

Elizabeth line: evidencing the value

Benefits framework

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Commissioner's foreword

We were all very excited about the opening of the Elizabeth line in May, a once-in-a-generation stunning addition to our transport network.

The Elizabeth line has transformed travel across London and the South East by dramatically improving transport links, cutting journey times, providing additional capacity, and transforming customer experience with spacious new stations and walk-through trains.

The new line is crucial to London's recovery from the pandemic, helping avoid a car-led recovery by providing new journey options, supporting regeneration across the capital, and adding an estimated £42bn to the UK economy.

We expect the benefits of the Elizabeth line to be deep and broad, and to be felt by many in London and the South East. These benefits will accrue not only to travel and to our customers, but also to our economy, communities, environment and, importantly, the wider UK economy as well.

In this document, we set out how we will gather evidence that the new railway has generated the benefits we expect. This will ensure both that the benefits are realised in full and as soon as possible, and also that we learn important lessons for future major projects in London and elsewhere.

The opening of the Elizabeth line was a truly historic moment for the capital and the UK, and I am delighted that so many customers are already enjoying the service.

Andy Byford
London's Transport Commissioner



Permanent Secretary's foreword

The Government was delighted to welcome the opening of the Elizabeth line. Its investment in the new railway demonstrates its commitment to delivering vital and world-class national infrastructure projects.

From its inception, it was recognised that a project of the scale of Crossrail required a unique partnership between national Government and London leadership. Joint working between the Department for Transport (DfT) and Transport for London (TfL) has been critical to its delivery. The Elizabeth line, delivered by Crossrail Ltd, is a major achievement.

The new railway is already transforming life and travel in London and across the wider South East, connecting local communities across and to the centre of London more quickly than ever before.

The benefits have also been felt much more widely. The construction of the Elizabeth line has already delivered an economic boost across the country – more than 60 per cent of the UK companies supplying Crossrail have been based outside London and the South East.

The Elizabeth line will connect the UK's hub airport, Heathrow, more effectively to London's business and tourism centres. People from across the country and around the world who visit London – for work, leisure or to spend time with friends and family – will enjoy the increased connectivity the new railway brings.

The scale of this project means it is of truly national significance. We estimate it will produce a £42bn boost to the UK's economy. We and TfL cannot simply take these benefits for granted, however. We need to ensure they are delivered, and measure progress in doing so. And we need to do this in a way that sets a new standard for major projects.

This benefits framework will provide an overview of how TfL and the DfT will work with other stakeholders to study the impacts of the Elizabeth line and maximise the benefits to be realised.

The opening of the Elizabeth line is a great achievement. But the opening is not the end of the story. This framework will help to ensure that lessons are captured, and increase confidence that future investment in transport across the country delivers for taxpayers, the public and society.

Dame Bernadette Kelly DCB
Permanent Secretary,
Department for Transport





41 stations, all step-free to platform level, staffed from the first to the last train, with a turn up and go service available to anyone needing assistance




↑ Future growth
capability, with stations built to accommodate an additional two carriages per train

Urban realm
improvements, including better walking and cycling facilities

i Improved
customer information at all stations, including live journey information

Fully integrated 
with the TfL network and interchanges with other services, including Tube, DLR, London Overground and National Rail services

Spacious
walk-through trains, with dedicated spaces for wheelchair users and separate multi-use spaces for buggies and luggage 

New
journey options across central London, cutting journey times to key destinations including the City and Canary Wharf 

Overview

This document sets out the approach TfL will take to:

- Achieve the benefit and outcome expectations set out in the Crossrail business case
- Ensure every opportunity has been taken to maximise the project benefits, and
- Address any disbenefits

The document is divided into three sections:

- The Elizabeth line and its purpose
- Our approach to evaluation and benefits management
- Outcomes, benefits and insights

Key terms

Benefit

A quantifiable and measurable improvement, contributing to an outcome, which is perceived as positive by a stakeholder. Usually brought about as a direct result of the project outputs.

Output

The facility, capability or processes delivered by the project, which will result in the benefits.

Outcome

A change, for example economic or social, which is an aim of the project.

Strategic goal

The broader strategic aim that provides the context for the outcome.

Disbenefit

A result of the project, expected or unexpected, that is seen as negative by a stakeholder. Disbenefits should be tracked in the same way as benefits.



The Elizabeth line and its purpose





The Elizabeth line

The Elizabeth line is the most significant addition to London's transport network in a generation. The new railway will transform life and travel in London and the South East: it will 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. With 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 Elizabeth line will be part of the Transport for London (TfL) network, and will have interchanges with the London Underground, DLR, London Overground and National Rail services and, when fully

open, the railway will increase central London's rail capacity by 10 per cent.

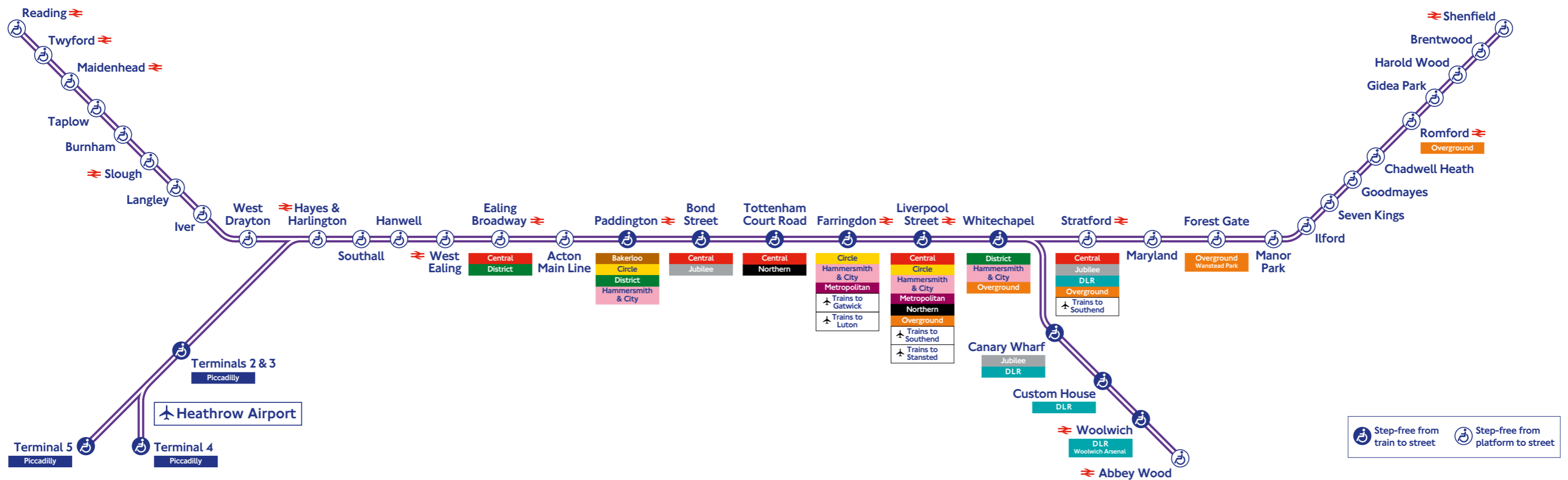
The new railway will be crucial to London's recovery from the pandemic, helping to avoid a car-led recovery by providing new journey options across the capital, and supporting regeneration.

Your new east-west railway

London's newest railway will be an accessible route of 41 stations from Reading and Heathrow in the west, through central London, to Shenfield and Abbey Wood in the east.

When fully open, the Elizabeth line will reduce congestion by increasing central London's rail capacity by 10 per cent, and will bring an additional 1.5 million people within 45 minutes of central London.

It will improve journey times, offer more choice and deliver an accessible world-class experience for millions of passengers each year.



High-frequency services

Once the Elizabeth line is fully open, 24 trains per hour at peak will run between Paddington and Whitechapel. The line will enable new journey options, and make major international gateways such as Heathrow more accessible.

New high-capacity trains

- Nine walk-through carriages
- Space for 1,500 customers
- Air-conditioning
- CCTV, Wi-Fi and live travel information
- Energy efficient

Ten new fully accessible stations

All Elizabeth line stations will be step-free from street to platform, with level boarding at the new stations between Paddington and Abbey Wood, and at Heathrow. A turn up and go service will be available at every station for those who need help boarding and alighting from trains.

31 upgraded stations

- New lifts and footbridges provide a step-free experience from street to platform
- New ticket halls, ticket machines, information screens, toilets and waiting rooms
- All stations staffed from first to last train

The case for the Elizabeth line

Developed over many years as an imaginative and exciting solution to the problems of overcrowded public transport in central London, the Elizabeth line scheme is:

- At the heart of the [Mayor's Transport Strategy](#) and the [London Plan](#)
- Aligned with a range of national policies and objectives, including the [Government's Transport Decarbonisation strategy](#), [Levelling Up policy](#), and [Build Back Better vision](#)

The business case

First published in 2005, the business case for the Elizabeth line has been updated at key milestones since then. It sets out a range of outcomes and significant, wide-ranging benefits for the people of London, the South East and across the UK.

Transport network outcomes

The transport network outcomes comprise:

- Transformative network capacity and connectivity improvements
- Journey time and crowding benefits to users
- Operational capacity and flexibility

Wider economic, environmental and social outcomes

The wider economic, environmental and social outcomes are as follows:

- Regeneration and opportunity, new homes and jobs
- Social and health impacts
- Sustainable growth and development

Major construction projects such as this may give rise to some issues, such as noise and disruption, and considerable effort has been put into minimising these on the Elizabeth line. In addition, the new railway represents a significant transport change, and as such may give rise to unwanted consequences (disbenefits), for example a negative impact on existing communities. These should be avoided if possible, but must be monitored and mitigated if not.



The Elizabeth line and the Mayor's Transport Strategy

The impact of the Elizabeth line is expected to be felt in the three main areas of the Mayor's Transport Strategy.



Healthy Streets and healthy people

- The Elizabeth line will contribute to safer, greener travel in London and the South East, improving air quality and reducing carbon emissions
- Integration with bus services and cycle facilities will encourage more active travel to and from stations, leading to better health outcomes



A good public transport experience

- State-of-the-art trains will run quickly and reliably to accessible stations
- The 10 per cent additional rail capacity in central London brought about by the new railway will reduce congestion on the rest of the public transport network
- The new railway will integrate with other modes, resulting in more people using public transport



New homes and jobs

- Better transport to and from our Opportunity Areas will stimulate local economies and encourage developers and businesses to invest in these areas, resulting in more homes and local employment opportunities
- Improved connections will help people to take advantage of more opportunities for employment and education, reducing social exclusion

The Elizabeth line also enables the achievement of wider policy objectives, including:

- Delivery of live travel information to customers and operational staff
- Improved links between London, the South East and beyond through a new transport hub at Old Oak Common
- Enhanced travel between London, the rest of the UK and international destinations
- Good Growth in the Thames Gateway corridor
- Improved cross-river connectivity, unlocking growth potential

The Crossrail project

Crossrail Ltd, the infrastructure project behind the Elizabeth line, was established in 2005 to deliver the new railway, including the new tunnels and stations.

Crossrail Ltd works closely with industry partners, including Network Rail and Heathrow Airport Limited. The project is jointly sponsored by TfL and the Department for Transport (DfT).

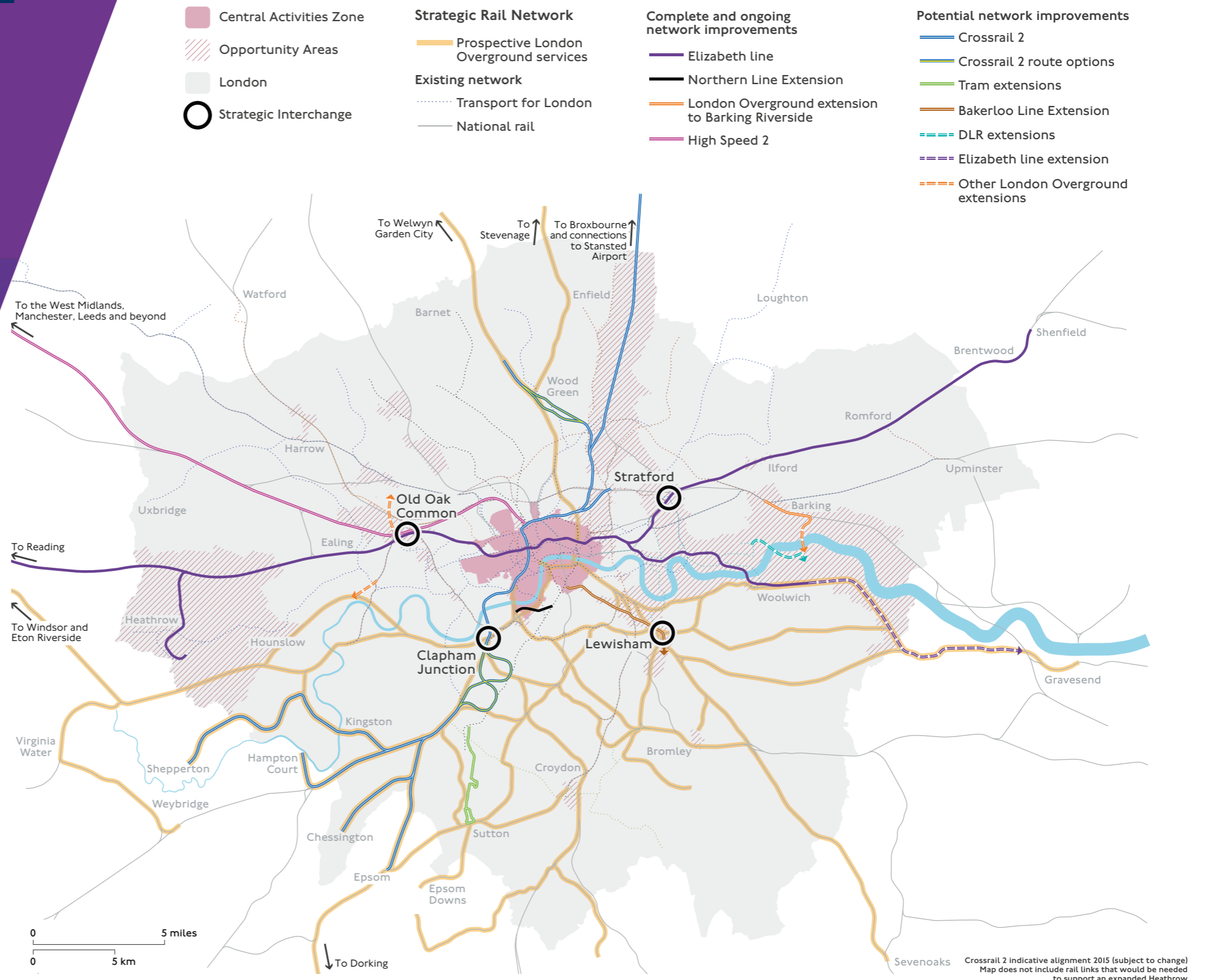
The Elizabeth line will be at the heart of the national transport network, and is being designed to effectively integrate at both the strategic and local network level.



The Crossrail Complementary Measures programme is a collection of smaller schemes around many Elizabeth line stations, mostly delivered by boroughs. These are intended to enhance safety and pedestrian and cycling facilities, and improve interchanges



The improvements are expected to contribute to the regeneration of local communities in the vicinity of the new and upgraded stations, and to remove barriers to the realisation of the benefits of the Elizabeth line



Benefiting businesses across the UK

People in every region across the UK have helped to deliver the Elizabeth line.

The impact of the Crossrail project on the UK economy and employment has shown that businesses from around the UK have benefited from work connected to the delivery of the new railway.

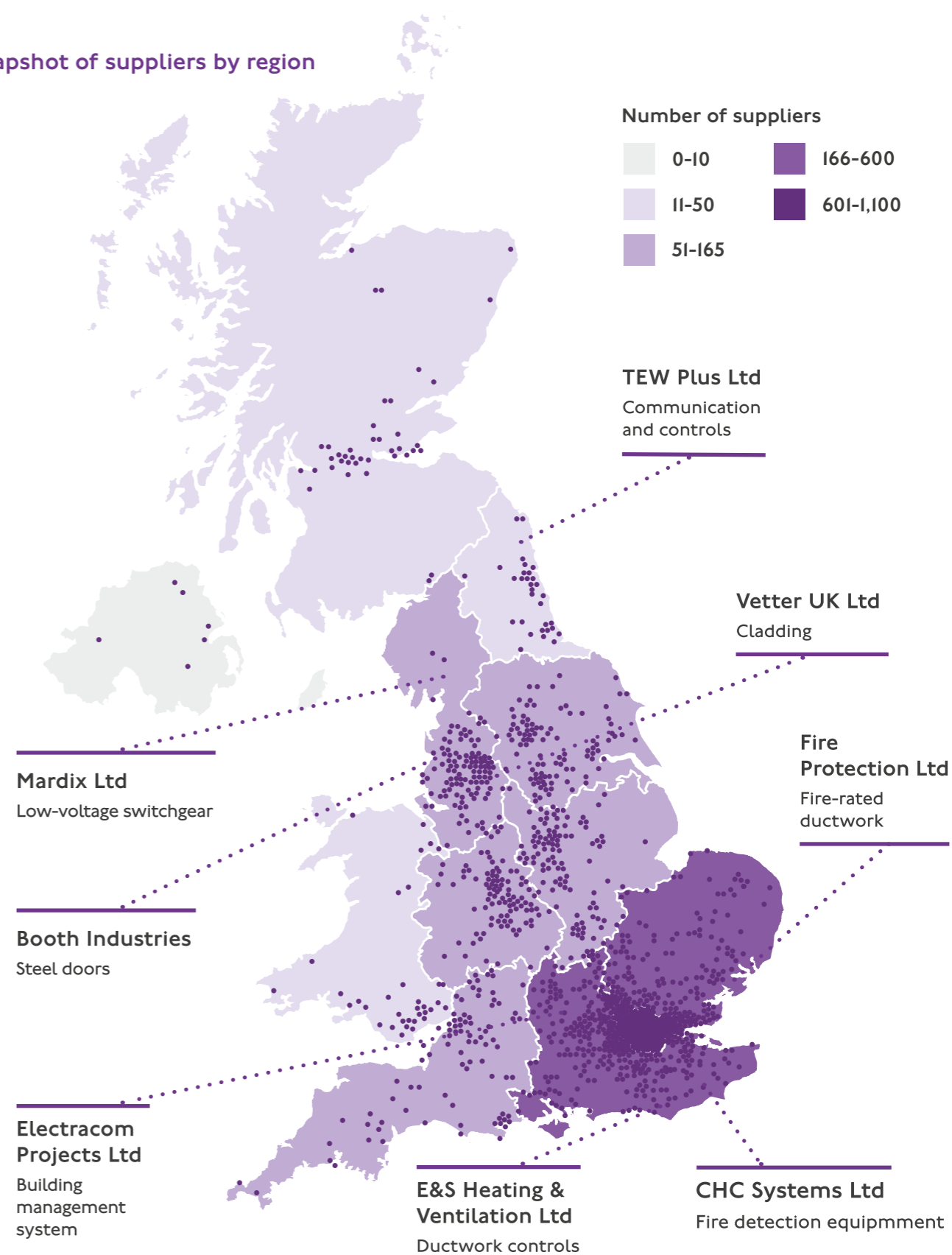
- Ninety-six per cent of contracts awarded went to companies within the UK
- Sixty-two per cent of suppliers were based outside London

- Sixty-two per cent of direct suppliers and 72 per cent of indirect suppliers have been small and medium-sized enterprises

During construction, the Crossrail project has supported thousands of jobs all around the UK. It has trained a new generation of engineers in tunnelling, underground construction and railway engineering through the purpose-built academy in Ilford. It has recruited more than 1,000 apprentices, injecting new talent into the construction industry. Hundreds more will be employed by TfL, MTR Elizabeth line and the wider supply chain in the operation and maintenance of the new railway.



A snapshot of suppliers by region



Work continues once the railway is fully operational

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 (TBM) tunnelling 42km of new rail tunnels between 2012 and 2015. Further works on stations, platform tunnels, shafts and portals continued after TBM tunnelling 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.



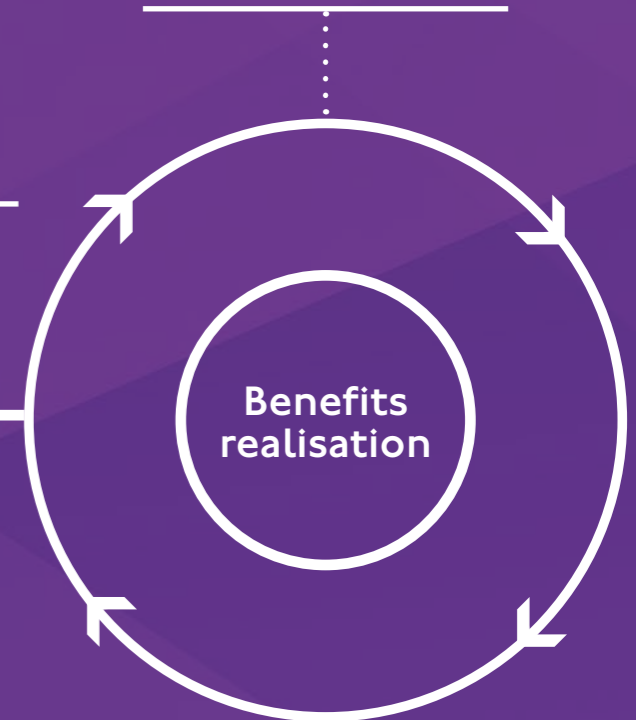
Project and outputs delivered



Benefits/outcomes analysed, progress evaluated

Benefits realisation

Optimisation activities with partners





**Our approach to
evaluation and
benefits management**



Why are we managing benefits and evaluating impacts of the Crossrail investment?

Understanding the benefits and outcomes of Crossrail and the Elizabeth line will enable us to:

Maximise the return on investment

- Manage what we have direct control of, including optimising the railway's operation and services
- Intervene if benefits are not being realised
- Influence partners to maximise wider opportunities for regeneration, and environmental and quality of life improvements

Demonstrate value for money

- Showcase to the public and our funders what their money has delivered to London, the South East and across the UK
- Build evidence on the economic and social impacts of transport investments
- Respond to public scrutiny on the investment case, including the National Audit Office, London Assembly Transport Committee and Public Accounts Committee

Learn important lessons

- Inform ourselves and a wide range of stakeholders about the economic, social and transport contributions being made by the Crossrail investment
- Inform future policies, investment programmes and land use planning decisions

It is valuable for us to understand and document if and how we delivered the benefits we set out to achieve with our investment.

While there is often information available about the transport impacts of rail projects, a [2021 review by the What Works Centre for Local Economic Growth](#) found: 'There are notable gaps in the evidence on the local economic impacts of rail investment. We need more evidence from the UK of the effects on employment, number of businesses, property prices and the composition of residents. We also need more evidence on impacts on commercial property prices and land use'.

The approach outlined in this document seeks to address these gaps.



Our approach

TfL is responsible for realising the direct transport benefits of the Elizabeth line. We will work with a broad range of stakeholders, including business groups and local authorities, to ensure that the wider benefits are also optimised.

Two exercises will take place:

Benefits management and optimisation

- Tracking indicators to draw an early picture of how well the railway is performing against our expectations
- Focusing on information needed to take any necessary action to ensure we realise the benefits in full and on time

Evaluation

- Working with partners to analyse those impacts of the Elizabeth line that will take longer to emerge, such as transport mode shift, economic growth and other social impacts
- Examining the return on investment offered using actual observations of benefits

It is more than 20 years since the project to design and construct the Elizabeth line began. In that time, the thinking around best practice for evaluating the success of projects and for managing project benefits has developed significantly. As a result, our approach has evolved over the course of the project.

Alignment with best practice

Our benefits management approach aligns with industry best practice, with clarity about:

- The relationship between the project outputs and the benefits (and disbenefits) being monitored
- The responsibilities and accountabilities for gathering and analysing data

- The process for recommending and deciding upon courses of action to ensure benefits are realised in full and on time

Our impact evaluation has been developed in collaboration with colleagues in central Government, and aligns with the [Government's Magenta Book guidance](#) for evaluating the success of projects and policies.

Benefits management and optimisation

The two key questions are as follows:

- **Is the railway performing as we expected?**
- **What can we do to make sure we are realising the benefits?**

TfL, working with the DfT and a range of other stakeholders, is setting out a series of performance indicators and measures (see pages 24-25) to enable an early picture to be drawn of how well the railway is performing against our expectations.

We will track the metrics and, where necessary and achievable, action will be taken with operational and service planning colleagues, with the GLA and local authorities and with other stakeholders as appropriate. In this way, we will manage underperformance and ensure that benefits are realised in full and as quickly as possible.

Some optimisation activities may include:

- Marketing, in cases where the public are not aware of the opportunities offered by the railway
- Re-planning connecting services to improve access
- Assessing changes to stations and facilities to address under-performance or access issues

We will keep the opportunities under review to respond effectively.

Benefits profiles

Each of the benefits we plan to measure will have a documented 'benefits profile', setting out:

- How, when and by whom the benefit will be measured
- Any known risks and mitigations to realising the benefit
- Details of who owns the benefit and who is accountable for realisation
- Timeline of when we expect the benefit to be realised (if possible)

Evaluation

The main question is:

- **What effects is the railway having?**

London's transport system and economy are complex and ever-changing. It can be challenging to distinguish the effects of a single factor – even one as large as the Elizabeth line – from other general background change. We will therefore be working with external analysts to produce two thorough and robust studies:

First post-opening study (2022-2024)

Transport effects of the new railway, including:

- Mode shift from cars to public transport
- Relief of congestion on the public transport network and the road network, and
- Implications for pollution, carbon use and the change in journey patterns in and around London

The study will consider the integration of the new railway with other transport service modes, including bus and cycle networks, helping us to understand its role within a larger sustainable transport network in London and the South East.

This study will be published around two years after the opening of the Elizabeth line.

Second post-opening study (2024-2027)

Broader social and economic effects of the Elizabeth line, including:

- Effect of improved connectivity on new homes and jobs
- Changing patterns of employment and land use
- Residential and commercial property prices
- High street activity, and

- Environmental impacts

The study will look at the positive and negative impacts on the communities affected by the new railway.

These wider economic, social and environmental effects will take longer to emerge and this second study will be published around five years after the opening of the Elizabeth line.

Evaluation: Overall value for money

One way of examining the return on investment offered by major projects is to calculate a benefit-cost ratio – a common way of expressing the project's 'value for money'. This is arrived at by calculating a monetised net value of the benefits and disbenefits that will arise over the project's many-decade lifetime and comparing this figure (or range of figures) to the total cost of implementing the project and operating the railway.

As costs have changed through the course of project delivery, we continue to assess the project's value for money. We still expect the Elizabeth line to represent good value for money – in other words, the value of its benefits will significantly outweigh its costs.

TfL will re-assess the benefit value after scheme implementation and in light of the evaluation studies, to update understanding of its value for money, and the accuracy of our forecasts and expectations.

Value for money

Identifying Crossrail's actual return on investment

Benefits in £ to be used to identify benefit:cost ratios

Transport network outcomes

Including:

- Journey time savings
- Crowding and ambience benefits
- Wider network effects arising from mode shift to rail

Wider outcomes

Including:

- Social benefits from increased active travel and improved transport connectivity
- Environmental benefits from fewer and reassigned car trips, and from sustainable life/work behaviours
- Economic benefits from additional jobs





Governance – steering this work and overseeing its outputs

A Benefits Forum was initiated in 2021 to assess the early indicators of the Elizabeth line's success. Drawn from TfL, the DfT and other partner organisations such as the GLA and local authorities, the Forum brings together those accountable for realising the Elizabeth line's benefits with those responsible for analysing and understanding the measures and indicators.

The Benefits Forum will continue to analyse the performance metrics and other data and will report to TfL leadership on progress towards our expectations. Where relevant, the Forum may propose any actions necessary to optimise the benefits.

Benefits Forum workstreams

Capacity, connection and growth

The value delivered to our communities and stakeholders. Initially, this means monitoring increased capacity and better connections; in time, it will mean understanding the impacts on the economy, society and the environment.

Accessibility, inclusion and customer satisfaction

Feedback from our customers on their experience of travelling on the new railway, which must be as accessible and inclusive as possible.

Journey time, performance and financial sustainability

Operation of the new railway and whether service performance and use are at the expected levels.

Outcomes, benefits and insights



Benefits monitoring and evaluation: insights

In this section, we outline the:

- Key benefits, and the measures being monitored
- Relationships between outputs, benefits and outcomes
- Challenges of how we will gain insights

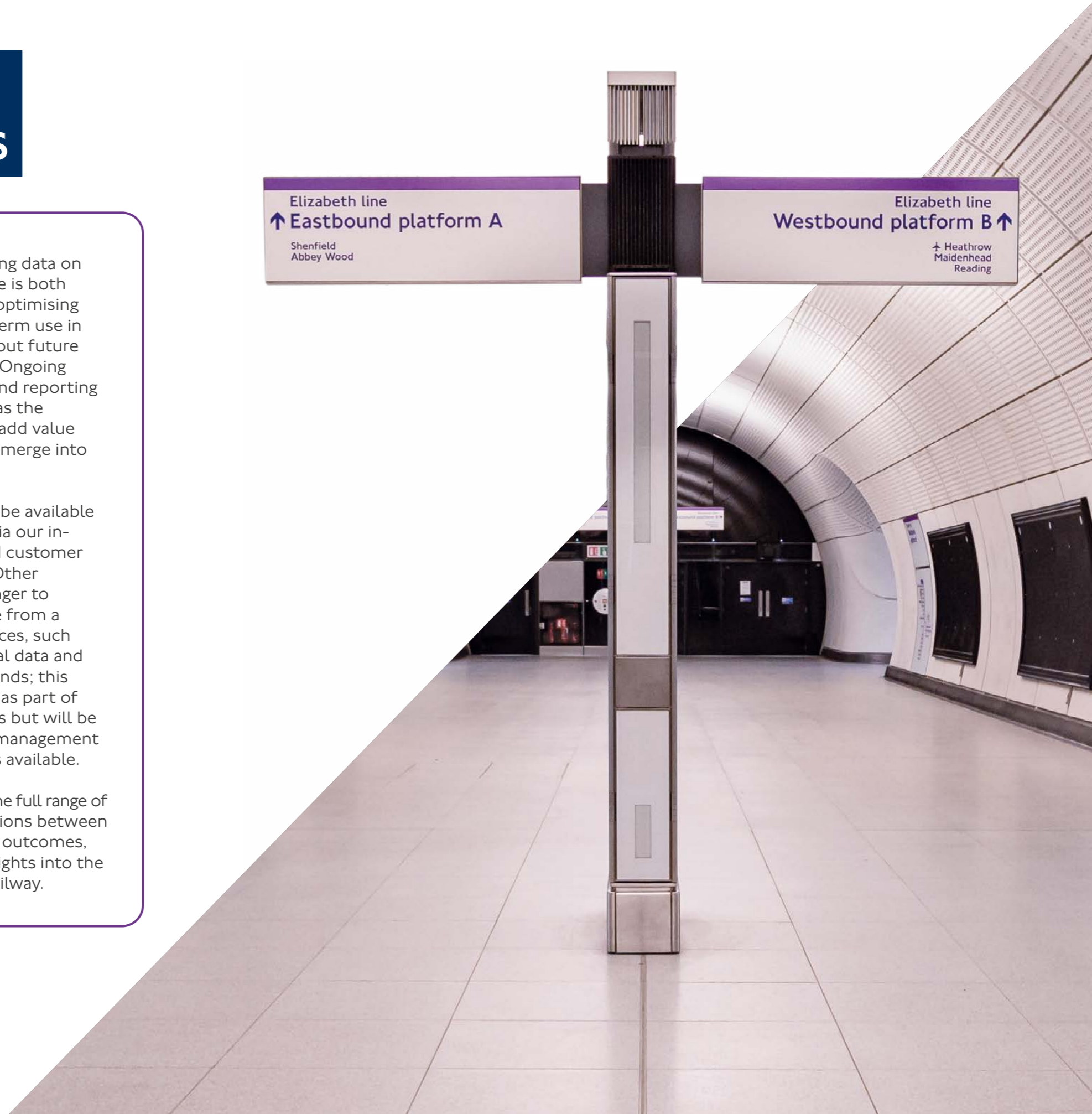
Gathering and assessing data on outcome performance is both for immediate use in optimising benefits, and longer-term use in informing thinking about future policies and projects. Ongoing benefits monitoring and reporting will continue as long as the activities continue to add value – eventually they will merge into business as usual.

Some of the data will be available quickly, for example via our in-house monitoring and customer feedback processes. Other elements will take longer to emerge and will come from a broader range of sources, such as economic and social data and longer-term travel trends; this data will be collected as part of the evaluation process but will be fed into the benefits management process as it becomes available.

Taking a wide view of the full range of data, and the connections between outputs, benefits and outcomes, will offer the best insights into the impacts of the new railway.

Elizabeth line
↑ Eastbound platform A
Shenfield
Abbey Wood

Elizabeth line
Westbound platform B ↑
Heathrow
M Maidenhead
Reading



Crossrail: outputs, benefits and outcomes

Outputs: what was delivered



New railway connecting Reading/Heathrow with Shenfield/Abbey Wood through central London



New trains, with up to 24 trains per hour



Step-free access to platforms at all stations



Stations staffed from first to last train



New stations and facilities

Benefits: measurable improvement as a result of introducing the outputs

Intermediate benefits

- Economy stimulated in affected areas
- Improved public realm
- Increased transport capacity
- Increased station accessibility
- Increased public transport ridership
- New homes and jobs
- Mode shift to sustainable modes
- Digital support to control and maintain the assets

End benefits

- Reduced crowding on London Underground and DLR
- Congestion relief on the road network
- Improved environmental outcomes
- Employment and population growth
- Reduced journey/travel times
- Increased access to employment
- More accessible network
- Safety benefits
- Reduction in operating costs
- Increased revenue – direct and indirect

Outcomes: the aim of the investment

Transport



Relieving congestion



Improving connections



Reducing journey times



Improved accessibility, inclusion, public transport experience

Economic, environmental and social



Supporting Good Growth



Financial sustainability

Transport outcomes

Outcome	Expectation	Measure
Reducing journey times	It will be quicker for customers using the line to travel into (and inside) central London, as well as across London	Generalised journey time: an assessment of travel time taking delays, wait time and crowding into account
Relieving congestion	<ul style="list-style-type: none"> • More journeys will be taken using public transport, and fewer private vehicles will be used, reducing congestion and pollution on the roads. • The Elizabeth line will relieve pressure on existing public transport services 	Levels of crowding/congestion on the: <ul style="list-style-type: none"> • London Underground network • Rail network in London and the South East • Roads in affected areas
Improving connections	<ul style="list-style-type: none"> • Improved cross-London connectivity from outer London suburbs, and within central London • Reduced commuting times from suburban areas • Better connection to Heathrow Airport • Improved cross-river connectivity 	<ul style="list-style-type: none"> • Increased network capacity • Number of people living within 45 minutes' commute of central London
Public transport experience	<ul style="list-style-type: none"> • Trains on the Elizabeth line will have air-conditioning, live travel information and walk-through carriages • Reduced crowding will make travel on public transport more pleasant 	Customer feedback on the service, including accessibility, comfort, safety and quality of customer information
Improved inclusion	Each station will have increased accessibility for those needing step-free access	<ul style="list-style-type: none"> • Proportion of the network that is step-free • Reduction in 'journey time penalty' (average additional time required to make a step-free trip) • Feedback from customers on accessibility
Safety and security	<ul style="list-style-type: none"> • The Elizabeth line will encourage a shift to a safer mode of transport, and reduce the occurrence of road accidents • New trains will have increased CCTV to create safe environments for passengers 	<ul style="list-style-type: none"> • Incidence of crime and anti-social behaviour on the trains and in stations • Road danger in affected areas

Transport network outcomes

The transport network outcomes comprise:

- Transformative network capacity and connectivity improvements
- Journey time and crowding benefits to users
- Operational capacity and flexibility

Economic, environmental and social outcomes*

Outcome	Expectation	Measure
Regeneration and opportunity	<ul style="list-style-type: none"> Better connections and increased capacity will make it easier for people to travel for work or leisure, broadening opportunities for employment and education Better connections will make some areas more attractive, especially to developers and employers, resulting in new homes and jobs 	<ul style="list-style-type: none"> Levels of employment in affected areas; numbers of people not in employment, education or training in affected areas Numbers of planning permission applications in affected areas Number of new homes and workplaces built
Economic recovery	Better connections and economic regeneration will help the local economies affected by the Elizabeth line to recover from the effects of the pandemic	Assessment of rates of recovery in affected areas against those in comparable areas
Social impacts	Increased employment and education opportunities will reduce poverty and social exclusion	Assessment of levels of deprivation and social exclusion
Health impacts	More active travel in the form of walking and cycling will result in health benefits	Levels of cycling and walking; health indicators in affected areas
Sustainable growth: improved air quality	Mode shift to public transport from private vehicles moves people into cleaner travel, resulting in reductions in both emissions and particulate pollution	Net change in air quality from travel, based on change in traffic volumes attributed to the new railway
Sustainable growth: reduced carbon	Mode shift to cars moves people into lower-carbon travel modes	Net change in carbon emissions from travel, based on change in traffic volumes attributed to the new railway
Financial sustainability	Increased fare revenue and reduction in operating costs contributes to TfL's financial sustainability	Increase in fare-paying customers across the TfL network

Wider economic, environmental and social outcomes

The wider economic, environmental and social outcomes are as follows::

- Regeneration and opportunity, new homes and jobs
- Social and health impacts
- Sustainable growth and development

* The assessments outlined above are expected to be part of the first and second evaluation studies; these are in the process of being designed and commissioned, and therefore the measures are subject to change

Recognising and acting on disbenefits

Projects can have negative impacts as well as positive: we call these negative impacts 'disbenefits'.

Some disbenefits are anticipated: where we cannot avoid these, we work to mitigate them. Other disbenefits may arise unexpectedly – we will do our best to identify these through monitoring and, where we can, we work to put them right.

Examples of project disbenefits include: the loss of local facilities to make way for the new infrastructure; increases in crowding at key interchanges on the network; and the displacement of existing communities in the areas affected by the construction of the Elizabeth line.

We have incorporated disbenefit management into our approach and will act to mitigate them as required. Feedback from customers, stakeholders and partners in particular will help identify unexpected disbenefits. We may also identify disbenefits as part of the evaluation studies. Learning from the identified disbenefits and mitigations will be assessed and applied where appropriate to other parts of our network and future investments. We will include our findings on disbenefits and the actions taken to mitigate them in our regular reporting through the Benefits Forum.

Anticipated disbenefits

We work to minimise these and to mitigate their effects where they cannot be avoided.

Example: disruption caused by the implementation of the project itself

Unexpected disbenefits

Some disbenefits may arise after the railway is opened. Where we think these are a possibility, we will monitor them, take any necessary action and keep listening to customers, stakeholders and partners.

Example: increased crowding at key interchanges



Data collection

We will use a broad range of data from inside and outside our transport system to analyse outcomes. Some operational data will be available quickly, while other elements will take longer to emerge.

Measuring and analysing the effects of a such a complex project presents challenges, including:

- Isolating the transport and economic effects of the Elizabeth line from the ongoing changes happening within London and the South East
- Isolating Elizabeth line ridership from wider network ridership due to common access and multiple route choices across National Rail, London Underground and DLR services
- Tracking benefits to customers across multiple modes, including buses and active travel

To generate a good understanding of the comparative impacts of the Elizabeth line, we will use a counterfactual approach. This entails considering what would have happened if the Elizabeth line had not been built, and using those estimates as a comparator to observed outcomes.

To help with this analysis, a baseline study was carried out to describe the pre-opening conditions and provide a reference point for assessing post-opening impacts. The outputs of this study will be available on our website. The framework is expected to be published first, with the baseline study to be published in the summer.

Coronavirus pandemic

The coronavirus pandemic has been a time of significant disruption to all our lives. This disruption has included unpredictable shifts in transport demand through lockdown as well as changes to our patterns of work and leisure. These fluctuations in demand have not yet fully stabilised, and travel continues to be affected by the pandemic.

This instability in travel patterns and demand will cause complications for benefits management and evaluation because it may not always be clear what changes have come about as a result of the opening of the Elizabeth line, and what differences we are seeing as a result of the recovery from the pandemic in London, the South East and the UK as a whole. If we do not see as many customers on the Elizabeth line as expected during the first months of its opening, this may be as a result of the pandemic suppressing demand on an ongoing basis.

We will take account of these factors when assessing and evaluating benefits and, wherever viable, we will compare the effects we see on and around the Elizabeth line with the travel patterns in similar areas not affected by the new railway.



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