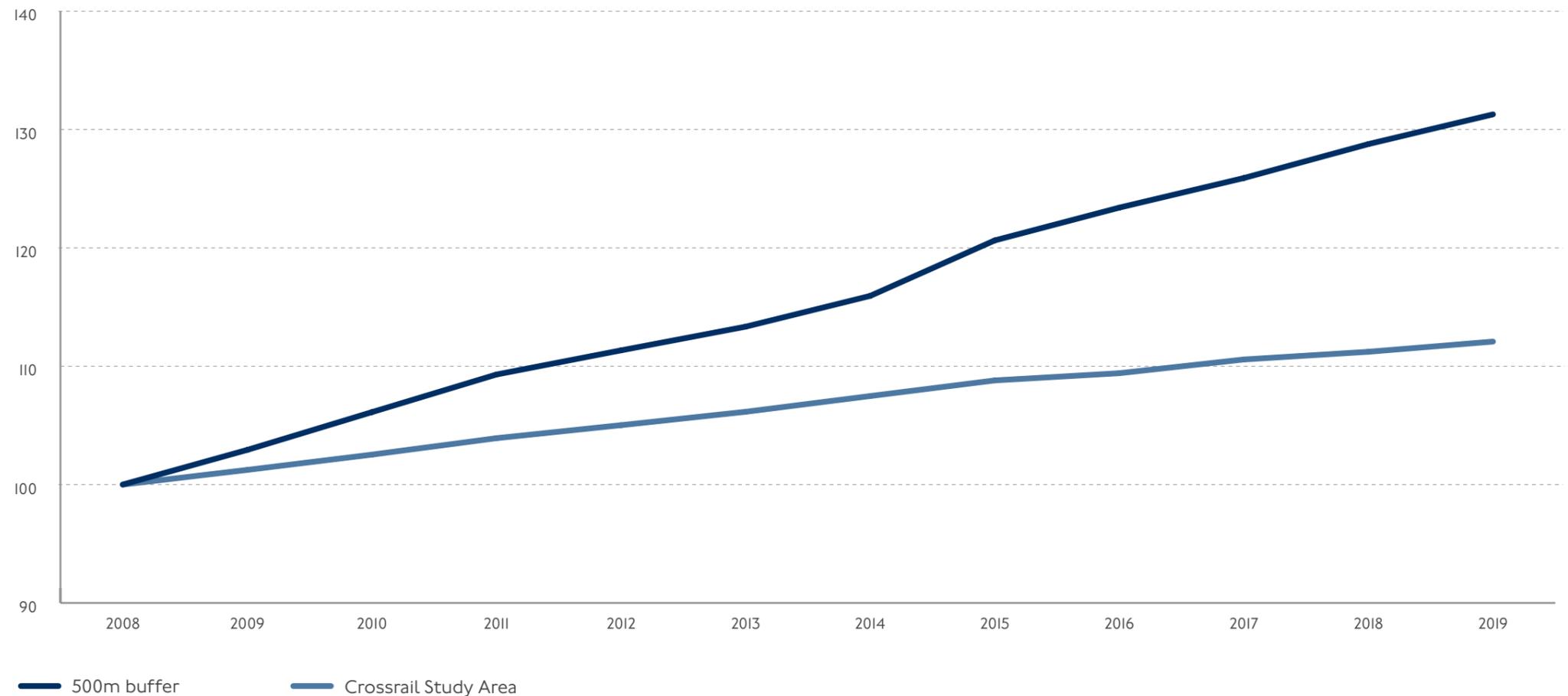
Further information can be found in the Economy, planning and regeneration report.

Economy baseline

The key findings of the economic baseline section of the Economy, planning and regeneration report were:

- There was a pattern of socio-economic divergence between inner and outer London. Compared to outer London, inner London had higher levels of deprivation, a higher rate of unemployment and greater public spend per head of the population, a lower growth in labour productivity, and a higher overall growth in Gross Value Added. Since 2008, inner London's population grew slightly faster than that of outer London – this may partly be due to a higher build rate of homes in inner London compared to outer London
- Employment was on an upward trend, although the impact of the two recessions can be observed. The Elizabeth line route will serve some of London's largest employment centres, and in particular those with knowledge-intensive employment
- The population within 500m of future Elizabeth line stations grew by 31 per cent. The 2km areas around Stratford, Canary Wharf and Custom House saw the largest increase in population in percentage terms among Elizabeth line stations. Canary Wharf, Whitechapel and Stratford had the largest absolute increase
- The observed population changes could reflect an increase in development as the opening of the Elizabeth line drew closer. This aligns with increasing residential property prices presented in the Planning baseline section (see p.18)

Population within 500m of Elizabeth line stations compared to Crossrail Study Area (2008=100)

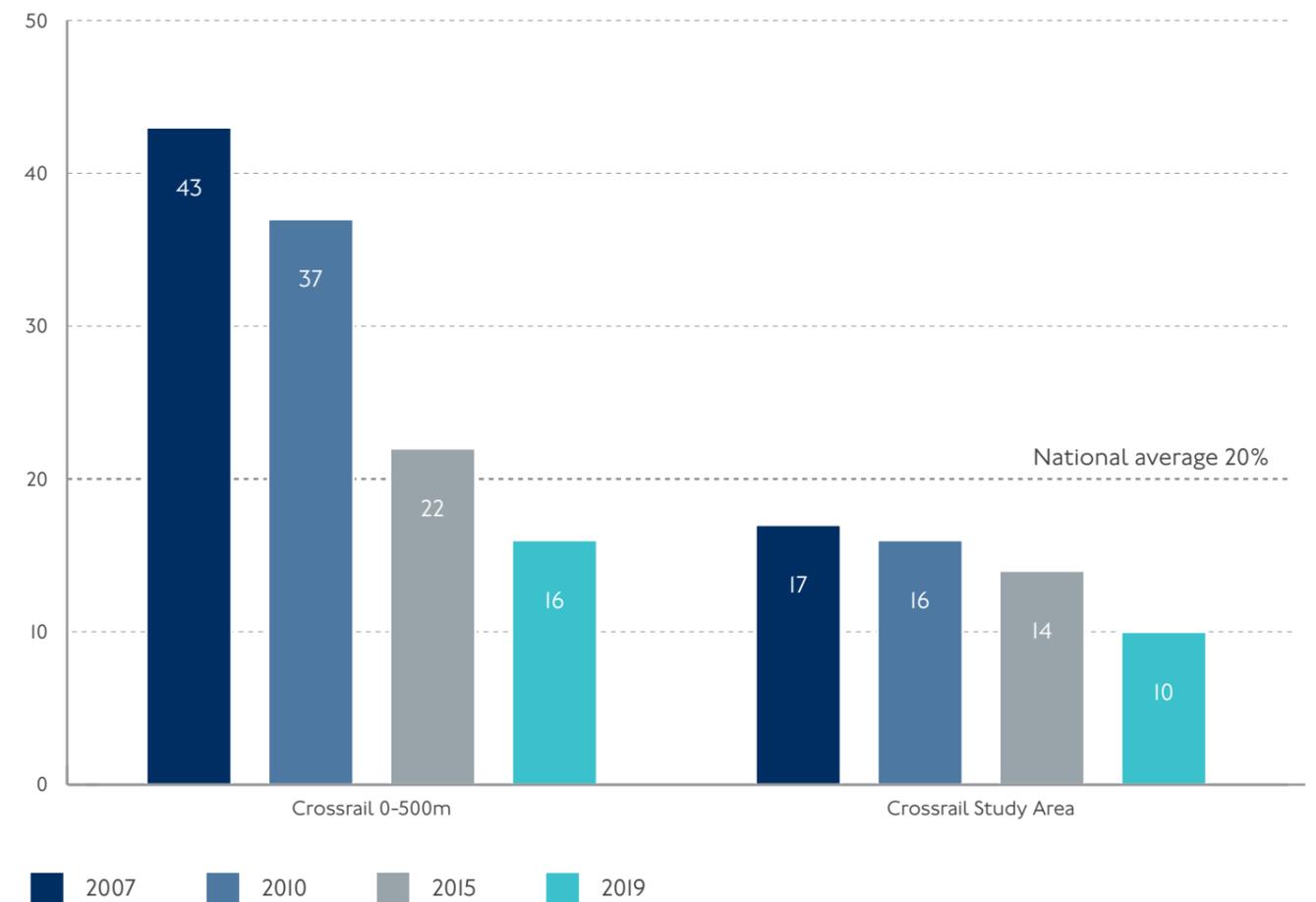


Source: Mid-year population estimates, ONS

- Fewer areas close to Elizabeth line stations were considered among the most deprived (the 20 per cent most deprived in the UK) by the end of the baseline period. Deprivation levels were calculated using the Index of Multiple Deprivation from the Office for National Statistics (ONS), which measures deprivation of income, employment, access to education, health and the living environment
- By the end of the baseline period, the proportion of most deprived small local areas (Lower Super Output Area – LSOA) in the Crossrail Impact Area was comparable to the national average (20 per cent): the three impact buffers (0-500m, 500-1km, 1-2km) had 17-19 per cent of their LSOAs included in the 20 per cent most deprived LSOAs across the country. This has improved substantially since 2007, when these three buffers had 36-44 per cent of their areas in the 20 per cent most deprived areas of the country

- There were higher rates of unemployment within 500m of future Elizabeth line stations in 2011. In these areas, unemployment was 8.2 per cent, compared to 6.0 per cent in the Crossrail Impact Area. This is the most recent data for this level of detailed geography. More up-to-date trends measured on a higher level (local authorities, boroughs or London as a whole) show that unemployment levels have all decreased over the baseline period, suggesting a similar trend is likely to apply for buffers around stations between 2011 and 2019
- Overall, socio-economic indicators show broad improvement within 2km of future Elizabeth line stations over the baseline period, although these may not necessarily be the result of the Crossrail announcement
- Further information can be found in the Economy, planning and regeneration report.

Percentage of LSOAs in the UK's top 20% most deprived in the 0-500m area around Elizabeth line stations and in the Crossrail Study Area



Source: Index of Multiple Deprivation, MHCLG

Construction impacts

The Construction report assessed the capital expenditure, employment, environmental and social impacts of the construction of the Elizabeth line.

The key findings were:

- Stations and other contracts (mainly tunnels and shafts) were the most significant cost components, at 26 per cent and 34 per cent respectively. Crossrail Ltd had a total available funding envelope of £18.8bn (split between £15.9bn Anticipated Final Cost for integrated Crossrail costs and £2.9bn for Network Rail On-Network Works)
- Crossrail created 75,000 job opportunities for businesses, generating the equivalent of 55,000 full-time jobs for the duration of construction. A total of 62 per cent of direct suppliers and 76 per cent of indirect suppliers were small and medium-sized enterprises (SMEs)
- Crossrail employed and upskilled workers across the UK, especially in and around London. In all, 96 per cent of contracts by volume were awarded to companies within the UK, and 62 per cent of businesses in Crossrail's supply chain were based outside London. At the same time, 65 per cent of people directly employed by Crossrail lived in London (62 per cent of supply chain employees lived in the capital); and 14 per cent of Crossrail Ltd employees, and 13 per cent of the supply chain workforce, were based in the remainder of the South East

- The value of Crossrail Ltd wages was less focused on London. Of the total wage bill, 41 per cent was earned by employees living outside London; 18 per cent by employees living in the South East; and 14 per cent by employees living in the east of England
- Crossrail provided more than 5,000 job starts by local or previously unemployed people. This constitutes about nine per cent of the total number of jobs supported by the Crossrail programme across the UK

55,000
jobs created

700+
apprenticeships created

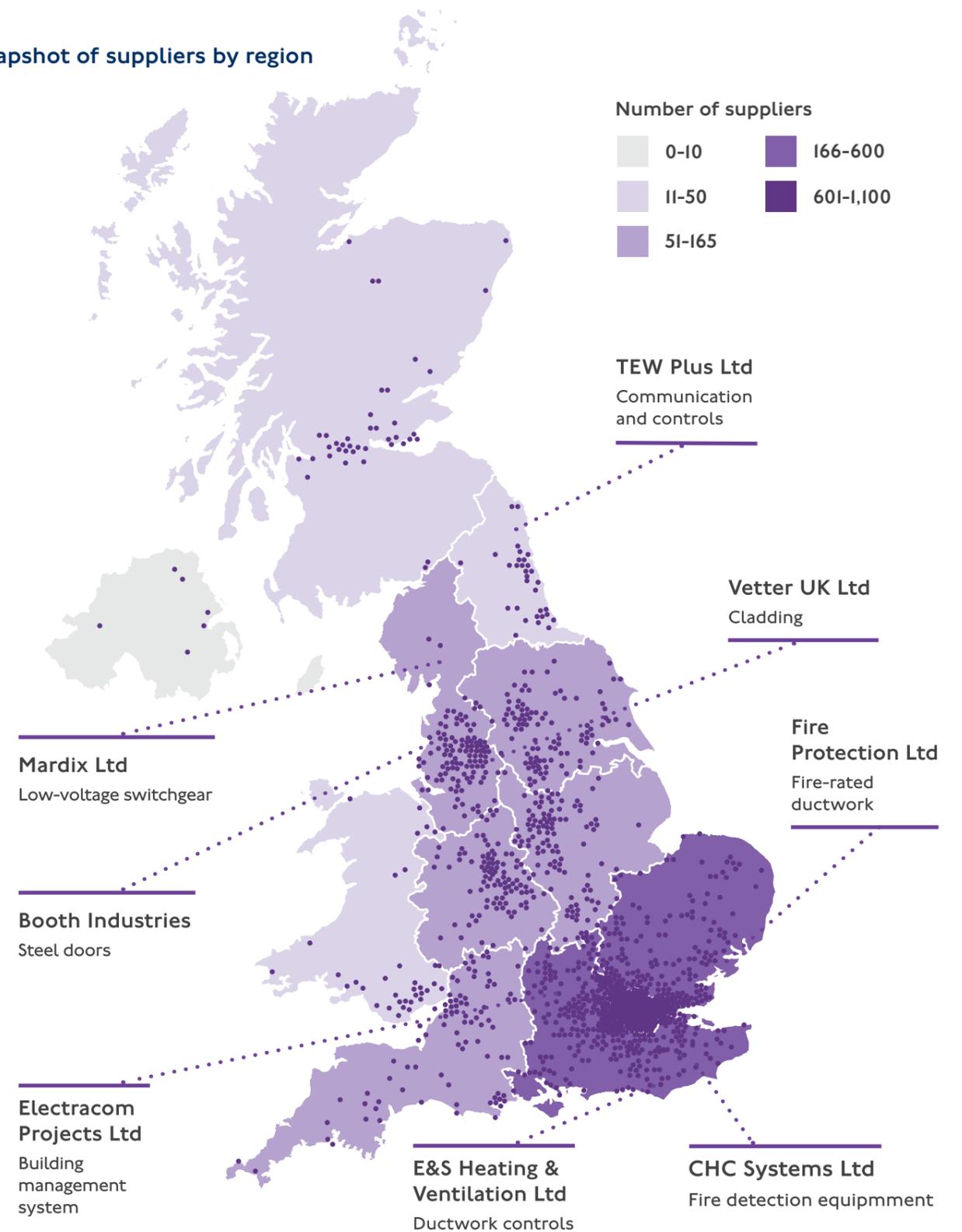
96%
of contracts awarded within the UK, with:

62%
of businesses outside London

62%
of main suppliers were SMEs

5,000+
job starts by local or previously unemployed people

A snapshot of suppliers by region





Crossrail has provided transport industry training opportunities

Crossrail Ltd/Suppliers: diversity indicators as a percentage (%) of workforce

	Crossrail Ltd	Suppliers
Gender Identifying as women	37	7
Ethnicity Identifying as Black, Asian or minority ethnic	33	19
Disabilities Disabled people	1.3	0.4
Age Aged under 25	1	7

- For the Crossrail Integrated Team that includes Crossrail Ltd, programme delivery partners and the project representative, 37 per cent of their employees identified as women, and 28 per cent of their employees were Black, Asian or minority ethnic. Crossrail and its contractors performed better than the industry average on diversity among its workforce

- Crossrail provided more than 1,000 apprenticeships and engaged with in excess of 44,000 young people through activities and engagement programmes. From 2011, the Tunnelling and Underground Construction Academy, partly founded by Crossrail to address the construction skills gap in the UK, trained more than 20,000 students, against a target of 8,000

Tunnelling and Underground Construction Academy

Established in 2011, the Tunnelling and Underground Construction Academy is a long-term Crossrail legacy. Its aims are to:

- Cater for skills development and training needs of Crossrail
- Fill the skills gap of the industry
- Provide training for the transport industry
- Partner with higher education institutions

‘Actually, we’ve trained and placed a lot of local people into jobs with Crossrail, and again that’s something we sought in the parliamentary stages. We always like to get local people, and of course the Tunnelling Academy was a result of a joint borough action to secure training opportunities for local people.’

Local authority employee at Whitechapel

- Crossrail's environmental targets for air quality, recycled content and carbon emissions were achieved or exceeded. As a result, a 19 per cent reduction in carbon footprint against the 2010 baseline was expected at project completion, exceeding the initial stretch target of eight per cent
- The construction of Crossrail resulted in the emission of an estimated 1.7m tonnes of carbon dioxide. Operation of the new railway is expected to save 70,000-225,000 tonnes of carbon dioxide annually. The 'payback' period is therefore 7-26 years after opening, beyond which there will be net savings in carbon dioxide
- The project met CEEQUAL and BREEAM design assessment ratings (both are international sustainability standards). Crossrail was one of the UK's first major construction projects to closely monitor environmental outcomes
- Crossrail Ltd monitored the programme's health and safety performance throughout the entire baseline period. Accident frequency rates and lost time cases, the two main indicators monitored for accidents, decreased in recent years as the main works were completed (from a 490 injuries high in 2014 to a 27 injuries low in 2021)

Waste recycling



34%
of recycled contents within construction products (initial target 20%)

98%
of the 8m+ tonnes of excavated material were beneficially reused (initial target 95%)

98%
of the 539,500 tonnes of construction and demolition waste were recycled (initial target 90%)

Environmental design



100%
of new structures scored 'Very good' or 'Excellent' regarding environmental quality

100%
of new Elizabeth line stations achieved a 'Very good' rating in environmental assessment

Water management

- Monitoring water usage via smart meters
- Groundwater remediation measures implemented
- Rainwater harvesting to wash trains and irrigate stations' green spaces



Air quality



83%
of equipment fitted with emissions controls in 2018 – up from 40% in 2012

1st
project in the UK to set out requirements for emission controls on construction machinery

Carbon footprint



19%
reduction in carbon footprint against 2010 baseline (initial target 8%)



Construction site soil has helped create the Wallasea Island habitat

The Crossrail construction programme reached its 'no net loss' biodiversity target



+8

biodiversity units gained across sites

+530

biodiversity units gained at Wallasea Island in Essex

-109

biodiversity units lost across sites

The Crossrail construction programme used the Department for Environment, Food and Rural Affairs accounting methodology for biodiversity values to determine the value of habitats lost and created from its development. Actions were taken to preserve and/or enhance biodiversity on-site during construction. The overall biodiversity losses around work operations were mitigated by the habitat creation project of Wallasea Island in Essex

The Wallasea Island habitat creation project

A collaboration between Crossrail Ltd and the Royal Society for the Protection of Birds, Wallasea Island in Essex provides a wetland for tens of thousands of migratory birds, and is also helping to combat future impacts of climate change, such as coastal flooding. The site opened in 2015.



3m

tonnes of excavated soil from construction sites were shipped to Wallasea Island



80%

of this soil was transported by train and ship, removing 150,000 lorries from the streets of London



1,500

acres of wildlife habitat were created at Wallasea Island, transforming 670 hectares of farmland back into coastal marshland



House-building activity grew during the baseline period

Pre-opening property impacts

An econometric evaluation of the impact of the announcement of Crossrail on property and planning outcomes was conducted, with the aim of estimating its direct impact, independent of other market conditions.

Throughout the baseline period, despite a resurgence in house-building activity, property growth rates remained well below that of the population and jobs. The decline in local authority housing and other public sector dwellings suggest

the withdrawal of the public sector; however, it was somewhat balanced by the introduction of funding schemes and grants. The original business case identified the main objectives of Crossrail as reducing congestion on the existing

transport network and sustaining London's growth in population and jobs through enhanced connectivity and agglomeration benefits. It did not refer specifically to housing delivery targets or increased commercial property activity.

The key findings of the Pre-opening property impacts report were:

- We found statistically significant evidence that the announcement of Crossrail had a positive two per cent impact on residential house prices in the areas closest to the stations (0–500m away) in the period from 2008–2019. The largest growth was experienced along the western London section (four per cent), and the lowest growth along the eastern London section (1.9 per cent). Growth rates were similar to the average (at 1.9 per cent) in deprived areas, and in areas with wider regeneration or growth initiatives

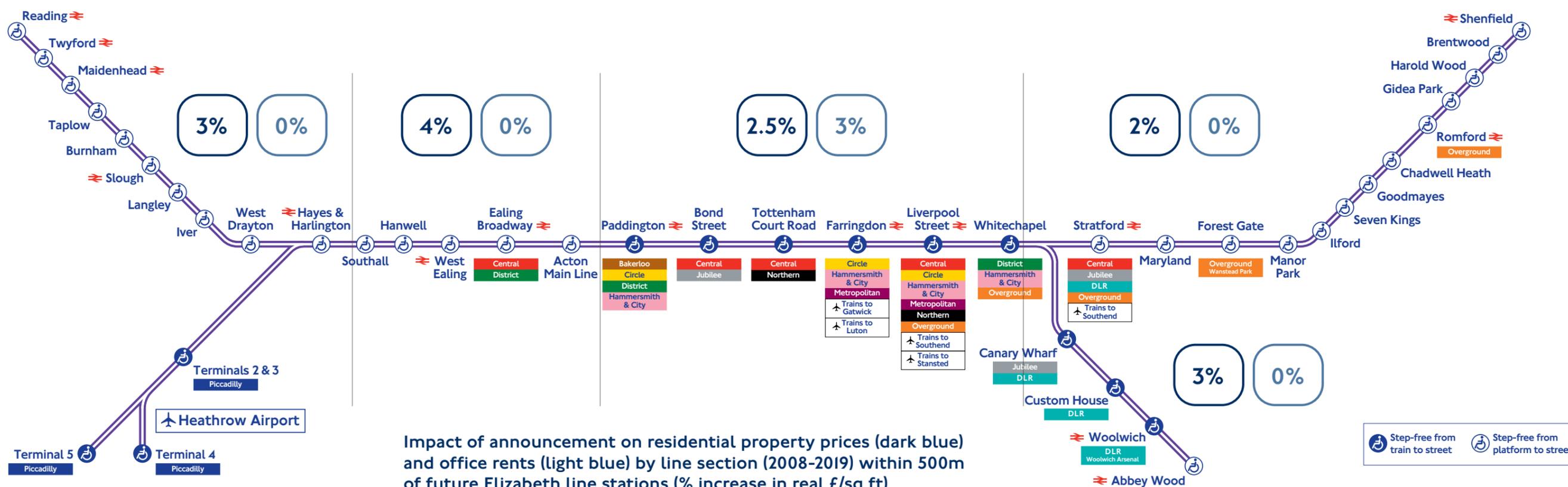
- Factors other than the Crossrail announcement also contributed to the overall increase in residential house prices. Residential housing unit real prices per square metre in the whole study area (16km radius around all stations) increased from an average of £4,900 in 2008 to £6,000 in 2019, implying average growth of 21 per cent
- We found statistically significant evidence that the Crossrail announcement decreased the value of residential housing unit prices by around two per cent for areas 1–2km from the stations from 2008–2019. The current analysis is insufficient to explain in detail what may be behind this result,

although a potential hypothesis is that displacement may have been a factor

- We found statistically significant evidence that the announcement of Crossrail had a positive three per cent impact on office rent values across the railway within 500m of stations. The highest levels of office rental increase due to the Crossrail announcement were in deprived areas (10 per cent), areas with associated major development (7.5 per cent), and areas expected to benefit from additional labour supply (7.2 per cent)
- Factors other than the Crossrail announcement contributed to the overall increase in London office rents from

2008–2019. Average office rents in the whole study area stood at around £570 per square metre in 2019, an increase of about 30 per cent since the end of 2008

- Although planning activity was high around stations, and 54,725 homes were delivered within 1km of stations between 2008 and 2021, no consistent and statistically significant evidence was found on attributing this directly to the Crossrail announcement. The original business case for Crossrail did not include specific references to housing delivery targets, and was focused on supporting London's future economic development and employment





Communities around stations



The new Elizabeth line station at Custom House has an elevated concourse

This section focuses on seven stations along the Elizabeth line to show how communities living within 1km of the respective station were impacted during the period 2009-2019. The stations were chosen carefully to provide a wide selection, ranging from town centre stations outside London, such as Slough, to central employment hub areas such as Farringdon, and regeneration opportunity areas such as Abbey Wood. Since we were interested in the impact on local communities rather than the immediate economic impact around stations, we chose the 1km buffer area instead of the 500m used earlier. While the baseline

period starts in 2008, this chapter uses 2009 as data on employment and levels of deprivation were not available consistently for 2008.

These short case studies focus on how local communities changed during the baseline period. We were unable to identify which changes were due to the announcement of Crossrail and which were the results of underlying socio-economic trends. Rather, this section provides a narrative and an analysis of the local area before the opening period, and as such, provides a good basis for the post-opening evaluation.

In addition to relying on public information and quotes from the Case study report, we have identified five key metrics that were available for all 1km areas around the stations. This provided an opportunity to compare the performance of a station area both with the average around all Elizabeth line stations, and also with the average changes across the whole Crossrail Study Area (80km radius around Charing Cross station). These five key metrics are: median house prices; population growth; changes in the number of jobs; total commercial floor space leased; and deprivation levels.

Median house prices (adjusted to 2019 prices) were calculated using the ONS median price paid dataset for both 2009 and 2019. The 54 per cent average growth within 1km of all Elizabeth line stations is higher than the Crossrail Study Area average of 40 per cent for the baseline period.

Population growth was calculated using the ONS database. Growth was more than twice as high around Elizabeth line stations (23 per cent) as in the Crossrail Study Area (11 per cent) over the baseline period.

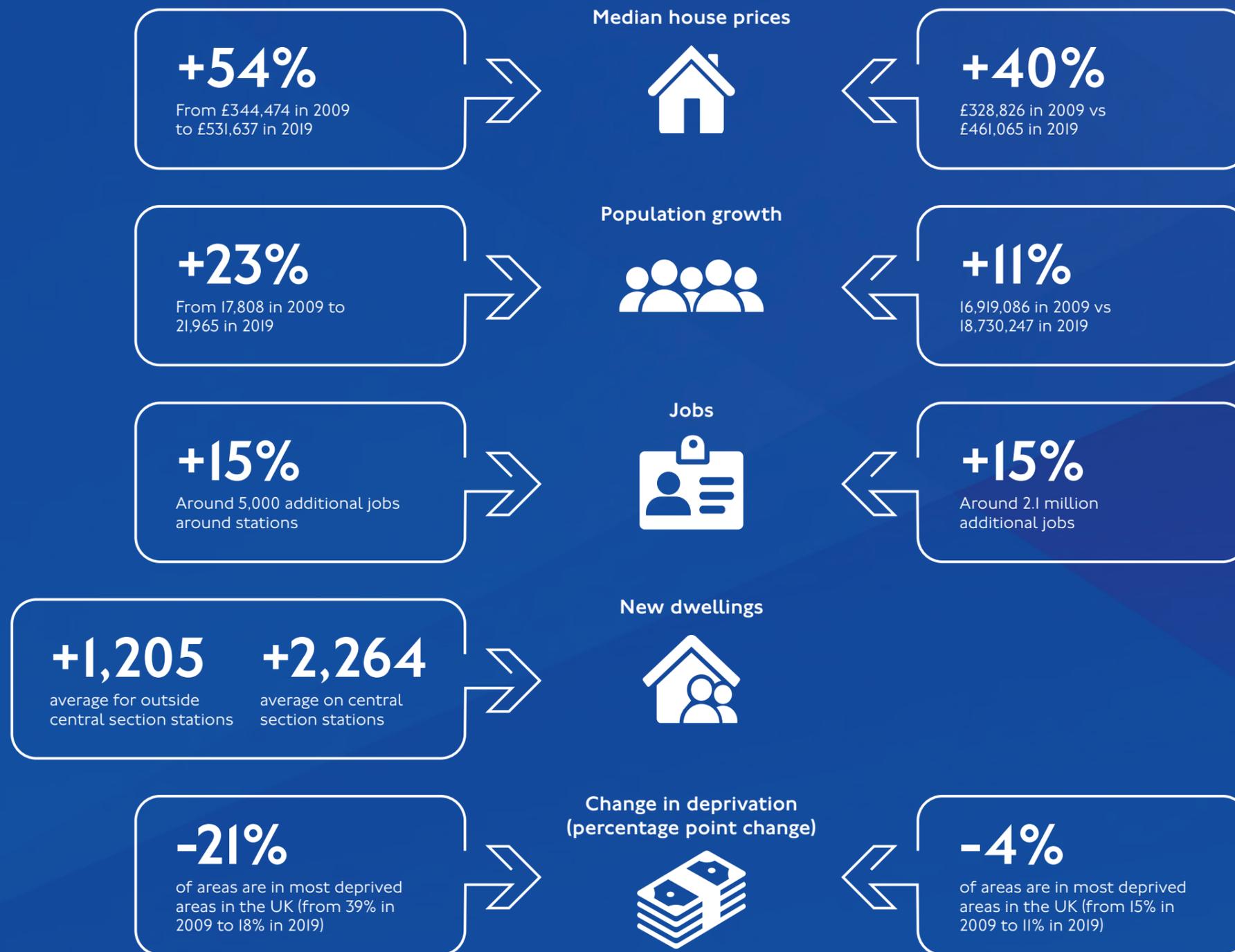
The changes in the number of jobs within 1 km of all Elizabeth line stations were taken from the Business Register and Employment Survey database. In this case, both the Crossrail Study Area average and Elizabeth line station average were showing 15 per cent growth.

Total commercial floor space leased was calculated using data from CoStar, the commercial real estate information company. It is important to note that this metric shows the aggregate amount of floor space leased for the whole 2009-2019 period. This provides an indication of the relative size of the local commercial market around stations. It does not account for occupancy levels, and so therefore should not be judged as an indicator of the strength of the local market.

Deprivation levels were calculated using the Index of Multiple Deprivation (ONS), which measures deprivation of income, employment, access to education, health and the living environment.

Average 1km around Elizabeth line stations

Average for the Crossrail Study Area (80km radius around Charing Cross station)



Slough

Improved connectivity to London may provide a step-change in Slough's attractiveness to both businesses and residents

Slough is known for its technology sector, and is the home to both start-ups and multinational companies such as O2, Telefonica, Mars and the Fiat Group. ONS data shows that, in 2018, Slough had the highest Gross Value Added per worker in Britain, and in 2019 the town had the fourth highest number of start-ups per 10,000 of the population.

This is supported by a diverse, young and well-educated workforce. According to 2020 ONS data, 55 per cent of the Slough population was born outside the UK, compared to 37 per cent across London. A total of 31 per cent are aged under 19, and only 10 per cent are over the age of 65. Education standards are particularly high at GCSE level, with around 74 per cent of pupils achieving five 9-4 grades in 2019.⁵

A key limitation of Slough's growth is its public transport connectivity. When comparing Slough's public transport accessibility levels to the 33 London boroughs, Slough ranked 33 out of 34 in 2018.⁶ The Elizabeth line will play a critical role in increasing connectivity and providing a step-change in the town's attractiveness to both businesses and residents.

Slough is served by GWR and TfL Rail services into Paddington. After opening, there will be four Elizabeth line trains every hour in each direction, increasing to six at peak times. Passengers will be able to travel through central London, through the West End and the City, without having to change trains, and the new railway will provide significantly more capacity.

To prepare for the opening of the Elizabeth line, the Crossrail On Network Rail programme made improvements to Slough station, including a new ticket hall, a platform expansion and improved wayfinding to enhance customer service. The track and signalling modifications will benefit other types of trains as well.

Crossrail Ltd and Slough Borough Council worked together to develop the area beyond the station's boundary, providing additional public realm and pedestrian access. The Elizabeth line and the improved station are part of the borough's Heart of Slough regeneration project. The project has involved a complete redevelopment of the town's bus station, a new library and cultural centre, a revitalised shopping centre, and road improvements to enhance the pedestrian environment. The project brought more than £400m of investment into Slough, and is delivering new homes and workspaces as well as public realm improvements.⁷



Slough's connectivity will be hugely boosted by the Elizabeth line

'Maybe Crossrail could start to reverse that trend of people moving into London, because they can locate themselves in places like Slough and have the accessibility that they need, both for their staff and for connecting with other businesses.'

Developer in Slough

5 Centre for Cities, 2019

6 Slough Borough Council, 2018

7 Slough Borough Council, 2021

Some early impacts of the Elizabeth line could be identified during the pre-opening baseline period (2009-2019). The evaluation found that the transformation of the 1km area around the station had started. There were increases in population and median house prices close to the Elizabeth line station averages. The decrease in the level of deprivation was much higher than average around Slough: in 2009, 27 per cent of the area around the station was among the 20 per cent most deprived in the UK, and this decreased to nine per cent by 2019. The changing demographic of the area and the Heart of Slough regeneration project led by the local council may both have had an impact.

The number of jobs within 1km of the station decreased during the baseline period by around 6,000 – this runs counter to the average Elizabeth line station’s increase of around 5,000 jobs. Our analysis identified that the bulk of the job losses took place in industrial premises and high street shopping areas around the station, where the ongoing Heart of Slough project involves significant changes of use, while the overall number of jobs in Slough did not change significantly. This suggests that the prospect of the Elizabeth line opening did not reverse ongoing economic trends around the closure of factories and transformation of high streets.

More than 2,400 new dwellings were completed during the baseline period. While this is significantly higher than West Ealing or Abbey Wood, it is still close to the average figure for the outer stations of the railway.

Summing up, the area around Slough station saw significant change during the baseline period, with a shift from employment to residential uses. Population and median house prices increased, while levels of deprivation fell, and job numbers reduced in the area in line with ongoing economic restructuring.

1km around the station

Median house prices



Population growth



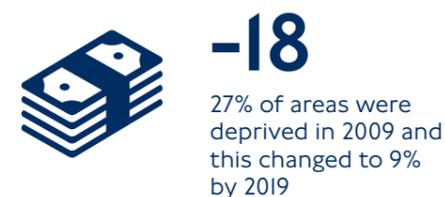
Jobs



New dwellings



Deprivation (percentage point change)



West Ealing

No significant changes observed for West Ealing, potentially due to existing strong local character

West Ealing is a district in the London Borough of Ealing. The borough famously wears the title 'the queen of the suburbs' and, true to its name, has a lot of green spaces and pleasant, low-density residential development. The area around the station comprises mainly early- to mid-20th century terraces and semis, interspersed with relatively low-rise post-war estates.

The population is ethnically diverse, with 53.5 per cent identifying as Black, Asian or minority ethnic, compared with 40 per cent

across London. In particular, the borough is home to large South Asian, Irish and Polish communities, reflected in the different types of retail, food and community facilities in Ealing.

In the absence of the Elizabeth line, most routes from West Ealing to central London require passengers to change during their journey, which increases their travel time and decreases reliability. There will be frequent Elizabeth line services eastwards to the West End, City and beyond, and westwards towards Heathrow, South Buckinghamshire and Berkshire. The journey from West Ealing to Farringdon will be cut by approximately 16 minutes.

The Crossrail construction programme brought a restructured station for the local community, to support the expected growth in passenger numbers. In addition to public realm improvements, the station gained a new entrance, ticket hall and widened step-free fully accessible platforms.

Our evaluation found that many indicators were relatively less impacted during the baseline period compared to other locations. Although house prices increased by 44 per cent and 994 new dwellings were completed, these figures were lower than the average figures for the area 1km around all other Elizabeth line stations (at 54 per cent and 1,205, respectively). A potential reason behind this is a lack of availability of land around the station, combined with the existing strong local character, and also that the announcement of Crossrail was not accompanied by local planning policy changes.



West Ealing station is benefiting from restructuring work

1km around the station

Median house prices



+44%

£426,209 in 2009
vs £615,170 in 2019

Population growth



+1%

25,498 inhabitants in
2009 vs 25,813 in 2019

Jobs



+830

12,470 in 2009
vs 13,300 in 2019

New dwellings



+994

During the baseline
period (2009-2019)

Deprivation (percentage point change)



0%

20% of areas were
deprived in 2009 and
this did not change
by 2019

Paddington

A successful transformation, with the Elizabeth line to bring more benefits to the local community

Paddington is the main entry point to London from Heathrow, Wales and the west of England. Due to its canal and railway connections, the area was a commercial transport hub through the 20th century, and has been revitalising its offer since then.

The City of Westminster is at the heart of London's economy, although parts have persistently high unemployment and deprivation levels. Employers in the Hyde Park ward, where Paddington station is located, employ roughly 30,000 people, and the Paddington Now business improvement district has been seeking to develop the local workforce and business base, and to enhance the neighbourhood as a place to live, work and visit. The arrival of the Elizabeth line is expected to strengthen the area's profile.

While Paddington station already provides transport connections to GWR, Heathrow Express, TfL Rail and the Bakerloo, Circle, District and Hammersmith & City lines, the Elizabeth line will dramatically increase transport capacity and links to the West End, City and Canary Wharf. The Elizabeth line service will provide 24 trains per hour, and reduce travel time to Farringdon by seven minutes. The Elizabeth line and Paddington's connection to Heathrow Airport will make the area one of London's key transport hubs.

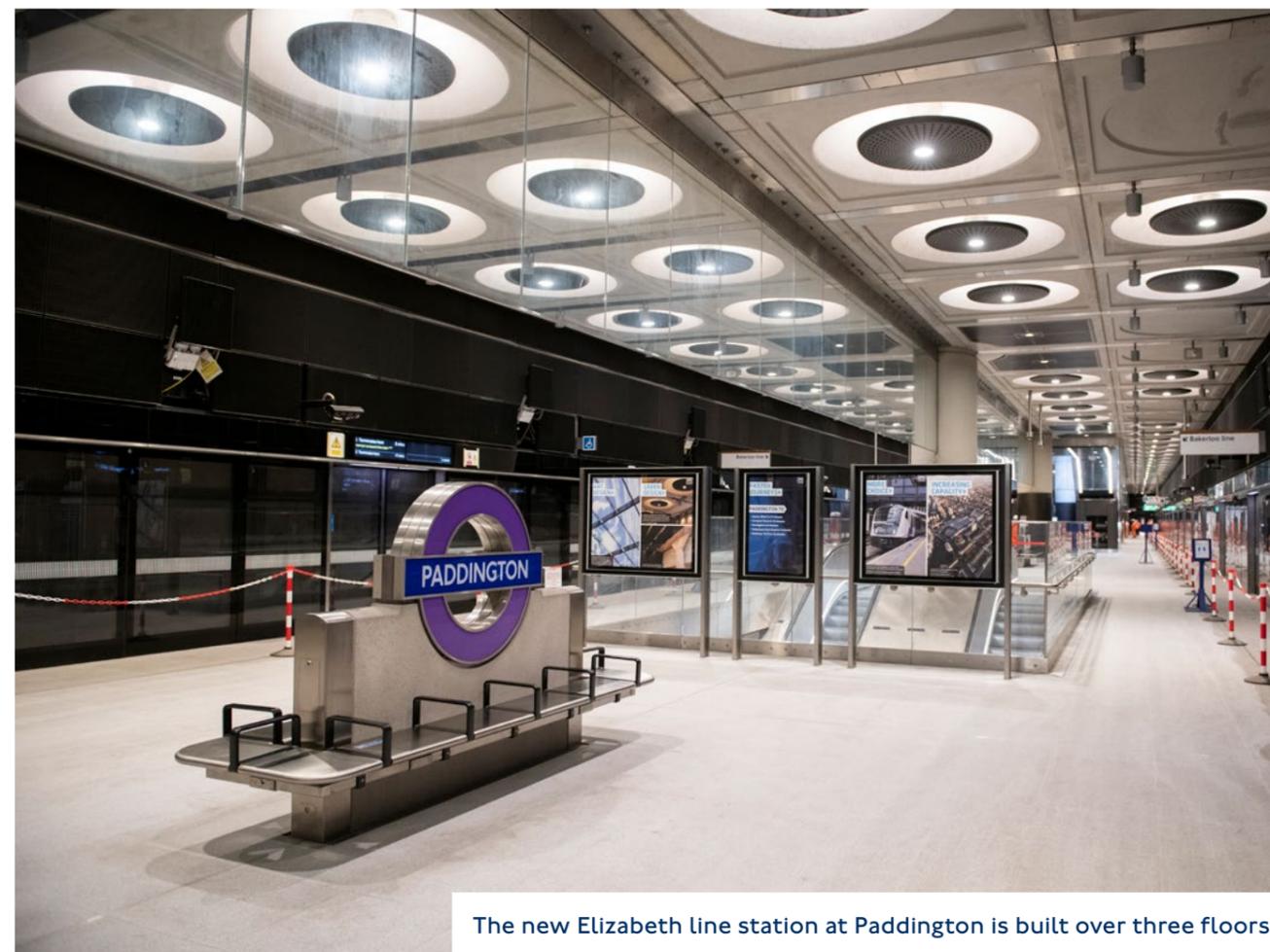
Paddington is one of 10 Crossrail locations where a completely new station was built – it is laid out over three floors and has two entrances. The new pedestrianised entrance is on a stone-paved street with benches, shops and cafés, creating a new public space and a commercial destination in itself. There are also new customer information screens and ticket hall.

In addition to this, Crossrail Ltd has partnered with Westminster City Council

to improve the area around the station. Paddington is a key site for redevelopment and has seen significant transformation in recent decades. One example of this is the 185,000 square metres of mixed-use construction that spreads across 32 hectares surrounding the station and the Grand Union Canal Basin. The 2021 London Plan designated Paddington as an Opportunity Area for new housing and commercial developments.

'If you have well-designed stations that are integrated with the surrounding area and are designed with the right capacity and in a way to stimulate growth, you will get additional development around those stations.'

Local authority employee in Paddington



The new Elizabeth line station at Paddington is built over three floors

The Elizabeth line will act as driver for change in the area, thanks to increased connectivity to Heathrow Airport and central London, and the availability of developable brownfield land.

The area experienced intense activity during the baseline period, with a substantial increase in local jobs. There were 12,000 additional jobs, providing more than 60,000 jobs within 1km of the station by 2019. Many of these are likely to be due to the continued development of Paddington Basin, and have been made possible by a higher-than-average increase in floor space leased relative to Zone 1 Elizabeth line stations (325,000 square metres).⁸ Moreover, high-profile new developments such as the Paddington Cube, designed by Renzo Piano, and 4/5 Kingdom Street are well-placed to support growth in the future.

In addition to jobs, population has increased during the baseline period. More than 52,000 people lived within 1km of the station by 2019, a 20 per cent increase from 2009. This increased demand was also reflected in house prices: the 51 per cent increase (broadly in line with that around other Elizabeth line stations) meant that, by 2019, the median price had reached almost £1m, nearly double the median house price along the railway (£536,000). However, challenges remain for the area.

Deprivation levels remained unchanged during the period of analysis (19 per cent of the area being considered as deprived) and Westminster City Council has yet to deliver its target of 1,000 homes a year across the borough. During the baseline period, more than 1,900 homes were delivered in the area 1km around the station, still below the central section average of 2,264.

Long-term regeneration planning has borne fruit at Paddington. The area strengthened its position as an employment and residential hub during the baseline period, and Crossrail's construction may have contributed to this change. However, the lack of improvement in levels of deprivation suggests that the community as a whole has yet to see the benefits of the railway, aside from the growth in economic activity.

1km around the station

Median house prices



Population growth



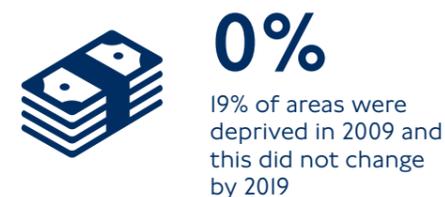
Jobs



New dwellings



Deprivation (percentage point change)



⁸ Based on data collected from CoStar real estate information company

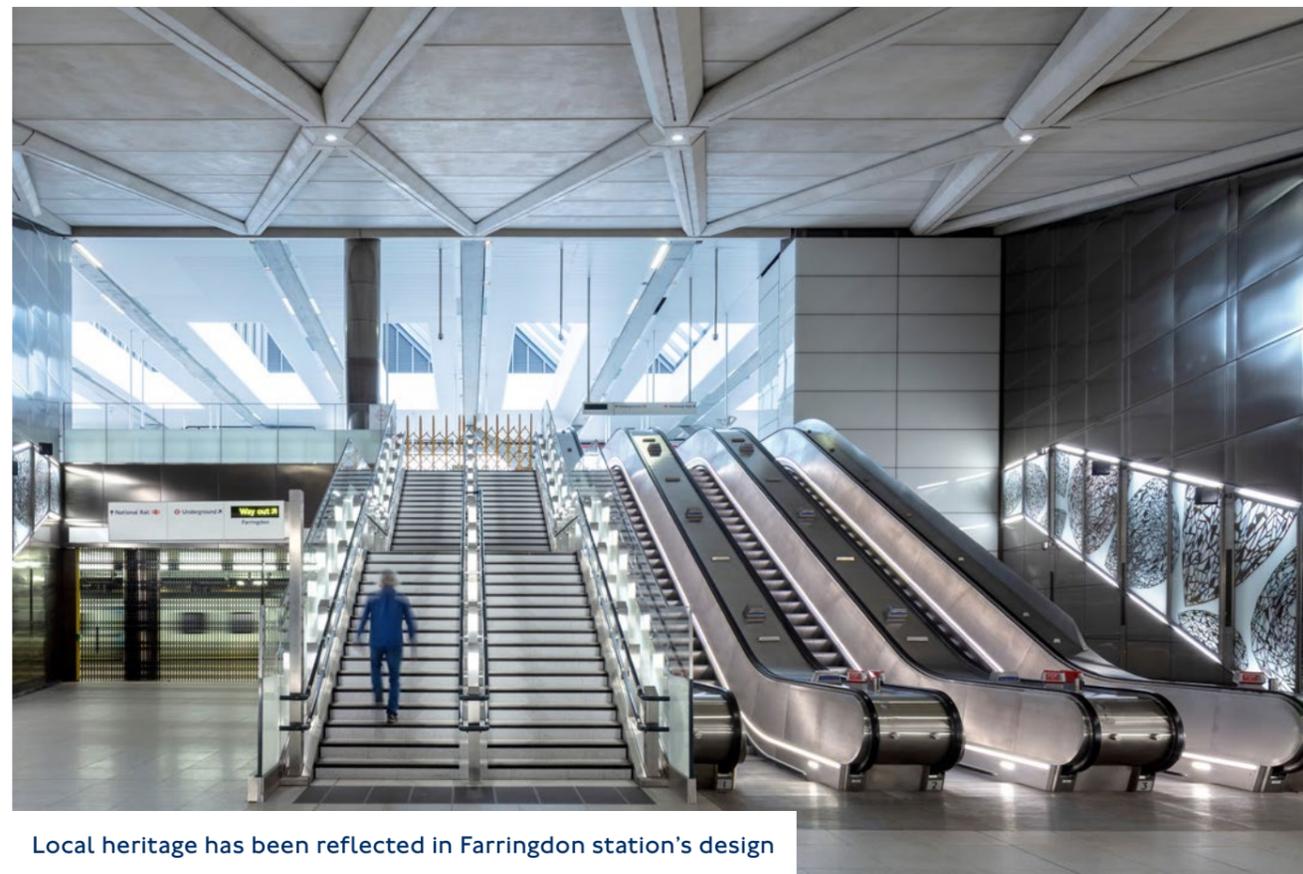
Farringdon

Set to become one of Britain's busiest railway stations, with both the business and residential communities potentially benefiting

Farringdon station borders the London boroughs of Islington, Camden and the City of London. The area around the station is a hotspot for professional services firms, and creative sectors such as design and architecture, as well as the jewellery cluster in Hatton Garden. The station is in the northwest corner of the Culture Mile – the area from the Barbican to Smithfield that is seen as a lively cultural hub – and will be near the relocated Museum of London at Smithfield. The London Plan highlighted Farringdon and Smithfield as areas of cultural and creative activities in London.

As the area around the station services a growing number of workers, visitors and residents, the new Elizabeth line station is poised to accommodate further growth. The Elizabeth line will lead to an increase in passenger numbers, linking outer London, the home counties, the City of London and most of London's airports with Farringdon's connections to the London Underground, and the only interchange with Thameslink. This will make it one of the busiest transport hubs in Britain, with a total of 140 trains per hour.⁹ Passengers will be able to travel from Paddington, Heathrow or Reading in the west to Shenfield or Abbey Wood in the east, with an Elizabeth line train every two and a half minutes during peak hours.

⁹ <https://www.crossrail.co.uk/news/articles/minister-sees-britains-new-busiest-station-take-shape>



Local heritage has been reflected in Farringdon station's design

The new station was designed to reflect the heritage of goldsmiths, watchmakers, ironmongers and blacksmiths of Farringdon, Clerkenwell and Smithfield, as well as the Barbican Centre's architecture. Underground platforms link two new ticket halls, and a new pedestrian priority plaza has also been constructed. This plaza has trees, benches and widened footways to support high passenger flow.

Alongside Crossrail, Islington Council and the City of London have worked together to improve public realm around the station. Given the range of station users – from commuters to clubbers – improving public space to make the area more accommodating for all was a key priority.

The Elizabeth line and Thameslink are expected to help the area further grow its visitor and residential economy, as well as supporting continuing economic change.

'Because it is the best-connected station in London, it just means that you can have ventures like the Museum of London or other art galleries or cultural events here, which will be really wonderful as an uplift for that soft value rather than just boring offices.'

Business owner in Farringdon

Commercial and business activity over the baseline period confirmed Farringdon's place as a major employment hub for London. More than 3.2 million square metres of commercial floor space was leased¹⁰ (930,000 square metres more than the average for other central section stations) and 20,000 additional jobs were created, bringing total jobs in the area 1km around the station to more than 150,000.

This large increase in business activity was accompanied by a huge increase in population. Nine thousand new residents constituted a 35 per cent population increase – they were housed in both new build properties and converted former light industrial and other commercial premises. In all, around 2,450 new dwellings were delivered from 2009-2019. Our econometric analysis found that, of the 41 per cent increase in median house prices around Farringdon during the baseline period, four per cent can be directly attributed to the announcement of Crossrail.

During the same period, the area's employment sectoral split changed significantly, with jobs related to retail, accommodation and arts and culture experiencing the fastest growth – from nine per cent to 15 per cent of all jobs in the area, an additional net 10,500 jobs in these sectors. At the same time, jobs in finance and public administration were the only sectors with a net absolute decrease.

The changing nature of this area was also shown by the reduced levels of deprivation by 2019. Twenty-seven per cent of the area around the station was considered deprived in 2009, and this decreased to seven per cent by 2019 – a sizeable 20 percentage point decrease over 10 years.

During the baseline period, the local business and residential communities have experienced a range of benefits, with the Crossrail programme potentially contributing to this change. The business base expanded, while Farringdon also successfully rebranded itself as an emerging cultural hub. At the same time, the number of residents has grown and house prices have increased – this, combined with economic growth, has helped to reduce levels of deprivation in the area.

1km around the station

Median house prices



Population growth



Jobs



New dwellings



Deprivation (percentage point change)



¹⁰ Based on data collected from CoStar real estate information company

Whitechapel

The Elizabeth line will bring both immense opportunity and gentrification pressure

Situated in the London Borough of Tower Hamlets, Whitechapel sits between the City of London and Canary Wharf, and is also one of the capital's most diverse and creative areas.

The area's unique culture has been 'influenced by the waves of migrants that have lived and continue to live in the area'.¹¹ Fifty-nine per cent of Whitechapel residents are from Black and minority ethnic groups, compared with 40 per cent across London. The presence of the Royal London Hospital strengthens Whitechapel's

economic aspiration to become London's new home for life sciences. Small and medium-sized enterprises have been driving the area's growth, which includes the expansion of financial services, the growing tech and creative economy around Shoreditch, and the dynamic diversity of Whitechapel Market and Brick Lane.

With the opening of the Elizabeth line, Whitechapel station will be a key interchange for passengers travelling on the District and Hammersmith & City lines, and the London Overground, with 24 trains per hour in each direction at peak times. As well as intra-London links, regional connectivity will also be improved as the

journey time between Whitechapel and Farringdon will be cut by six minutes.

Whitechapel station is one of the most ambitious architectural projects along the railway. The existing heritage station was preserved, and a new ticket hall and concourse were built above the London Overground tracks. All services were made accessible through step-free interchanges from the new concourse, which has a green roof, providing numerous environmental benefits, including improvements to air quality, noise and biodiversity.

The new Elizabeth line station design has the potential to contribute to Whitechapel's ambition to expand its centre by 50 per cent (Whitechapel Vision masterplan¹²) by opening up the area behind the station and creating a new natural link between the north and south of the station.

Crossrail Ltd also set out plans alongside the London Borough of Tower Hamlets to redevelop public realm around Whitechapel. Nearby Court Street was pedestrianised with new pavement lighting and CCTV surveillance, and a widened pavement on Whitechapel Road linked the station to the Royal London Hospital. Works at Durward Street have reduced car parking and removed the bus stand to create an improved public environment.

'You probably wouldn't have seen the level of investment in this area as quickly without Crossrail. I think it would have come, but it's probably accelerated it. I think it would have still got there.'

Developer in Whitechapel



Whitechapel station's green roof offers environmental benefits

¹¹ London Borough of Tower Hamlets, 2015

¹² [Whitechapel Vision Masterplan, London Borough of Tower Hamlets, 2013](#)

The Elizabeth line and other regeneration efforts are rapidly changing the area around Whitechapel. Together with Stratford, the 1km area around Whitechapel station changed the most during the baseline period (2009-2019).

Whitechapel saw the largest decrease in deprivation among all Elizabeth line stations during the baseline period. In 2009, 81 per cent of the area 1km around the station was considered deprived, and this decreased to 44 per cent by 2019. This dramatic change happened in parallel with a 23 per cent increase in the local population, the delivery of around 3,900 new homes and a 52 per cent increase in median house prices. These statistics, and views expressed by local traders, suggest some concern locally about gentrification and displacement. A key challenge for the area in future will be accommodating growth while ensuring that residents reap the benefits of the regeneration – including the opening of the Elizabeth line.

Building on the presence of the Royal London Hospital, the area aims to become a centre for life sciences – a hub of London’s Med City¹³ cluster. A recent study by real estate advisory business Bilfinger GVA highlighted Whitechapel’s unique character, which offers public sector support, business anchors, good transport links and digital infrastructure to become a health hub for the capital and the country. This position will be reinforced thanks to Elizabeth line services.

The transformation started during the baseline period as the share of health sector workers grew from 29 per cent to 45 per cent, with 12,300 jobs created between 2009 and 2019 – this means that two out of every three new jobs were in health. Overall, the total number of jobs increased by 18,000 – a 75 per cent increase compared to 2009.

The community around Whitechapel has experienced some of the largest changes among all Elizabeth line stations during the baseline period. Our results show how the Elizabeth line brings immense opportunity but also challenges to be managed. Rising population and median house prices were coupled with decreasing deprivation levels, which suggests that the local community has been heavily impacted by the new railway. More in-depth analysis is needed to understand whether existing residents have experienced the benefits of the regeneration.

1km around the station

Median house prices



Population growth



Jobs



New dwellings



Deprivation (percentage point change)



‘I’m personally concerned about the market, I really hope it stays. It’s really important that the residents that have been here for generations are not displaced, and are heard, and have a voice – that is a concern for me.’

Local organisation in Whitechapel

‘This area’s great for all the little independent places, and we celebrate that. Lots of entrepreneurs in the East End, so it will be a shame if local independent businesses were being forced out by your bigger chains.’

Local business in Whitechapel

¹³ www.medcityhq.com

Stratford

One of the largest and fastest transformations in London's history

Stratford has become one of Europe's largest regeneration programmes, mainly driven by its location as the home of the London Olympic and Paralympic Games in 2012. A continuous series of investments in public transport, in particular the Jubilee Line extension and High Speed 1, enabled the delivery of the 2012 Games and unlocked further development in the area. In the year of 2020/21, heavily affected by coronavirus restrictions, Stratford station was the UK's busiest railway station, and it was the busiest station on the Tube network outside Zone 1.¹⁴

The station is in one of London's fastest-growing commercial and residential areas, with many higher education, commercial and housing developments rapidly transforming its character. Despite this, Stratford faces significant deprivation issues, particularly related to poor housing and living environment conditions. The London Borough of Newham had the highest number of people furloughed in London – with numbers that equalled the combined total of those furloughed in Kensington and Chelsea, Richmond, Westminster, the City of London and Kingston-upon-Thames.¹⁵

The Elizabeth line is another step towards Stratford's transformation, as the new railway connects to Heathrow Airport and Reading. Stratford's regional connectivity will be significantly enhanced through the Elizabeth line, providing a direct connection to Heathrow Airport within 48 minutes. During peak hours, 12 Elizabeth line trains per hour will travel between Shenfield and central London, all calling at Stratford. Between Gidea Park and Liverpool Street mainline station, an additional four services per hour will run, westward in the morning peak and eastward in the evening.

Since winning the bid in 2005 to host the 2012 Olympic and Paralympic Games, regeneration initiatives in Stratford have rapidly transformed transport, housing, retail and office space in the area. As a result, most works at Stratford station were carried out when the station had already been upgraded for the London 2012 Olympic and Paralympic Games.



Stratford was the busiest UK railway station in 2020/21

¹⁴ Office of Rail and Road, 2021

¹⁵ Towards a Better Newham, Covid-19 Recovery Strategy, 2020

Together with Whitechapel, Stratford experienced the largest changes in all key metrics during the baseline period (2009-2019). Many of these changes have taken place against the backdrop of the 2012 Olympics regeneration efforts, and it is unclear how much of the change has been due to Crossrail.

The population living within 1km of the station has almost tripled, from a fairly low base of 9,500 to 27,000, as a range of large-scale high-rise developments were completed. Median house prices have also increased the most among all studied Elizabeth line stations: the 63 per cent increase is nine percentage points higher than the Elizabeth line station average. As well as the increased attractiveness of Stratford, this is potentially due to a shift towards newer and higher-quality housing stock during the baseline period, which saw more than 7,500 new homes delivered within 1km of the station – by far the highest number along all the railway.

The largest decrease in deprivation levels was also observed around this station. In 2009, 100 per cent of the 1km catchment area of the station was considered deprived. This decreased to 20 per cent by 2019 – an 80 percentage points change in 10 years.

The transformation of the area's housing situation happened hand-in-hand with a rapid expansion in economic activity. The local planning authorities for the area, London Legacy Development Corporation and London Borough of Newham, have set a strategy for the future of Stratford and the surrounding area to capitalise on the growth that has occurred since 2012. Stratford is classed as a labour-attracting area – an area that, according to the 2011 Census, has a considerable difference between the resident and workplace population around the station. The London Plan also identifies Stratford as a potential reserve location for central London office functions.

The number of jobs within 1km of Stratford station almost quadrupled, increasing from 7,400 in 2009 to 29,300 by 2019. This was the largest increase among the case study stations, with growth surpassing even that of Farringdon.

Over the baseline period, Stratford went through one of the largest and fastest social and economic transformations in London's history. The increase in population was accompanied by a dramatic decrease in deprivation levels and a large increase in local jobs – suggesting that, alongside the Elizabeth line construction, Stratford has become an up-and-coming business district, with its importance approaching that of Canary Wharf.

1km around the station

Median house prices



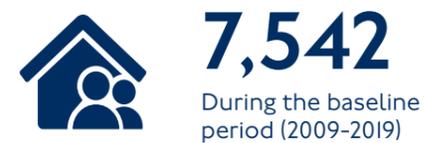
Population growth



Jobs



New dwellings



Deprivation (percentage point change)



Abbey Wood

The area is waiting for the impact of the Elizabeth line to be felt in order to fulfil its potential for regeneration

The areas to the south and north of Abbey Wood station are markedly different. To the south lie protected woodlands that limit development capacity, whereas to the north lie Thamesmead and Plumstead estates, home to more than 50,000 people. 'Thamesmead and Abbey Wood' is classed as an Opportunity Area by the Mayor of London's office in its London Plan, with longstanding deprivation challenges that are being addressed by a series of regeneration programmes.

The opening of the Elizabeth line will provide previously missing reliable high-capacity connections to major employment hubs such as Canary Wharf, the City of London and the West End. A total of 52,000 passengers are predicted each day on the Elizabeth line, and 12 Crossrail trains per hour both ways will serve Abbey Wood. As an example, the journey time from Abbey Wood to Farringdon will be cut by 19 minutes. TfL also plans to connect the area to the DLR network through a tunnel under the Thames as part of its plan to extend the DLR from Beckton to Thamesmead, with a potential extension to Abbey Wood scenario being explored.

Abbey Wood is one of 10 sites where a new station was built, and the station opened to passengers in 2017. Central to the design of Abbey Wood station is a granite-paved pedestrian concourse that connects the station with the flyover, thus considerably improving transport links with local bus services. The station also has easy interchange between the Elizabeth line platforms and Southeastern platforms with stairs, escalators and lifts.

The Elizabeth line station development not only aims to improve transport links, but also to improve the urban realm around the station.

'We've seen big impacts with Crossrail, obviously bringing in more interest in the area for people who want to live here, because the rest of London is all of a sudden a lot more accessible and you can get to it in a short amount of time, which has obviously put us on the map.'

Property agent in Abbey Wood



Abbey Wood station is built to last, with robust natural materials

Abbey Wood and the surrounding area have historically lacked the transport links needed to kickstart large changes to residential and economic growth. The changes in key metrics during the Crossrail construction period were fairly limited.

The number of local residents within 1km of the station increased by only 12 per cent, whereas median house prices increased by 59 per cent. As such, one of the lowest increases in population was accompanied by one of the highest increases in median house prices, which suggests that the expectation of the opening of Elizabeth line stations may have helped drive house prices upwards. Supply was constrained more than in other locations, with only 190 new homes delivered within 1km of the station over the 10-year baseline period. While deprivation levels decreased somewhat, in 2019 roughly half of the area (46 per cent) around the stations was still considered deprived.

Nevertheless, there were a series of new developments starting during the baseline period. Peabody began construction of 1,500 new homes at Thamesmead, as well as new retail units and open spaces connecting the South Thamesmead estate with Abbey Wood station. Beyond this, Peabody and Berkswell proposed redeveloping 17 acres of vacant and inaccessible land adjacent to Plumstead station with high-quality homes and workspaces. Peabody also identified a North Thamesmead site with the potential for 15,000 new homes.

New developments brought new amenities for the local community in the form of a new library, a public square and a supermarket around the station.

Albeit from a low base, the number of jobs within 1km of the station also increased. The 2,000 new jobs translate to a 57 per cent increase during the baseline period, which reflects population growth, and suggests a positive employment trend for the local economy.

Overall, the local community around Abbey Wood station has experienced a change in house prices and jobs that is yet to manifest as a reduction in deprivation during the baseline period. There are signs that the potential of the area may be fulfilled as large-scale developments get under way; however, much of the regeneration dividend remains to be realised.

1km around the station

Median house prices



Population growth



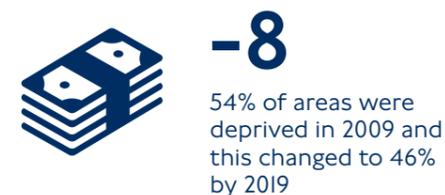
Jobs



New dwellings



Deprivation (percentage point change)



Contributors to the report



