Chapter four – A good public transport experience

London has one of the most extensive public transport networks in the world, with more than 9 million trips made every day by bus, tram, Tube, train and river boat. Use of the public transport system has increased by 65 per cent since 2000, largely because of enhanced services and an improved customer experience.

An easy to use and accessible public transport system is an essential part of the Healthy Streets Approach as it gives people alternatives to car use for journeys that are not possible on foot or by cycle. By providing the most efficient and affordable option for journeys that are either impractical or too long to walk or cycle, public transport has helped to reduce Londoners' dependency on cars during the past 15 years and this trend must continue.

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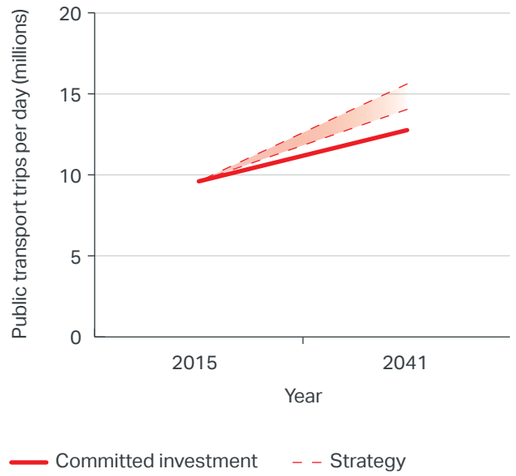
‘By 2041, the public transport system will need to cater for up to 15 million trips every day.’

As it grows, the city requires the public transport capacity to reduce crowding and support increasing numbers of people travelling more actively, efficiently and sustainably. Figure 18 shows that by 2041 the public transport system will need to cater for up to around 15 million trips every day.

FIGURE 18: FORECAST GROWTH IN PUBLIC TRANSPORT TRIPS TO 2041



This chapter sets out the importance of a whole journey approach, where public transport improvements are an integral part of delivering the Healthy Streets Approach. The chapter then explains in four sections how London’s public transport services can be improved for all Londoners and also become a more appealing option than car use by:

a) Improving safety, affordability and customer service so the whole public transport network becomes easier and more convenient to use for more people.

b) Improving public transport accessibility so that disabled and older people can travel spontaneously and independently.

c) Shaping and growing the bus network to provide convenient, reliable, accessible public transport options where they are needed.

d) Making rail services the most efficient way for people to travel longer distances by tackling crowding and improving the reliability, comfort and appeal of rail travel.

The whole journey

A good public transport experience means catering for the whole journey, with all its stages, from its planning to the return home. All public transport journeys start or finish on foot or by cycle, and half of all walking in London is done to or from public transport stations or stops[1]. It is essential to integrate bus, Tube, rail and tram services with improvements to street environments to provide Londoners with attractive alternatives to car use.

The areas around and within stations, however, can be cluttered and difficult to navigate, provision for cycle parking can be inconsistent, and interchanges between services can be complex.

Stations and stops will be designed for active, efficient and sustainable onward journeys. The first things passengers will see on emerging from the station will be clear walking directions and maps, cycle hire facilities, bus connections and an attractive, accessible and inclusive public realm, rather than car parking and pick-up/drop-off spaces.

1 London Travel Demand Survey (LTDS) 2013/14-2015/16, TfL analysis

Policy 10
The Mayor, through TfL and the boroughs, and working with stakeholders, will use the Healthy Streets Approach to deliver co-ordinated improvements to public transport and streets to provide an attractive whole journey experience that will facilitate mode shift away from the car.

The walk to and from the stop or station, however short, can be an important part of staying healthy for many people. A key measure of a more integrated transport system will be to achieve year-on-year increases in the proportion of people who walk or cycle for at least 20 minutes a day.

The healthy, efficient and sustainable choice must be the easiest option every time, particularly at places where people change between transport modes. This will require good quality, secure cycle parking at a level that meets current demand and provides for future growth. Buses, cycle hire, Dial-a-Ride and community transport services will also need to be easy to access and navigate to, and taxi ranks should be accessible.

Proposal 50
The Mayor, through TfL and the boroughs, will make improvements measured and prioritised against the Healthy Streets Indicators to transform the design and layout of street space and transport facilities around bus, rail, Underground, London Overground, DLR and other stations, and around river piers, as far as practicable, to create safe, secure, accessible, inclusive, welcoming, well-designed gateways and routes to and from public transport, including provision of:

a) Sufficient space and desire-line connectivity for current and future volumes of people arriving and leaving on foot.

b) High-quality provision for cycling, consistent with London Cycling Design Standards, including secure and well-located cycle parking.

a) Improving safety, affordability and customer service

Vision Zero for safe public transport

Londoners rightly expect their public transport services to be operated safely and to be managed and policed to ensure their personal security. After many years of safe operation, there was a tram overturning on a curve at Sandilands Junction in November 2016, in which seven people lost their lives and more than 50 people were injured. This tragedy serves as a reminder that safety is paramount. TfL will implement the relevant lessons learnt from both the Rail Accident Investigation Branch (RAIB) report[2] and TfL's independent investigation[3] more widely across TfL's operations. TfL will continue to work with the wider tram industry to ensure all the RAIB's recommendations are implemented and tram safety continues to improve.

Including and beyond this, the Mayor is committed to ensuring Londoners can travel safely throughout the entire transport system. All parts of the public transport network will play an important role in achieving Vision Zero, eliminating deaths and serious injuries from London's transport system by 2041. The policies and proposals in this chapter, setting out investment in new infrastructure and service enhancements, as well as other factors such as staff training, will help develop an even safer and more secure public transport system.

Priorities include reducing the danger to users on the transport network itself, for example when boarding and alighting trains, and also reducing the danger posed to Londoners more generally, such as that which can be associated with level crossings and low railway bridges over roads.

Sadly, there are a number of suicides each year on the transport system, and a range of measures will continue to be taken to prevent this, including working with the rail industry and organisations such as the Samaritans.

Policy 11

The Mayor, through TfL and the boroughs, and with the DfT, Network Rail, train operating companies and other transport infrastructure providers and service operators, will work to eliminate deaths and serious injuries from London's rail, Tube, London Overground, DLR, tram, river and cable car services by:

a) Ensuring that assets and infrastructure are maintained to the required safety standards and that all new assets and infrastructure are designed with Vision Zero in mind.

b) Identifying and implementing new approaches to reduce or eliminate injuries.

c) Training staff on their role in helping customers and users stay safe.

d) Developing new and more innovative ways of communicating safety messages to customers and users.

e) Applying appropriate arrangements for maintenance and other supporting services that are contracted or licensed.

f) Working closely with the emergency services to ensure rapid response to incidents.

The Vision Zero approach to road danger, including bus services, is set out in Chapter three.

2 'Overturning of a tram at Sandilands Junction, Croydon, 9 November 2016', Rail Accident Investigation Branch: Rail Accident Report, December 2017

3 'Tram overturning at Sandilands, Croydon on 9 November, 2016', TfL Board Paper: Safety, Sustainability and Human Resources Panel – RAIB and TfL Investigations – Update, 22 January 2018

Making public transport affordable

A fully inclusive public transport system would enable all Londoners to take advantage of the opportunities the city has to offer. An affordable fares system, both now and in the future, is essential to encouraging a shift from car to public transport.

To ensure that public transport is available to those who may find it least affordable, current concessions (such as the Freedom Pass) will be maintained. In addition, single fares across all current TfL services have been frozen until 2020, reducing the cost of using TfL services in real terms. A new 'Hopper' fare was introduced in September 2016 and then extended in January 2018 to allow customers to make unlimited bus or tram transfers within the hour, even if other trips on Oyster modes are made in between. This has improved the affordability of those trips that involve the use of multiple buses or trams. It has, in particular, delivered savings to those who are unable to afford rail travel over longer distances, and helped make the cost of travel by bus or tram more competitive compared to journeys by car.

Policy 12
The Mayor will ensure public transport fare levels are set to enable access to affordable travel for all Londoners.

Members of the public who use non-TfL services will still be subject to fares increases, however. Should such rail services be devolved to TfL, fares will be aligned with TfL's affordable fares policy, with affordability prioritised beyond the current 2020 timeframe. As many Londoners as possible should be able to benefit from affordable public transport services, with the same fares structure and policy applying across the whole transport system in London, whether or not it is provided by TfL.

Proposal 51
While a Government decision on further devolution of rail to London has not been forthcoming, the Mayor will press the Government to match TfL's fares freeze in London until 2020, and to prioritise affordability beyond then.

Enhancing customer service

In London, almost every resident, worker and visitor is a customer on the city's transport system. The experience of travelling around London has improved significantly in recent years. However, there are still too many inconsistencies across the network in terms of quality and reliability, information provision and general integration between different transport options. This can cause stress for individuals and, more broadly, weaken Londoners' confidence in the public transport system. An improved quality of service is needed to enable more Londoners to positively choose to use public transport as an alternative to the car.

Policy 13
The Mayor, through TfL and the boroughs, and working with stakeholders, will seek to make the public transport network easier and more pleasant to use, enabling customers to enjoy comfortable, confident, safe and secure, informed and stress-free travel.

Getting the basics right

Across all modes, what customers value the most is the service provider 'getting the basics right'. This means providing a reliable public transport service that gets customers to their destination safely and on time. Customers should have access to accurate real-time information and assistance along the way. There should be easy and accessible interchange between different public transport services and with walking and cycling.

This means, for the rail and Underground network, more frequent and reliable trains; fairer, simpler fares (including extending Oyster and contactless payment to more stations around the edge of London); modern, staffed stations; and information at every stage of the journey. On the bus network, there will be improved customer information during disruption and delays, as well as enhanced on-board services (e.g. cleanliness, seating and air conditioning). New customer service standards will be developed for bus stations, and customer-focused training – with a continuing emphasis on equality issues, particularly for older and disabled people – will be delivered to all bus drivers and front-line staff.

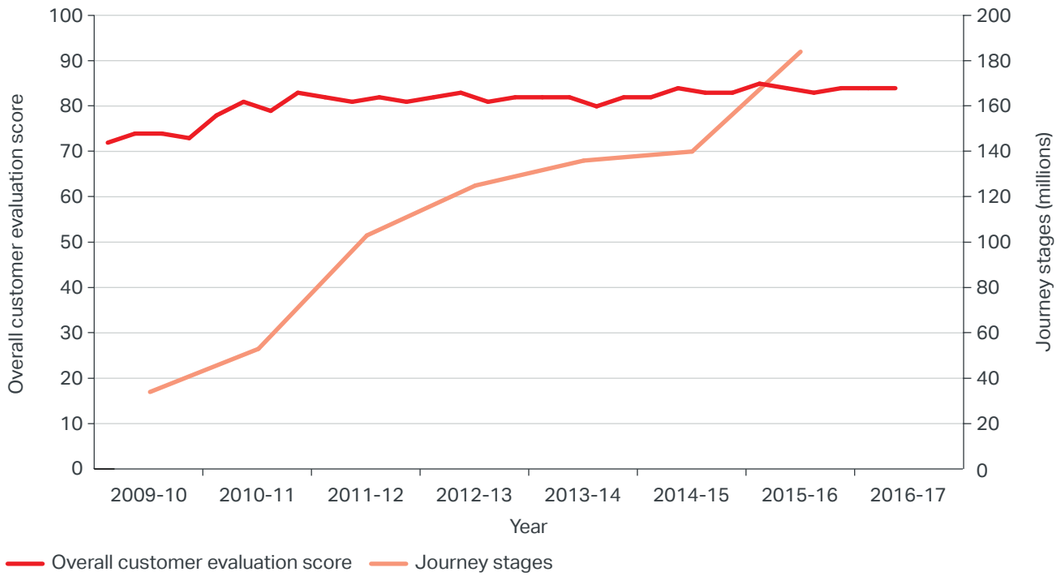
With 27 million journeys taking place in London every day, inevitably sometimes things will go wrong, so it is important that TfL and other transport service providers support customers when this happens. When there is service disruption, customers need to be given up-to-date information that enables them to make alternative travel arrangements. Customers should be confident that staff are helpful, knowledgeable and empowered to assist whenever they need help.

Customers should feel that they can trust the fares system. It is important that people are charged the cheapest fare and that any errors are fixed. As part of that commitment, TfL and other operators should put in place initiatives to reduce the number of maximum fares charged should customers forget to 'touch out', for example charging Oyster and contactless customers an average fare based on journey history. And, if customers need a refund for any reason, the process must be easy to follow.

Consistent level of service

Customers value a consistently good service. TfL's management of more of London's suburban rail network would support this, bringing staffed stations and a consistent level of service to areas beyond the existing Tube and London Overground networks. TfL has a proven record of improving customer satisfaction on London's transport system. Figure 19 shows the improvement when TfL took over and invested in the London Overground network.

FIGURE 19: LONDON OVERGROUND CUSTOMER EVALUATION SCORE AND PASSENGER JOURNEY STAGES, 2009/10-2016/17



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Londoners' travel habits are changing and off-peak, weekend and night-time public transport services also need to be better developed, enabling London to become a fully 24-hour city that is open to everyone, with a strong night-time economy. Devolution of suburban rail services to the Mayor would help integrate the provision of services and achieve a more consistent experience for customers across the public transport system.

Innovation

More than 80 per cent of Londoners now use the TfL website and 5 million people follow TfL on Twitter. In addition, more than 40 per cent of Londoners use some of the 600 apps powered by TfL data. Customer expectations will continue to evolve as new information technology emerges. Innovations in customer service are essential to attract Londoners to public transport, walking and cycling, and to make services more accessible and inclusive.

On the rail and Underground networks, rolling out WiFi to more stations will support staff in providing customer information. Staff will be equipped with mobile devices to provide real-time information to customers, and personalised and relevant live information will be integrated into Journey Planner and Twitter travel alerts. The London Underground is one of the most high-profile 'not-spots' in the country and, building on the improvements in communication technology for the emergency services, 4G mobile communications will be provided on the Underground. This gives a unique opportunity to provide public cellular services and in 2019 the Elizabeth line is planned to be one of the first lines to offer 4G connectivity.

On the bus network, vehicle layouts and branding could be varied to reflect customer needs on different types of route. New 'mobility' models could also be explored, for example demand-responsive services, where these can make public transport a more attractive alternative to the car.

Proposal 52

The Mayor, through TfL and the boroughs, and working with other transport operators, will improve customer service across the transport system with a focus on:

a) Improved staff training, including the training of bus drivers.

b) Providing a more consistent level of service across all transport modes (including rail services where devolved from the DfT).

c) Making the most of new technology and innovations in customer service, including provision of mobile phone access underground.

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b) Improving public transport accessibility and inclusivity

Making the public transport system more accessible and inclusive is critical to delivering a better whole journey experience for disabled people and the growing number of older people, and will also ensure that public transport is easier to use for all Londoners. The transport system needs to be able to cater for journeys made by people with a range of visible and invisible disabilities. These include mental health conditions, long-term health conditions, impaired mobility, and visual or hearing impairments.

However, the current public transport system can present a range of barriers to its use by disabled and older people. These barriers include the need to frequently plan journeys across a complex network in a high level of detail and in advance, inconsistent levels of staff availability and assistance, and the often poor physical accessibility of stations and interchanges. The extent that these barriers limit travel varies from person to person, and some barriers for some people can be so significant that they prevent them from using the network entirely.

Addressing these barriers, to create a more accessible and inclusive public transport system, will enable new trips to be made by disabled and older people, as well as making their current trips easier and quicker. This will improve social integration by giving more people a chance to participate in the opportunities that London has to offer, helping create a more inclusive city.

Accessibility improvements should be complemented by ensuring that the transport network is better connected across and within all modes and spaces through which people travel. Vehicles, stops, stations and streets should be designed to be as inclusive and accessible as possible, taking account of the needs of all users. There should be a focus on the needs of customers by providing good information and communication, and passenger support and assistance should be available, particularly when services are delayed or disrupted. Accessibility and inclusion also means that all members of the public feel safe and secure when travelling. Transport operators must place a greater focus on the needs of all those travelling to help improve their services. They should embed accessibility and inclusivity in all aspects of their transport planning and delivery.

Policy 14
The Mayor, through TfL and the boroughs, and working with stakeholders, will seek to enhance London's streets and public transport network to enable disabled and older people to more easily travel spontaneously and independently, making the transport system navigable and accessible to all and reducing the additional journey time that disabled and older users can experience.

Enabling spontaneous and independent travel

Currently, 45 per cent of disabled Londoners find planning and making trips by public transport stressful, sometimes having to rely on staff assistance to board and alight trains, as well as often having fewer alternative options should services be delayed or disrupted. This can make it difficult for disabled and older people to feel they can depend on public transport to travel spontaneously and independently – to 'turn up and go'.

Continuing to improve journey planning tools and travel mentoring programmes will be important in helping disabled and older people feel confident in using the public transport network. The availability of staff to assist, should this be required, is also important to enable journeys to be made spontaneously and independently.

TfL has staff at all Tube, TfL Rail, and Overground stations when services are running, while some piers, all boats, the Emirates Air Line and Victoria Coach Station (VCS) are staffed. Trams and buses are staffed by the driver and the DLR has a Passenger Service Assistant on every train. This means that:

- There is no need to book in advance to use TfL services
- Station staff are able to accompany customers to the train, help them board, including providing a ramp where step-free access is only to the platform, and arrange for them to be met at their destination. Staff are also encouraged to offer help to anyone who looks like they may need assistance
- Where a lift is unavailable at a Tube, TfL Rail or Overground station, staff will help customers plan an alternative route, or, where a reasonable alternative is not available, will book a taxi (at TfL's cost) to take them to their destination or another step-free station to continue their journey
- Staff on board DLR and trams are available to assist
- Staff should be easy to find at VCS, Emirates Air Line terminals and on piers and boats
- Help points can be found and easily accessed for assistance throughout TfL's networks to request information or speak to staff in an emergency

'Turn up and go' is provided on London Overground and will be introduced on London's other local stopping services (shown in Figure 29) where responsibility for them is devolved to TfL from the DfT.

Proposal 53
The Mayor, through TfL and working with transport operators, will enable spontaneous and independent travel for disabled and older people by:

a) Improving journey planning tools, ensuring advances in technology make the tools more accessible and easier to use; and guiding people to the most accessible journey options.

b) Providing travel mentoring and other opportunities to help Londoners gain confidence to use public transport.

c) Continuing to provide the current 'turn-up-and-go' service at all TfL-operated stations, and providing it at additional stations where national rail services are devolved to TfL.

d) Continuing to seek and act on feedback from disabled and older Londoners regarding public transport services.

Making bus services more accessible and inclusive

Buses are typically the most common form of public transport used by older people, disabled people and those travelling with children, often with prams or buggies. Buses are a relatively accessible form of public transport – all London buses meet strict accessibility requirements, and 95 per cent of bus stops are now wheelchair accessible. Specific training on helping those users with accessibility needs is being delivered to bus drivers, and TfL works with bus operators to ensure this training is put into practice in daily service provision. Nevertheless, on-board crowding, competition for the designated wheelchair space and the internal layout of the vehicle can negatively impact the experience of using buses. There is therefore a real need to further improve bus accessibility through future bus design.

In addition to making more bus stops wheelchair accessible, at key locations such as interchanges, a higher level of improvements will include improving shelters, seating, interchange information, and locating stops as close as possible to key destinations with excellent walking links.

Proposal 54
The Mayor, through TfL and the boroughs, will improve bus accessibility by:

a) Continuing to provide improved accessibility training to all bus drivers and working with operators to ensure they are meeting their requirements for the level of service that their drivers provide.

b) Reviewing existing bus design, including opportunities for increasing wheelchair space and internal layout to ease movement and improve safety.

c) Ensuring that new buses provide better accessibility for all users, including more on-board space for wheelchair users, improved boarding ramps, induction loops and consistent signage and messages regarding priority seating.

d) Continuing to upgrade existing bus stops, including hail and ride route sections, so that they meet the wheelchair accessible standard, and ensuring that all new and amended bus stops will be wheelchair accessible as a minimum.

e) Delivering a higher level of bus stop accessibility at key locations, such as major transport interchanges and key health and education hubs.

Making Tube, rail and other services more accessible and inclusive

London's Tube and rail network brings travel opportunities to millions of people, but for people who are older or disabled, or who are travelling with luggage or young children, it can sometimes be hard to get around and journeys that require a step-free route often take longer than those that do not. TfL analysis suggests that journeys by step-free routes take about 15 per cent longer than the quickest route on average across London, although this is considerably higher in areas served by Tube lines with few step-free stations (see Figure 21).

The inclusive and accessible design of stations and services is essential to open up the full potential of the rail and Tube network to all Londoners, including disabled and older people. This includes providing accessible and up-to-date information on access, appropriate and consistent wayfinding, tactile paving, soft-touch hand rails, accessible ticket machines, more seating for people who struggle to stand, and extending the use of hearing-aid induction loops across the network. Most of the network now has these features, but TfL will continue to review them to make sure they are of ongoing benefit to users.

TfL has already set ambitious aims to improve step-free access, and is working to make 40 per cent of the Tube network step-free by 2022 (a significant increase from the current 26 per cent). In this time, TfL will develop proposals for a further tranche of step-free stations for delivery beyond 2022. The Mayor's longer-term aim is for the majority of the Tube network to be step-free, recognising that some locations will be very difficult to retrospectively make step-free because of the age and layout of the original station. Network Rail must continue to make national rail stations step-free in parallel, so that the overall transport network is more accessible. Level access, platform humps and boarding ramps must be available at stations so that people can board trains, with staff available who are trained to assist, to provide a 'turn-up-and-go' service for those who require assistance such as some people with visual impairments and wheelchair users.

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Tube improvement programmes will benefit disabled and older people and those travelling with young children in two main ways. Firstly, they will provide greater capacity and thus reduce crowding (one of the most significant barriers to travel for disabled people). Secondly, the new trains that will be introduced as part of the programmes will incorporate inclusive design features such as spaces for wheelchairs and baby buggies, improved lighting, and visual and audible real-time information. Their design, together with platform humps at some stations, will also make it easier for those in wheelchairs to board and alight.

New infrastructure will be designed from the outset to be accessible and inclusive, and new lines and extensions will therefore open up significant new journey opportunities for disabled and older people. Notably, the Elizabeth line and Crossrail 2 will transform the ease with which disabled and older people can access central London.

In addition to bus, rail and Tube services, to ensure the whole journey is accessible, improvements to the accessibility of taxi ranks, river piers and services, and VCS (and its potential replacement), should continue to be made.

Proposal 55
The Mayor, through TfL and working with the DfT, Network Rail and other stakeholders, will make the transport network more accessible and inclusive by:

a) Using Inclusive Design, for example for station and train layout and facilities, including signing, information and seating, giving consideration to those with visible and invisible disabilities.

b) Providing step-free access at selected rail and Underground stations and on all new infrastructure, to halve the additional journey time required by those using the step-free network only, so that journey times on the step-free network become comparable to those on the wider public transport network.

c) Providing step-free access at further national rail stations in London.

d) Improving the accessibility of taxi ranks, river piers and services, and Victoria Coach Station (and its potential replacement).

Figure 21 shows the reduction in the difference in journey times between the step-free and the full network that the strategy will deliver in the period to 2041.

Assisted Transport Services
The proposals set out above will make the public transport network more accessible for disabled and older people. However, there is also a pressing need to deliver a more reliable and convenient service for older and disabled Londoners who require door-to-door transport services such as TfL's Dial-a-Ride and the Taxicard scheme operated by London Councils. Services such as these, together with TfL's travel mentoring service, are known collectively as Assisted Transport Services (ATS).

TfL has undertaken a review of the provision of ATS and developed a Roadmap[4] for London to have world-leading service provision by 2021. The Roadmap identifies five design principles: safe and reliable journeys; convenience; flexibility and choice; integration; and innovation. Actions in the Roadmap include: establishing a simpler way to access ATS that will initially be hosted on the TfL website; better informing Londoners of what services are available to support them, their family or friends; and piloting new ways of extending flexibility and choice in how and when to use ATS. When completed, there will be a single integrated service that gives customers seamless access to a range of transport options, including London's public transport and core ATS. As the improved service is implemented, TfL will engage with other service providers to investigate opportunities for further integration to establish a broader coverage of London.

Proposal 56
The Mayor, through TfL and the boroughs, will design Assisted Transport Services around the principles of safe and reliable journeys, convenience, flexibility and choice, integration and innovation, delivering the Roadmap by 2021, and continuing to provide the service to those who need it.

Figure 20 sets out the proposed timetable for delivering accessibility improvements.

4 'Assisted Transport Services', TfL Board Paper: Customer Service and Operational Performance Panel, 1 November 2017

FIGURE 20: ACCESSIBILITY IMPLEMENTATION PLAN

Key: Supporting programmes | Service enhancements | Upgrading infrastructure | Station upgrades | Network extensions

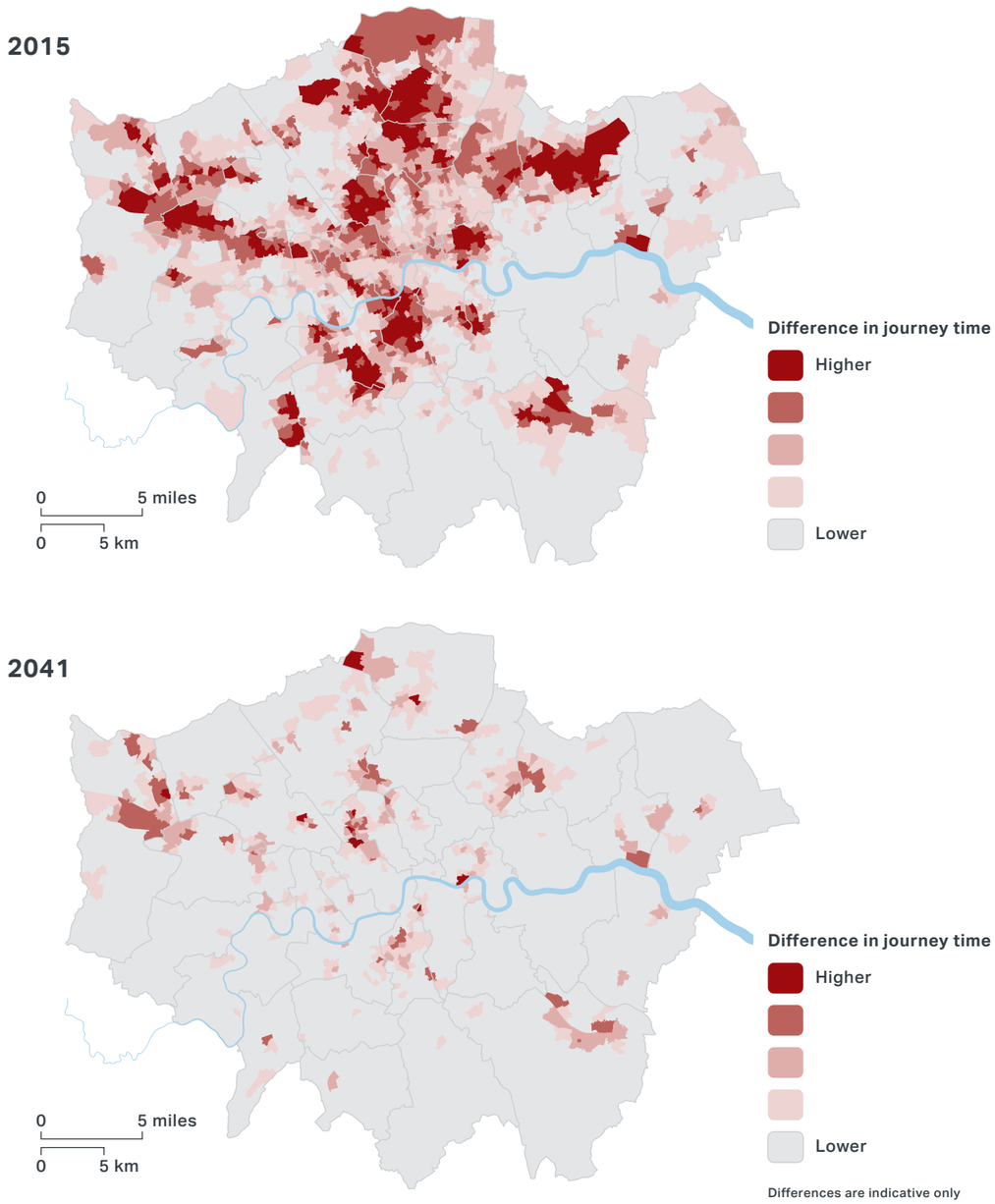
		NOW	2020	2025	2030	2035	2040
Enabling spontaneous and independent travel	Accessible streets	Embed accessibility and inclusivity in the planning and design of Liveable Neighbourhoods, Vision Zero schemes and other Healthy Streets programmes		Continue to deliver improvements to London's streets, including safe and accessible walking routes, removing obstacles, widening pavements, providing tactile paving and seating, making crossing easier and catering for cycles used by disabled people			
	Customer service and staff	Improve accessible journey planning and information provision	Continue to improve on-street and online navigation and journey planning tools				
		Implement fare freeze and extend Hopper offering	Continue to ensure public transport fare levels are set to enable access to affordable travel for all Londoners				
		Deliver staff training programmes					
	Safety and security	Ensure that crime and the fear of crime remain low on London's streets and transport system through designing secure environments and by providing dedicated specialist and integrated policing for London's transport system					
	Public transport	Continue to deliver improvements that make public transport easier for all users, including embedding the principles of Inclusive Design at stations, a review of 'turn up and go', and providing a more consistent level of service across all TfL operated services					
	Taxis	Deliver accessible taxi ranks					
Making bus services more accessible and inclusive	Customer service and staff	Deliver bus driver training programmes					
	Bus infrastructure	Deliver accessible bus stops					
		Deliver wheelchair accessible bus stops, to achieve 95% in all boroughs					
		Deliver bus priority to improve reliability					
	Bus services	Adjust bus service volumes to reflect changing patterns of demand					

FIGURE 20: ACCESSIBILITY IMPLEMENTATION PLAN (CONTINUED)

Key: Supporting programmes | Service enhancements | Upgrading infrastructure | Station upgrades | Network extensions

		NOW	2020	2025	2030	2035	2040
Making Tube, rail and other services more accessible and inclusive	National rail and London Overground	Deliver step-free upgrades at national rail and London Overground stations (eg Blackhorse Road, Brondesbury and West Hampstead)	Deliver Access for All step-free upgrades at rail stations (5-10 stations every 5 years)				
		Deliver station capacity and improvement schemes on national rail network					
		Introduce new London Overground rolling-stock					
	Tube stations (step-free and capacity upgrades including step-free)	Deliver 14 step-free Tube stations	Deliver approximately 25 step-free Tube stations	Deliver approximately 15 step-free Tube stations	Deliver approximately 15 step-free Tube stations		Deliver additional step-free Tube stations
		Deliver Tube station capacity and improvement schemes (eg Tottenham Court Road)	Deliver Tube station capacity and improvement schemes (eg Camden Town	Deliver Tube station capacity and improvement schemes (eg Holborn)			
	Approximate number of step-free Tube stations (end of period)	86	111	126	141		
	Tube improvement programme (new trains and reduced crowding)	Deliver Four-Line modernisation programme		Deliver Deep Tube upgrade – Piccadilly line	Deliver Deep Tube upgrade – Bakerloo, Central and Waterloo & City lines		
		Deliver Tube upgrade programme – Jubilee, Northern and Victoria lines					
	DLR & tram	Deliver DLR and tram upgrades to increase capacity and improve reliability					
	River & coach	Improve accessibility at river piers and Victoria Coach Station (and its potential replacement)					
	New infrastructure (new step-free and improved connectivity by accessible public transport)	Deliver Northern line extension (including 2 step-free stations)		Deliver Elizabeth line extension east of Abbey Wood (step-free access in outer south east London)			
		Deliver Elizabeth line (including 41 step-free stations)		Deliver Bakerloo line extension to Lewisham (step-free access in inner south east London)	Deliver Bakerloo line extension beyond Lewisham (step-free access in south east London)		
					Deliver Crossrail 2 (step-free access to and through central London from north and south west London)		
Assisted Transport Services review		Deliver Assisted Transport Services roadmap	Continue to provide a single integrated Assisted Transport Service to those who need it				

FIGURE 21: DIFFERENCE IN JOURNEY TIMES USING THE STEP-FREE AND FULL NETWORK, 2015 AND 2041



c) Shaping and growing the bus network

Buses play a unique role in the life of London – they are the most accessible form of public transport, and they provide the widest and densest network of travel options for distances that are too long to walk or cycle. Good bus services are fundamental to achieving less reliance on the car, making efficient use of street space and supporting London's sustainable growth.

In parts of inner and outer London, making the bus a more attractive option than the car will require significant enhancements to bus services. Trip times must be comparable to car journey times and good quality bus stations, bus stops and other facilities are vital. Alongside this, better customer communication and branding are needed to make the bus network both easier to understand and more appealing to existing and future customers.

Policy 15
The Mayor, through TfL and the boroughs, and working with stakeholders, will transform the quality of bus services so that they offer faster, more reliable, accessible, comfortable and convenient travel by public transport, while being integrated with, and complementing, the rail and Tube networks.

The role of the bus in reducing car dependency

The bus network has been carefully developed over the past decades to accommodate changing travel demands. The transport network and passenger expectations are ever changing and further service development is required to adapt to these recent changes.

The beauty of the bus network is that it is flexible – routes are relatively easy to add and remove compared to Tube and rail lines, so they can be much more responsive to changes in demand than other forms of public transport. This means that buses can be important in supporting regeneration and social integration – where there may not be the justification for investing in expensive, permanent rail infrastructure, new bus routes can be planned to connect new communities and support housing and jobs growth.

This flexibility also makes buses the perfect means of providing convenient public transport options in areas of London that are changing. As the Healthy Streets Approach is applied to realise the benefits of more walking, cycling and public transport use across the city, the character of many parts of London will change over time. Using buses to support these changes will allow public transport links to be added where they are needed now, and potentially reviewed as cycling and walking become more common options in the future.

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The Healthy Streets Approach will support buses by reasserting the priority of walking, cycling and public transport over car use, and taking an integrated approach to planning these complementary modes. It is therefore important at this pivotal moment in the future of London's transport system that a strategic view of how the bus network operates is taken.

It is essential that TfL's bus services match demand from Londoners and visitors, and attract new users by being seen as a viable alternative to the car, if they are to fulfil their potential for supporting London's transport future. It will be important to make the most of the flexibility of the bus network to reduce and remove existing services where they are no longer required in central and inner London, and use this freed-up capacity to provide new or improved services in outer London. This may be in existing neighbourhoods that are poorly served, locations of significant new housing growth where demand is expected to increase, or in locations where buses can feed new or enhanced rail services, such as the Elizabeth line. TfL will listen to borough views when making these changes. This will have an important part to play in achieving the strategy's aim of reducing the damaging effects of car dependency, particularly in outer London.

Re-shaping the bus network

The current strategy for bus network development is to redistribute resources to reflect changing patterns of demand. There has been, and will continue to be, a fall in demand for buses in central London as passengers transfer to the new and upgraded rail network (e.g. Elizabeth line) and to cycling and walking. Demand for buses is expected to increase in outer London, where the potential for mode shift to buses and for housing growth is greatest. TfL will therefore re-shape the bus network to increase its focus on outer London. This will help improve bus services in outer London – right now, and continuing in the medium and longer term.

Bus services will be focused on streets where high-quality bus priority can be provided, ensuring reliable and quick services (see Figure 22). In central London, bus services could be concentrated on streets where they can be given the high priority required and thereby significantly increase reliability. Concentrating services on to fewer routes with higher frequencies on these streets would reduce waiting times for most passengers and offer a simpler network for all bus passengers. This would create a genuine network of high-frequency, reliable bus services across central London, using the Healthy Streets Approach to design in benefits

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for people walking, cycling and using public transport.

In outer London, new or enhanced bus services will be introduced to reduce car dependency and support growth, particularly around Elizabeth line stations and in areas where housing growth is expected, including Barking Riverside, Croydon, Royal Docks, Colindale and the Lee Valley.

As outer London becomes more densely populated, new types of service could allow buses to play an increasing role in allowing longer trips to be carried out without people having to rely on cars. These could include 'express' services, running on the same corridors as 'local' routes, but with fewer stops so longer journeys can be conducted more quickly. To allow both express and local services to run smoothly, at high frequency, this approach works best where bus demand is high, and where buses can be given high priority and allowed to flow freely. In places where this is possible, express routes could help to provide orbital connectivity around outer London, something that was previously only thought achievable through rail provision.

This strategic approach is supported by focused reviews of services, such as a recently completed study of bus routes serving hospitals. This research concluded that, while most hospitals have a good bus service, changes in NHS service provision mean that some bus services could need to be adjusted. A specific set of proposals[5] has been developed by TfL, which will require additional funding and infrastructure such as bus stands.

Proposal 57
The Mayor, through TfL, will adjust bus service volumes, and consider new types of bus service, to support measures to reduce car use in conjunction with improvements to rail services and walking and cycling environments.

Improving bus journey times and reliability

Taking the Healthy Streets Approach in inner and outer London will require a significant uplift in the number of journeys made by bus instead of car.

Across London, reasonable and reliable bus journey times are essential to the attractiveness of bus services to existing and potential customers. TfL will make sure bus routes are adequately resourced, contracts are incentivised to ensure reliable journeys, and supporting infrastructure (e.g. bus priority, stops and stands) is protected and enhanced.

However, the greatest threat to journey times and reliability is from road congestion caused by cars and other traffic as well as by the increasing volume of utilities road works. Buses therefore need to be given greater priority on London's streets.

Proposal 58
The Mayor, through TfL and working with the boroughs, will protect buses from congestion by:

a) Putting people walking, cycling and using public transport at the heart of street network design, with the needs of bus passengers considered alongside those of people walking and cycling at the earliest stages of scheme design.

b) Prioritising buses alongside walking and cycling provision in day-to-day management of disruption on the street network.

Protecting buses from congestion will require a bus priority programme that uses investment in specific, high-quality street changes that will protect bus journey times and improve reliability.

Bus priority programme
TfL will start by making the best use of existing bus priority by reviewing the hours of operation and reducing interference from general traffic. The Mayor will review whether lanes that do not currently operate in off-peak hours, late evening or on Saturdays and Sundays, should be extended to operate at these times or on these days. This can be delivered quickly and at low cost.

Further bus priority will be essential to give Londoners a good public transport experience. This will be planned in a new, holistic way with other road users: for example, opportunities for further improvements for cycling will be integrated into the scheme design. This will achieve the best result for public transport, walking, cycling and essential freight, as well as improving the public realm and reducing emissions.

Central London is where there is the greatest opportunity to improve bus journey times and reliability through the deployment of bus priority measures. These will include 24-hour bus lanes and bus- and cycle-only corridors, all of which will help to make bus services

5 'Review of Bus Services to London's Hospitals', TfL Board Paper: Customer Service and Operational Performance Panel, 13 July 2017

in central London simple to use as well as improving air quality and future-proofing the bus network from further congestion impacts.

Many of the main radial roads in inner London are key bus routes to central London. They carry large numbers of people and it is essential they continue to do this reliably. But these bus routes must also work well for the communities and town centres they pass through. Measures to improve bus reliability on these routes will include revised bus lane hours, traffic signal priority, policing and enforcement, behaviour change initiatives and priority measures. To improve air quality, low emission buses will be deployed along these routes.

Proposal 59

The Mayor, through TfL and the boroughs, will seek to improve bus journey times and reliability by:

a) Developing a core network of reliable bus services in central London, through the provision of bus priority corridors.

b) Delivering bus priority to support the low emission buses being rolled out in the 12 Low Emission Bus Zones. Improvements will include signal schemes and reviewing bus lane hours.

c) Delivering bus priority on the busiest passenger links, including working with the boroughs to undertake a data-led review of all bus lane hours and to fill the gaps in bus priority on the busiest bus routes. These bus lanes represent a valuable transport asset and they must be utilised when bus passengers and people cycling need them most.

d) Improving conditions for buses serving inner and outer London town centres and providing orbital links.

e) Delivering bus priority in areas of growth to support frequency increases, for example to new developments, and for bus services providing links to new rail services, such as the Elizabeth line.

The provision of reliable bus services also requires infrastructure to support their operation, including suitably located bus stands and facilities for drivers.

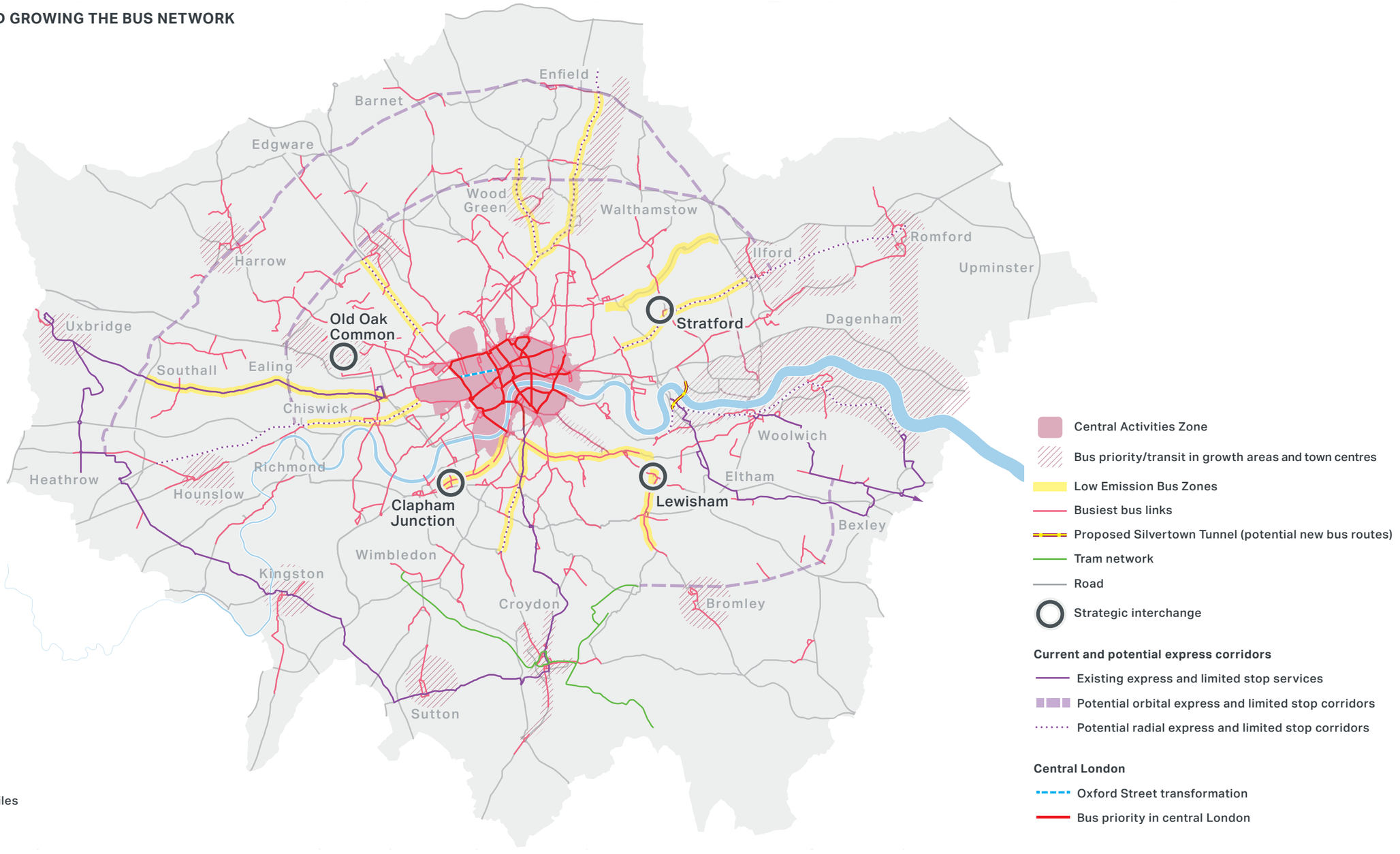
Improved bus services and bus priority are also essential in supporting the provision of new homes and jobs. This is addressed in Chapter five.

All of the above can only be successful if the public has an ongoing opportunity to shape and comment on TfL's plans. Accordingly, targeted consultation will be carried out on all service changes, and TfL will work with boroughs to discuss aspirations for bus priority and local bus networks. This work will continue to benefit from the expertise of bus operators, who have an essential role to play in the delivery of a high-quality network.

Demand-responsive services

New types of bus service, such as services that operate flexibly in response to levels and location of demand, are being developed across the world as different business models and technologies evolve. If designed well, these could complement walking, cycling and traditional public transport use in London to support the shift away from car dependency. However, services that operate with the wrong vehicles or in the wrong places could discourage walking, cycling and public transport use, potentially threatening the viability of existing bus services, which many people rely on. The proposed approach to demand-responsive services and other new transport models is set out in Chapter six.

FIGURE 22: SHAPING AND GROWING THE BUS NETWORK



d) Improving rail services and tackling crowding

The importance of rail and Tube

London is more dependent on rail than any other city in the UK: 70 per cent of all rail travel (including Tube journeys) in the UK is to, from or within London. London's success is bound up with the future of its rail services. The Mayor will continue to improve the Tube, London Overground, DLR and tram services. It is vitally important that Network Rail and the train operating companies (TOCs) better serve London's needs, and that the Mayor has greater input and influence over the planning and delivery of their services.

Rail transport is critical to securing London's economic growth and future prosperity. The rail-based transport network has enabled central London to develop by facilitating access to a wide labour pool from well beyond London's boundaries, assisting business connections and allowing supply chain linkages. Rail-based modes of travel make up 80 per cent of the 1.3 million trips to central London in an average weekday morning peak period. The network of national rail and TfL lines needed to concentrate and then disperse such a volume of people is vast, and the 'hyper-connectivity' and capacity of the existing network of railways focused on central London enables the strong concentration of employment located there.

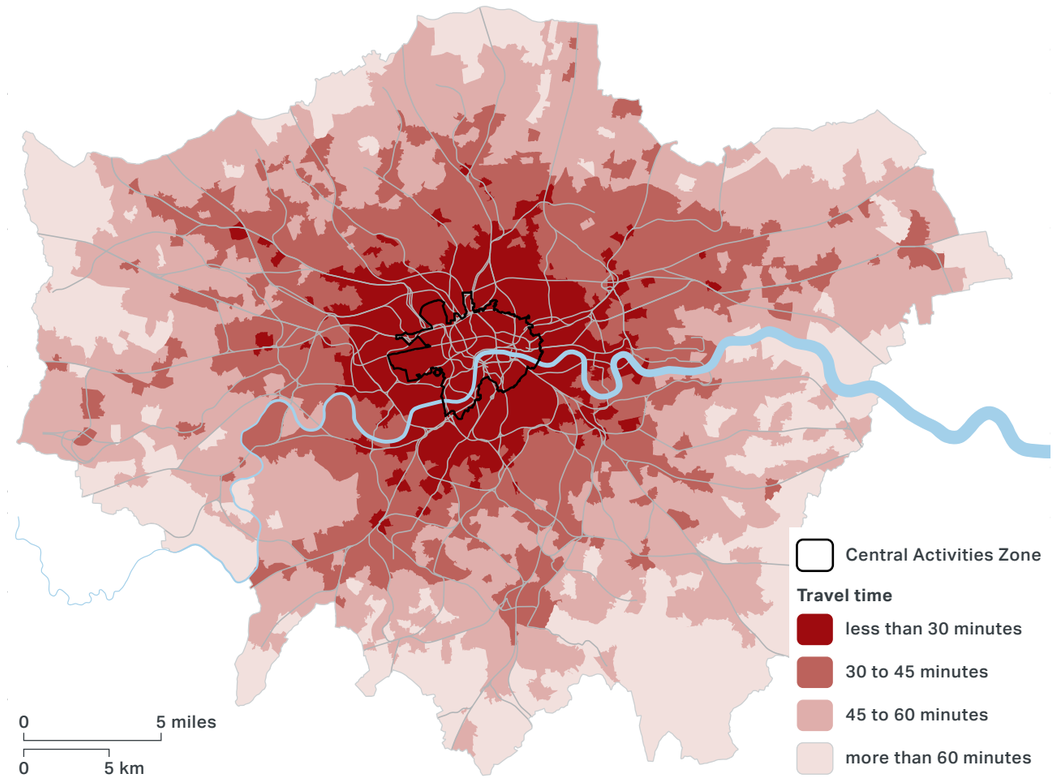
Figure 23 shows that residents of most of London can reach the Central Activities Zone (CAZ) in under an hour, with most inner London residents able to reach the centre in less than 45 minutes.

Tube and rail services are of essential importance to the functioning of the city, but too often the experience of using them is not good enough. Crowding is a real problem on most routes into central London on a daily basis: people struggle to get on board trains and experience uncomfortable journeys. It is also a significant barrier to using public transport for certain users such as disabled people and those travelling with young children.

Policy 16

The Mayor, through TfL and the boroughs, and working with stakeholders, will seek to transform London's rail-based services to provide safer, modern, reliable, integrated, accessible and user-friendly services, with improved journey times and an increase in capacity of at least 80 per cent by 2041 to tackle crowding and facilitate mode shift to rail.

FIGURE 23: PUBLIC TRANSPORT TRAVEL TIME TO THE CENTRAL ACTIVITIES ZONE, 2015



Growth and crowding on radial services to central London

Crowding currently exceeds four people standing per square metre on six out of ten Tube lines coming into central London. Crowding is also severe on some national rail lines, such as those coming into Waterloo. At 60 per cent of stations within Zone 1, Tube trains depart with crowding in excess of four people standing per square metre. This is particularly challenging at Tube stations serving national rail termini, with more than 75 per cent of stations affected. This can make it difficult to board trains in some cases, and delays journeys.

Employment growth will exacerbate this, generating an increase in travel by all rail modes of more than 50 per cent by 2041. A step-change in capacity will be needed to address both of these challenges. If just the current investment programme (which excludes Crossrail 2) were followed, crowding on the Tube and rail networks would increase to well in excess of tolerable levels on some services in the morning peak by 2041, as shown by Figure 33.

The first step in tackling crowding is to inform the public of the best modes, routes and times for their journey so that they can, when possible, avoid the most crowded parts of the network. This might mean walking or cycling in the morning peak, for example, rather than making a short journey on a crowded Tube service. The provision of information both before and during the journey should be improved, making the most of new technological opportunities as they arise, to enable Londoners to make best use of their available travel options.

Proposal 60

The Mayor, through TfL, will seek to consistently deliver real-time data, information and visualisations for the Tube, rail, buses and streets via multiple customer channels. TfL will develop real-time tools for operational staff to improve the communication of overcrowding and congestion information to customers.

Most people travelling on crowded parts of the public transport system, however, have limited ability to alter their travel patterns. The provision of significant additional public transport capacity is therefore essential to tackle crowding, to enable mode shift and to provide for the expected growth in London's population.

A sufficient increase in capacity can only be achieved through building new lines, in particular Crossrail 2, and getting the most out of the existing network (see Figure 24). The strategy will increase capacity on all routes to enable growth and relieve the most crowded sections of the network. Rail capacity improvements to central London are shown in Figure 25. All the improvements contained in this strategy and set out in this chapter and Chapter five are needed to achieve this capacity increase.

FIGURE 24: PROPOSED RAIL AND TUBE CAPACITY INCREASES, 2015-2041, MORNING PEAK HOUR

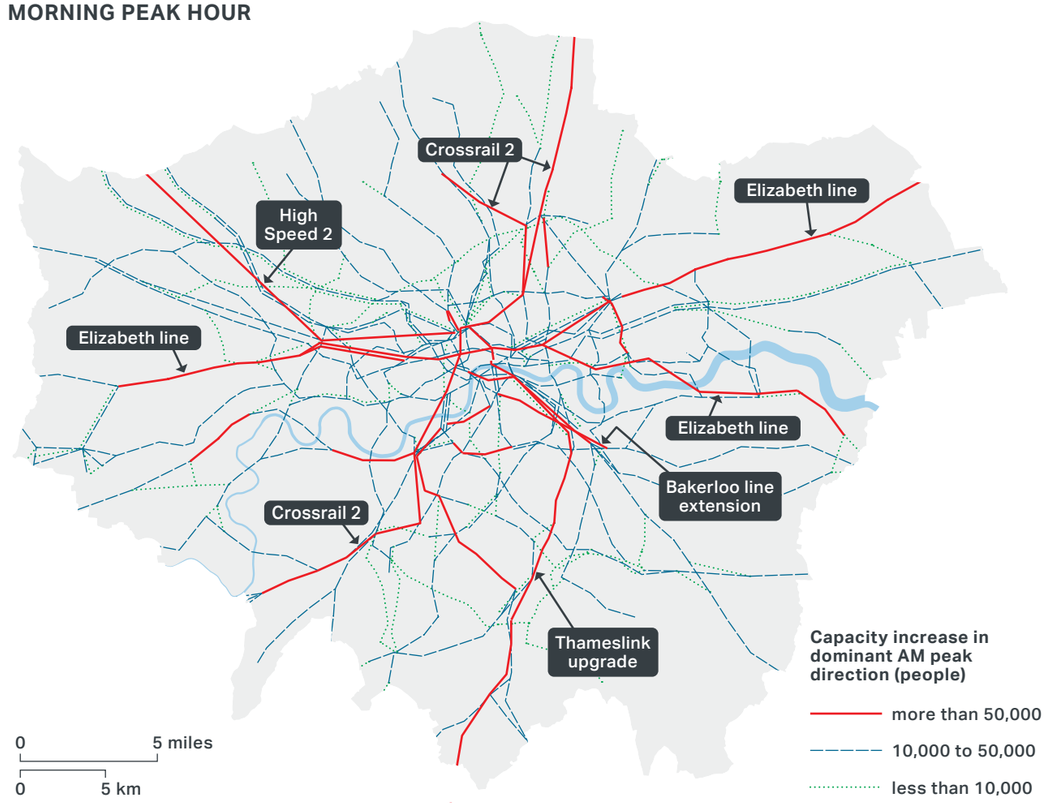
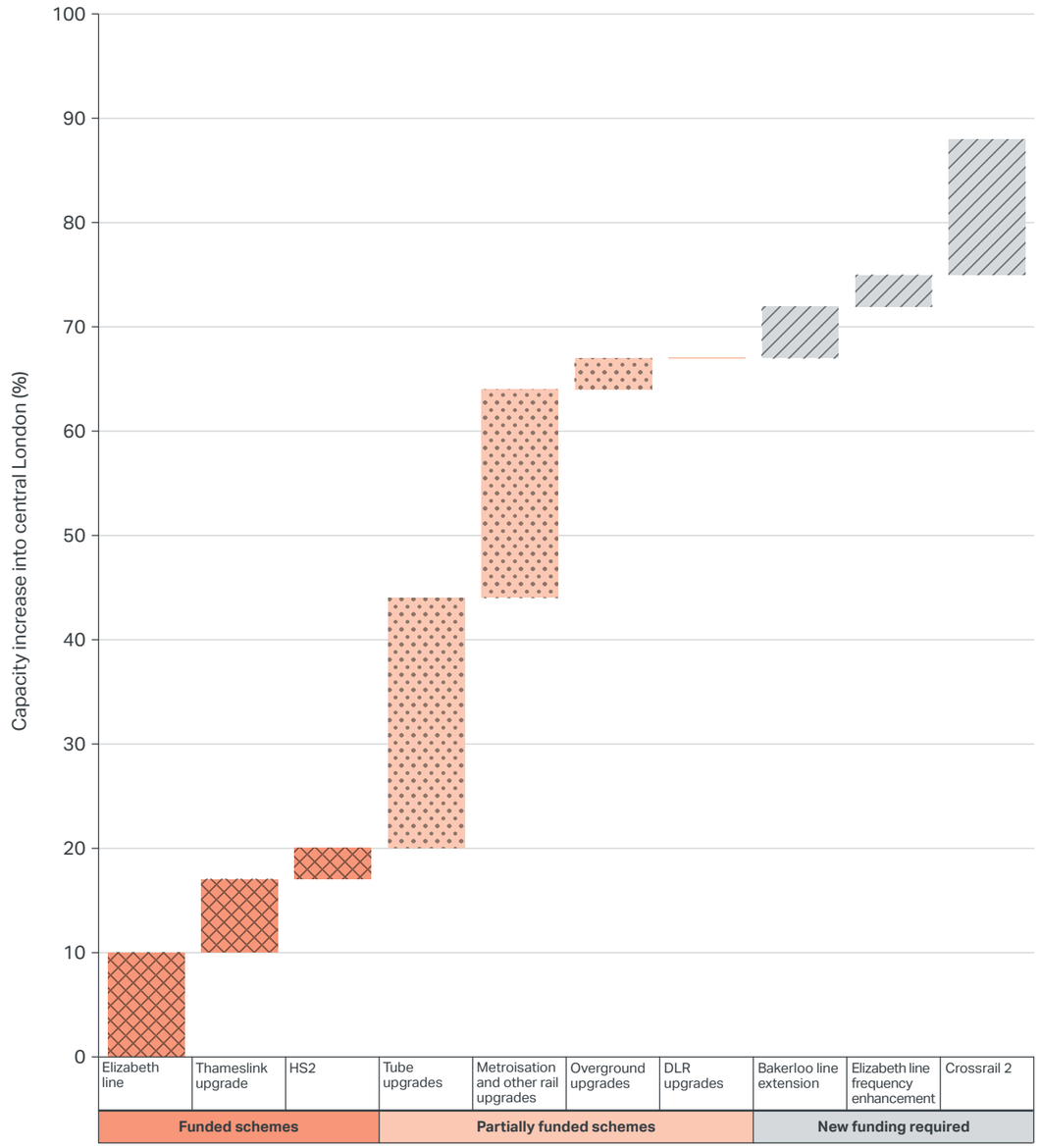


FIGURE 25: PROPOSED RAIL CAPACITY IMPROVEMENTS TO CENTRAL LONDON, MORNING PEAK, 2015-41



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FOCUS ON: CROSSRAIL 2

With London's population and employment growing, its transport infrastructure needs major improvements if it is to remain a successful city that can support the UK economy and provide a good quality of life for all its residents.

London is the world's pre-eminent international financial and business centre and the most productive economic region in the UK. Home to just over 13 per cent of the UK's population, it generates around 23 per cent of GVA and more than 25 per cent of national tax revenues. Through its trade and transport links, it also serves as an international gateway to the whole of the UK, with the entire nation benefiting from trade and investment generated in London. Despite current successes, however, the city's future international competitiveness is threatened by significant transport challenges and a severe housing shortage.

Crossrail 2 is a major new rail project that must be at the heart of London's response to these challenges. It will benefit businesses, residents and commuters across London, the Wider South East and the whole nation. It will enable London's highly productive economy to continue to grow by helping 270,000 more people get into the centre in the morning peak. It will thereby support 200,000 new jobs, as well as unlocking 200,000 additional new homes – more than 30 per cent of them outside London.

More than that, Crossrail 2 is an infrastructure scheme of national importance. It will be at the heart of the UK's post-Brexit economy, one of a series of key regional projects to boost Britain's competitiveness. Prioritising these schemes is not a zero-sum game: a series of infrastructure investments for growth is needed in every region, and each new project will support growth across the whole country. This will send a clear message that Britain is open for business and ready to compete.

Crossrail 2 involves connecting existing national rail lines in Surrey and Hertfordshire with two new 37km tunnels from Wimbledon to Tottenham Hale and New Southgate (see Figure 26). This main section will carry up to 30 trains an hour in each direction, increasing London's overall rail capacity by 10 per cent.

Combined with improved connectivity – the new line will connect with eight Underground lines, the London Overground, the Elizabeth line, High Speed Two (HS2) and national and international rail services – this extra capacity will allow Crossrail 2 to cut journey times to destinations across London. For example, a journey from Clapham Junction to Tottenham Court Road will be reduced by around 15 minutes.

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FOCUS ON: CROSSRAIL 2 (continued)

Crossrail 2 will reduce crowding on the Tube, which threatens to become severe by the early 2030s. For example, it will reduce demand on the busiest section of the Northern line Morden branch by around 20 per cent. Without Crossrail 2, many Underground station entrances across the network would need to be closed frequently in the future due to overcrowding. Crossrail 2 will prevent this at many of the busiest Underground stations across the network, including major interchanges at Waterloo, Euston and Victoria – playing a critical role in keeping London moving.

Moreover, Crossrail 2 will help make the transport network far more accessible. All Crossrail 2 stations will be step-free and Crossrail 2 trains will have wide doors and aisles, dedicated wheelchair spaces, and on-board passenger information. Like the Elizabeth line, it will deliver a step-change in London's rail capacity, as well as in links between London and the Wider South East, and provide an opportunity to enable better interchange between public transport modes, walking and cycling at key stations.

Crossrail 2 is vital not only to prevent London's transport networks coming to a standstill, but to open up connectivity across the whole of the Wider South East. Around a third of the benefits will be to users starting their journeys from outside London, and it will deliver reduced journey times across a wide swathe of southern England, from the Solent to the Wash.

For example, on the South West Main Line into Waterloo, the UK's busiest main line railway, crowding is already severe. Without Crossrail 2, in the 2030s it is forecast that there would be five people squeezed into every square metre of carriage space during peak periods. Crossrail 2 will transform that crush by creating space for an additional ten suburban trains and eight additional regional trains every hour in the morning peak, and a further ten new trains in the corridor between Wimbledon and central London. The new capacity it releases will allow new long-distance services to cities such as Portsmouth, Guildford and Southampton – key locations for housing and business growth.

Meanwhile, Crossrail 2 will also transform connectivity for key growth areas in north east London and beyond. It will allow at least 12 additional stopping trains to run on separate tracks on the West Anglia Main Line, as well as releasing extra capacity for regional services. It will deliver shorter, more reliable journeys between London, Cambridge and Stansted Airport – a key growth corridor.

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FOCUS ON: CROSSRAIL 2 (continued)

FIGURE 26: CROSSRAIL 2 ROUTE (CONSULTATION 2015)

Crossrail 2 indicative alignment 2015 (subject to change)

Only a major project bringing frequent, 'turn-up-and-go' rail services can open up some of the significant areas in need of regeneration in London, especially in north east London. Indeed, the route has been designed to improve links and to unlock major opportunities for new housing such as in the deprived Lee Valley, one of London's largest 'Opportunity Areas' for housing.

But the benefits of investing in Crossrail 2 will also be felt right across the UK. It will add up to £150bn to the UK economy. It will support the country's engineering, construction and manufacturing sectors and give them the confidence to invest, and develop skills. Based on analysis of the Elizabeth line supply chain, it is estimated Crossrail 2 spend with suppliers can, for example, add more than £1bn to the West Midlands economy, more than £200m to the north east of England and up to £170m to the Scottish economy. During construction, Crossrail 2 will also support around 60,000 full-time jobs across the UK, and thousands of apprenticeships.

Crossrail 2 is affordable. London has shown how it can fund more than half of the £30bn cost over time, and the project's huge boost to the national economy will generate additional tax revenues of up to four times the remaining half of the costs. These revenues include growth in stamp duty and business rates, which TfL's evidence[6] provided to the London Finance Commission showed can deliver an extra £9bn in zones around Crossrail 2 stations.

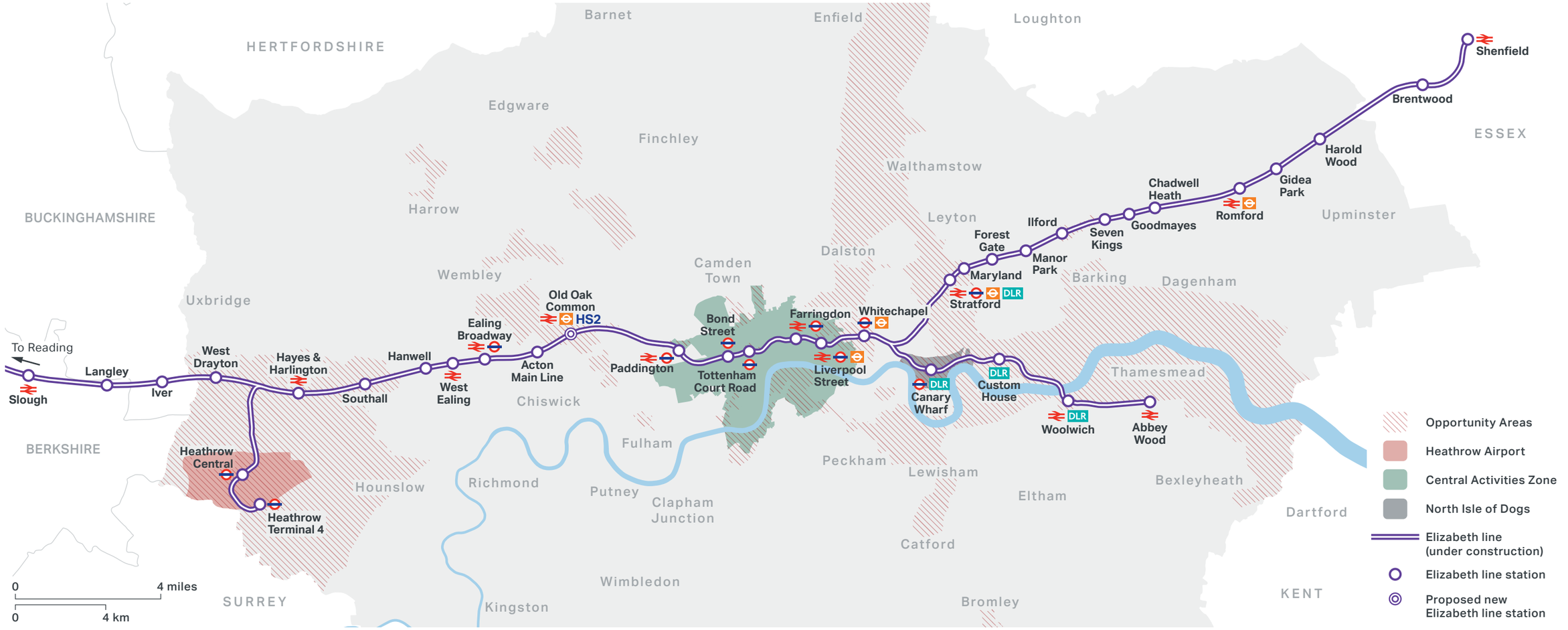
The proposal for Crossrail 2 commands widespread public support. It was unequivocally endorsed in 2016 by the National Infrastructure Commission, the Government's independent body tasked with reviewing the scheme in detail. The Government has already committed sufficient funding to obtain the necessary powers for its construction, through a hybrid bill in Parliament. Construction could start in the early 2020s, with Crossrail 2 opening before the arrival of HS2 phase 2b at Euston in the early 2030s. It is essential for the good of the nation that this project is delivered.

Proposal 61

The Mayor, through TfL, will work with Government and stakeholders to finalise the Crossrail 2 route alignment and stations, ensuring the project progresses through the detailed design phase to gain powers to enable construction to start in the early 2020s, with the line opening by the early 2030s in time for the opening of Phase 2b of High Speed Two.

6 Land Value Capture – final report, www.london.gov.uk, February 2017

FIGURE 27: ELIZABETH LINE



The Elizabeth line, due to open in 2019, will increase capacity to central London by about 10 per cent and will transform the experience of travel across the capital. Trains will feature walk-through carriages, air-conditioning, CCTV and live travel information. The line, the route of which is shown in Figure 27, will relieve crowding on the Tube network and reduce journey times from east and west London, including Heathrow, to central London and the Isle of Dogs. It will reduce congestion at Paddington and Liverpool Street and in the West End. The Elizabeth line will mean that an extra 1.5 million people will be within 45 minutes' commuting distance of central London; those living in the south east of the city, for example, will be able to directly access the West End for the first time.

The Elizabeth line has been designed to allow for future increases in capacity, given the expected demand growth associated with an increasing population and growing employment in the areas it serves.

Proposal 62
The Mayor, through TfL, will work with the DfT to open the Elizabeth line in 2019, with services initially providing 24 trains per hour through central London and increasing in frequency during the 2020s as demand requires.

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Increasing capacity and improving Tube services

Even with the Elizabeth line, as London grows, crowding on the Underground will increase significantly. Investment in the Tube network is essential to support this anticipated growth, seeking to make the most of the potential capacity the network can offer. New trains and upgrades to signalling, track, and train control systems will be needed to enable more frequent services and faster journey times, as well as improved accessibility and a more pleasant travelling environment. Upgrading the network while providing a safe, frequent service day in, day out is extremely challenging and requires significant resources. Investment in Tube improvements will need to continue over the lifetime of this strategy.

The current Four-Line modernisation programme will improve reliability and ensure a highly efficient service on the Metropolitan, District, Hammersmith & City and Circle lines. Following the roll-out of new walk-through trains, the programme will upgrade signalling and train control systems to enable higher service frequencies. This will result in an increase to 30 trains per hour in central London by 2021, allowing up to 102,000 additional journeys in the morning peak, with a further increase to 32 trains per hour in the mid-2020s. The programme will also provide step-free access from train to platform and a more comfortable journey experience.

In the longer term, capacity will need to be increased across the network. On the Piccadilly line, new higher-capacity, walk-through trains will be introduced, and signalling and track upgraded. This will enable frequencies of 33-36 trains per hour, allowing up to 77,000 additional journeys in the morning peak. TfL will optimise services in west London by running Piccadilly line services, instead of the District line, to Ealing Broadway. This will take place in the 2020s following the upgrades of these lines and will enable increased frequencies to the busier Richmond and Wimbledon branches of the District line.

On the Victoria line, frequencies were increased in 2017 to a peak of 36 trains per hour, and further improvements will lengthen the peak period and improve early morning services, allowing up to 15,000 additional journeys in the morning peak. Frequencies of up to 36 trains per hour could be achieved on the Jubilee line, allowing up to 27,000 additional journeys in the morning peak. On the Northern line, frequencies of 30-32 trains per hour could allow up to 54,000 additional journeys in the morning peak. Capacity will also be increased on the Waterloo & City, Central and Bakerloo lines.

Proposal 63

The Mayor, through TfL, will invest in the Tube network to improve the capacity and reliability of its train services.

Capacity increases on national rail services to tackle crowding

National rail services are vital to London's economy, allowing over half a million people to travel into central London every working day. In addition to commuters arriving from outside London, much of London itself, especially south London, is dependent on the national rail network for access to the centre. Demand on the network for travel to central London in the morning peak is forecast to rise by at least 50 per cent by 2041, increasing crowding, so capacity improvements are needed.

Investment is needed in modern, digital signalling and train control systems to enable higher service frequencies and reliability. Digital Railway, the rail industry's plan to modernise the UK's railways through targeted use of digital technologies, is expected to deliver improvements in performance and capacity. In some instances, especially in busy urban areas, this is less disruptive and more cost-effective than alternative options such as building new tracks. The plan focuses primarily on traffic management, which optimises the flow

of trains across the network and thereby improves performance, and the European Train Control System, also known as in-cab signalling, which reduces headways between trains and thereby has the potential to improve capacity.

In addition to Digital Railway, improvements in track layouts at key bottlenecks and capacity upgrades at stations would both allow more trains to run. More capacity is needed on both local and longer-distance services, the latter being used by outer London residents, as well as people travelling from further afield. Partnership working between the Mayor, TfL, Network Rail and the DfT is crucial to delivering these improvements.

The first priority is the Brighton Main Line, where a major upgrade is needed to unlock bottlenecks at East Croydon and other locations on the line that passes through Gatwick Airport. This will have substantial benefits for commuters using fast services from Croydon and outside London, as well as unlocking new capacity for better local services across South London, allowing more people to commute to Croydon town centre by rail.

Other priorities include additional Southeastern rolling stock, increased frequencies into Moorgate, longer trains into Fenchurch Street and improvements on the West Anglia Main Line. Reconfiguration of tracks at Bow and in Battersea will allow more trains to run to Liverpool Street and Waterloo, respectively. Electrification of more of the network (e.g. connections to the Gospel Oak line and services to Marylebone) and providing more 12-car train services (with platform extensions and station improvements to support this) are also required to provide the necessary capacity increases both to and within London.

In the longer term, improvement works will be needed to relieve bottlenecks at places such as Clapham Junction, Lewisham and Herne Hill. Many of these schemes will support proposals for more metro-like suburban rail services as described in the next section.

Proposal 64
The Mayor, through TfL, will work with Network Rail and the DfT on schemes that will increase the capacity and reliability of the national rail network to and within London, managing crowding on both local and longer-distance services.

Rail services to enable mode shift from car in inner and outer London

While rail and Tube are the main modes of radial travel to central London, cars are the principal means by which Londoners make orbital journeys in inner/outer London. The success of the London Overground orbital network in inner London – where usage has increased fivefold since the service was transformed by TfL – demonstrates that Londoners will use public transport services if provided.

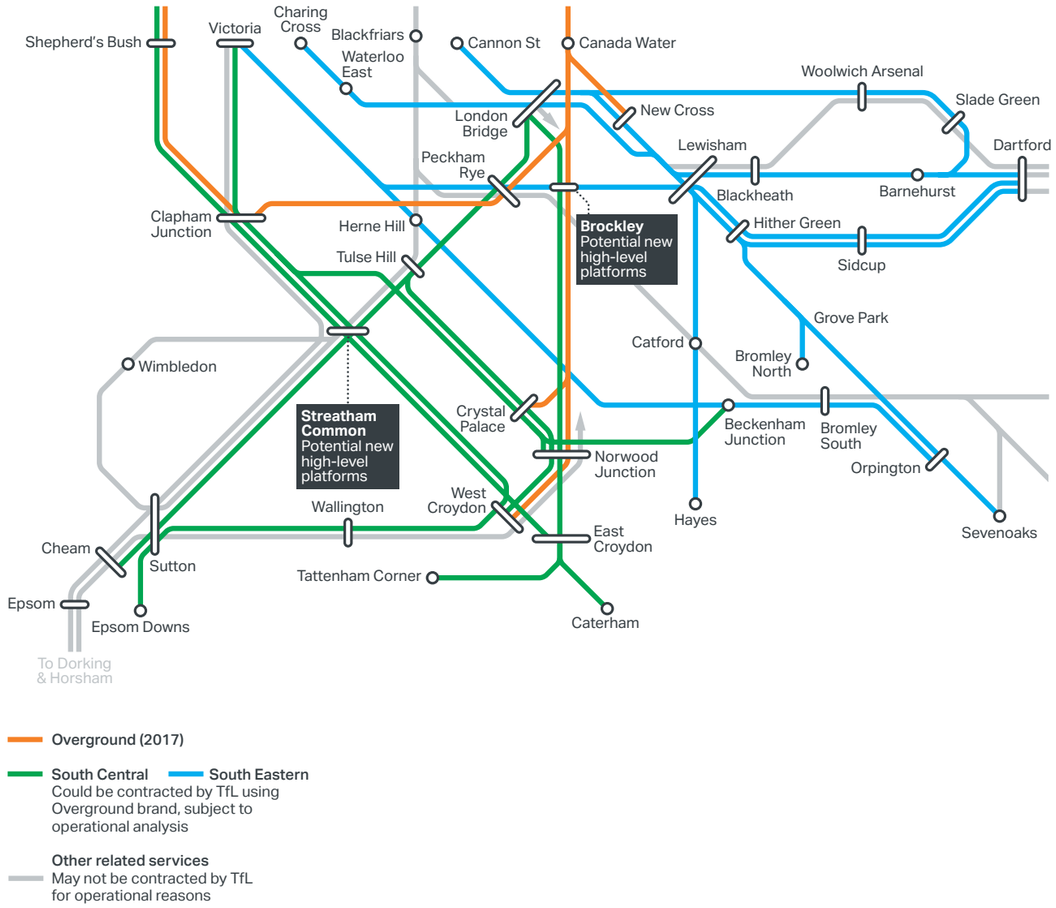
With the exception of London Overground and TfL Rail, the Mayor does not have direct control over the TOCs that provide local train services in London. Overall, the reliability and quality of the services provided by these TOCs – which provide most of the services used by Londoners – continue to lag behind that of London Overground and TfL Rail, and hence the Mayor has concerns regarding their ability to contribute to achieving the vision and aims of this strategy.

Responsibility for these services should therefore be devolved from DfT to the Mayor (see Focus on: Devolution of Suburban Rail Services to TfL Control), who would then work to ensure they are improved to provide better levels of service.

A new London suburban metro
South London relies on its suburban rail network for connectivity to central London. However, there is a substantial and growing gap between the level of service that can be offered on national rail in south London, and the frequency and reliability now offered on the Tube and bus network. Local train services on the Great Northern line and in south London (see Figure 28) should be modified to create a London suburban metro, offering improved frequencies, journey times and interchange opportunities. These improvements could be delivered by the late 2020s and would provide up to 124,000 additional places into central London in the peak period from south London, and up to 38,000 additional places in the peak period on non-radial services around inner and outer London. Journey times could improve by up to 15 per cent. As outlined in Proposal 64, TfL will work with Network Rail to identify and deliver the improvements to signalling, train control systems, junctions and stations that are needed to make best use of the network.

Proposal 65
The Mayor, through TfL, will work with Network Rail, train operating companies and stakeholders to seek the modification of the planning of local train services from Moorgate, Victoria and London Bridge to create a London suburban metro, offering improved frequencies, journey times and interchange opportunities by the late 2020s.

FIGURE 28: PROPOSED LONDON SUBURBAN METRO IN SOUTH LONDON



FOCUS ON: DEVOLUTION OF SUBURBAN RAIL SERVICES TO TFL CONTROL

Through the success of London Overground, TfL has demonstrated that it can significantly improve customer service. This same quality service should be available to all Londoners. While the capacity enhancements described above are crucial, even greater benefits to Londoners could be achieved if they were accompanied by devolution from the DfT to TfL of specifications for local train services in London within the South Eastern, South Western, South Central and Great Northern franchises as soon as practicably possible. There is a strong business case for devolution of these services as it would make the creation of a London suburban metro much simpler and faster, and would provide greater benefits for Londoners and visitors alike.

Devolution would enable the Mayor to put in place better incentives for the franchisee to deliver the same reliability standards as London Overground, and to specify improved service frequencies at off-peak times, especially at weekends. Stations would be more welcoming, with staffing from first to last trains, and a cleaner, brighter environment. There would be integrated travel advice and improved information, as well as a move towards more affordable, simple and integrated fares over time, and increased availability of step-free access and 'turn-up-and-go' travel for wheelchair users.

With devolution, TfL's role would be restricted to selected local passenger services within the London area or slightly beyond where the geography of the railway network requires it. Passengers using longer-distance services, which would remain the responsibility of the DfT, would be unaffected in terms of fares, train stopping patterns or relative priority of services. TfL would have no ability to alter their timetables, although TfL estimates there would be beneficial knock-on reliability improvements as a result of devolving local stopping services to TfL.

Figure 29 shows the assumed geographic scope of the local stopping services that would transfer to TfL under devolution. Almost 50 per cent of passenger journeys on these local stopping services are made on the existing London Overground network and the services that will form part of the Elizabeth line.

Proposal 66
The Mayor, through TfL, will continue to seek the devolution from DfT to the Mayor/TfL of the responsibility for local stopping rail services in London in the interest of providing improved customer services more efficiently and more quickly, and to enable better integration with London's wider transport system.

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FIGURE 29: ASSUMED GEOGRAPHIC SCOPE OF THE LOCAL STOPPING SERVICES THAT WOULD TRANSFER TO TFL UNDER DEVOLUTION

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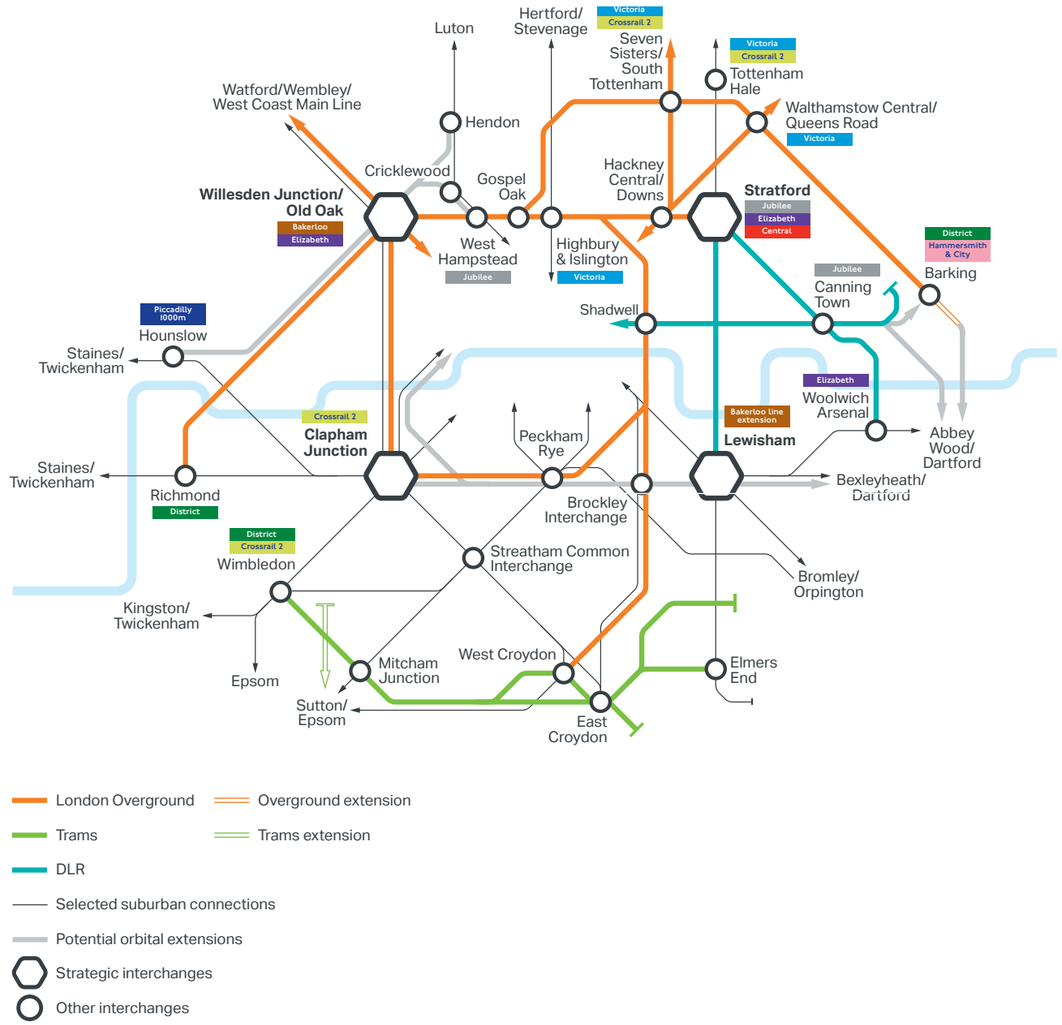
Improving rail services to town centres
Travel in much of inner and outer London will be transformed by improved rail links to town centres, creating new rail hubs. Town centres would be served by 'mini-radial' networks, developed by improving train services on existing lines, opening some new lines, and creating new interchange hubs. Linked together, these mini-radial networks could provide for orbital trips to be made by rail in inner and outer London. Figure 30 shows potential mini-radial hubs and orbital rail links.

Improved orbital rail services, integrated with bus services and improvements for cycling and walking, would enable significant benefits to be achieved across most of inner London and much of outer London from what is largely the existing rail infrastructure. An improvement to the orbital network would enable mode shift and reduce reliance on the car by providing more options for Londoners to take good-quality, reliable, less crowded and fast public transport to local destinations in inner and outer London. The 'reach' of the step-free network would also be enhanced, in a cost-effective way, therefore increasing options for disabled users and those travelling with, for example, baby buggies or luggage.

FIGURE 30: POTENTIAL MINI-RADIAL HUBS AND IMPROVED ORBITAL RAIL LINKS IN INNER AND OUTER LONDON



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The improved orbital network would provide 'knock-on' benefits for users on some of the most crowded and congested parts of the network: it would reduce the need to travel to/through central London to reach the final destination, thereby reducing pressure on rail terminals and public transport routes to central London. The orbital network would also improve public transport network connectivity and resilience at times of service disruption.

Proposal 67
The Mayor, through TfL, will work to encourage the development and integration of inner and outer London rail services and multi-modal interchange hubs to create 'mini-radial' public transport links to town centres and to provide improved 'orbital' public transport connectivity.

In the first instance, improving the orbital rail network means enhancing those interchanges that maximise public transport connectivity across inner and outer London at Clapham Junction, Lewisham, Stratford and potentially Old Oak.

These interchanges are critical as they have superior connectivity in their respective areas of London. They can each provide multiple high-frequency radial services to central London, high-quality orbital services that connect to other parts of London and high-frequency local bus services.

Stratford and Clapham Junction are well-established hubs, but they are both becoming congested and more capacity is needed. Lewisham is a very significant local hub but needs a major upgrade and more frequent rail connections to the rest of south London to fulfil its potential as a strategic interchange. A new London suburban metro would support this. Old Oak is an emerging hub that will need new stations and connections to enable it to act as a major strategic interchange for north west London.

Priority should also be given to enhancing step-free connectivity at stations and busy bus interchanges, enabling multi-modal travel.

Current investment will enable an upgraded service on the Gospel Oak to Barking line in 2018 with longer, electric trains. Beyond this, a capacity enhancement programme should provide longer trains and/or higher frequencies on the North and West London lines by the mid-2020s, and potentially new stations at Old Oak, enabling a service offering 10-12 trains per hour between Clapham Junction and Old Oak. This will meet growing demand, and support growth at Old Oak and Stratford.

Also by the 2020s, improved signalling will enable train frequencies on the East London line to be increased from 16 to 20 and then to 24 trains per hour. This will allow more trains to serve Clapham Junction, and the rest of the line via Forest Hill. Targeted capacity improvements on the Watford-Euston and West Anglia lines should be provided in partnership with Network Rail.

Proposal 68
The Mayor, through TfL, will work with the DfT to increase the capacity of the London Overground network by 45 per cent by 2030.

The tram and Docklands Light Railway (DLR) networks provide radial services to rapidly growing Croydon, and to the City and Isle of Dogs areas respectively. In doing so, the networks also contribute to improving London's orbital connectivity. Capacity and other improvements are required on each of these networks to cater for mode shift from the car in the areas they serve, and also to connect better with the broader orbital network.

Rapid office and residential development in east London has meant a significant increase in use of the DLR, which is forecast to continue – it is essential therefore that capacity on this network is improved.

Proposal 69
The Mayor, through TfL, will increase the capacity of the existing Docklands Light Railway network by 120 per cent by 2041 through the introduction of a new higher-capacity train fleet and improved frequencies (towards 30 trains per hour across more of the network), accompanied by greater station capacity at major development sites and transport interchanges.

A significant capacity increase is needed on the tram system serving Croydon and south London to address crowding and help accommodate the anticipated growth in homes and jobs in south London, without reliance on the car. This will be achieved by means of new track to enable more trams to run to central Croydon by 2030, and a new and expanded tram fleet. Peak tram frequencies will be increased, from 12 trams per hour to 18 trams per hour or more on services west of Croydon (towards Wimbledon), and from 22 trams per hour to 30 trams per hour on services east of Croydon (towards Beckenham Junction/Elmers End/New Addington). Longer trams will also be introduced to increase capacity.

The above improvements will deliver an 85 per cent increase in total tram capacity to and from Croydon town centre. Most passengers will have a wait time of less than four minutes.

Proposal 70
The Mayor, through TfL, will upgrade the tram system to improve its reliability and to increase its capacity by 85 per cent to/from Croydon by 2030.

Station capacity
The increased capacity of train services described above must be accompanied by improved station capacity in some locations. Without this, stations can become bottlenecks, reducing the ability of the system to run smoothly, and resulting in station closures to ensure safety. Put simply, station capacity enhancements must be delivered in tandem with train service capacity improvements for the system to work as a whole.

On the Tube network, works are already under way at Victoria, Bond Street and Bank. Station capacity improvements will also be needed at Baker Street, Holborn, Camden Town and other major central London stations. On the rail network, priority stations include Liverpool Street, Clapham Junction, Wimbledon, East Croydon, Barking, Lewisham and Peckham Rye.

Major station schemes to relieve station congestion also enable improvements to be made to station and interchange accessibility, with inclusive design, lifts and step-free access provided. These measures benefit all users of the station.

Proposal 71
The Mayor, through TfL and working with Network Rail and the boroughs, will deliver a programme of station capacity improvements to complement line capacity enhancements and to improve the overall public transport journey experience in London.

Extensions of the Bakerloo line to Lewisham and beyond (providing extra capacity on the Tube for 65,000 journeys in the morning and evening peak), of the London Overground to Barking Riverside, of the Northern line to Battersea, and of the DLR to Thamesmead will enable more Londoners to use public transport and reduce future car dependency. These schemes, which will unlock development, are described in Chapter five.

Crowding and connectivity
Some of the proposals to improve the rail and Tube network are shown in Figure 31. The public transport capacity enhancements included in the strategy will reduce the amount of crowding and offer better connections across the city. Figures 32 and 33 show the improvement in crowding delivered by the funded programme only compared to that delivered by the full strategy, respectively. Figure 34 shows how access to jobs will be expanded by new and improved public transport services.

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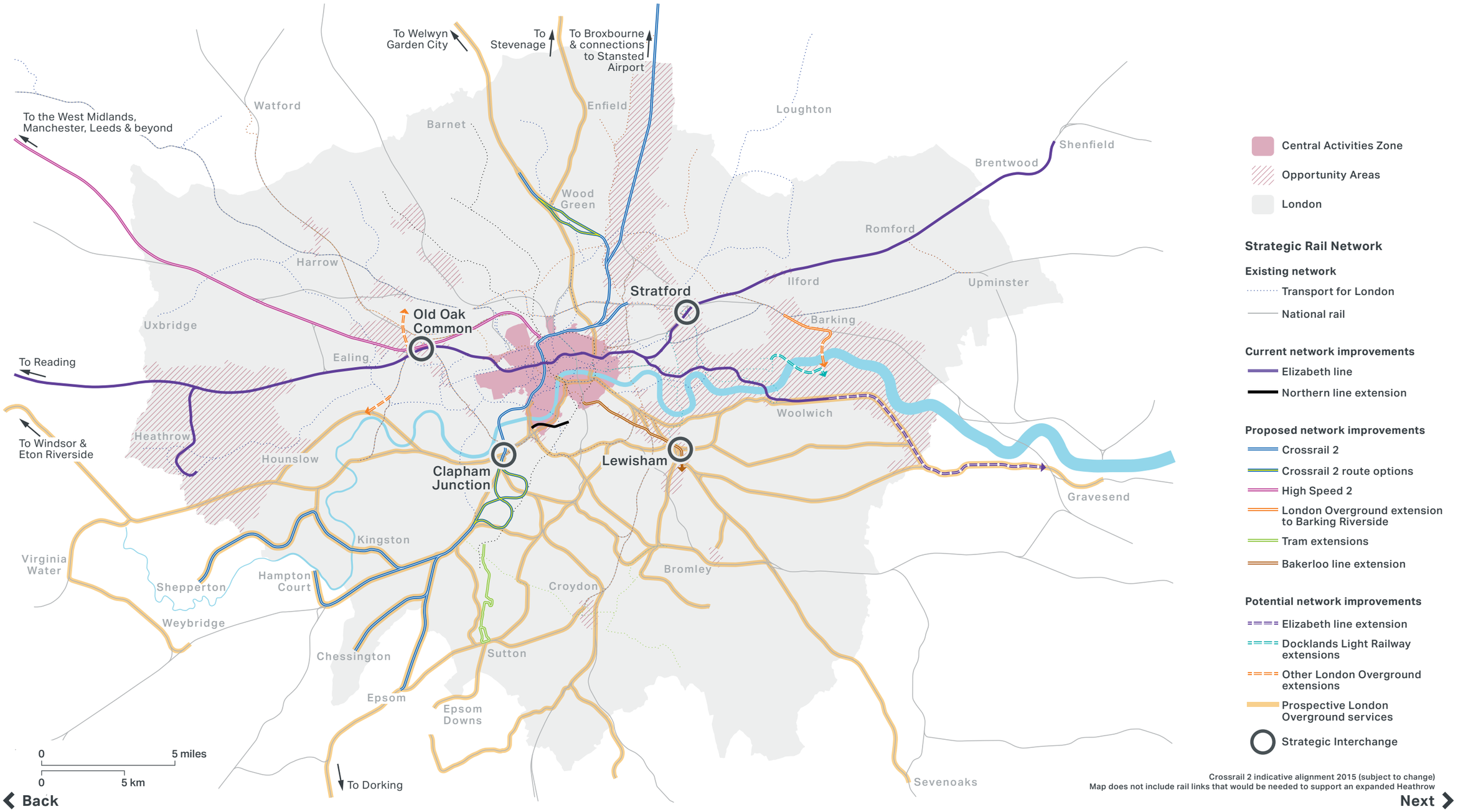
FIGURE 31: STRATEGIC RAIL NETWORK



Crossrail 2 indicative alignment 2015 (subject to change)
Map does not include rail links that would be needed to support an expanded Heathrow

FIGURE 32: CROWDING ON THE RAIL, TUBE, DLR AND TRAM NETWORK, 2041, MORNING PEAK, WITH ONLY COMMITTED INVESTMENT (IE, EXCLUDING CROSSRAIL 2 AND OTHER CURRENTLY UNFUNDED SCHEMES)

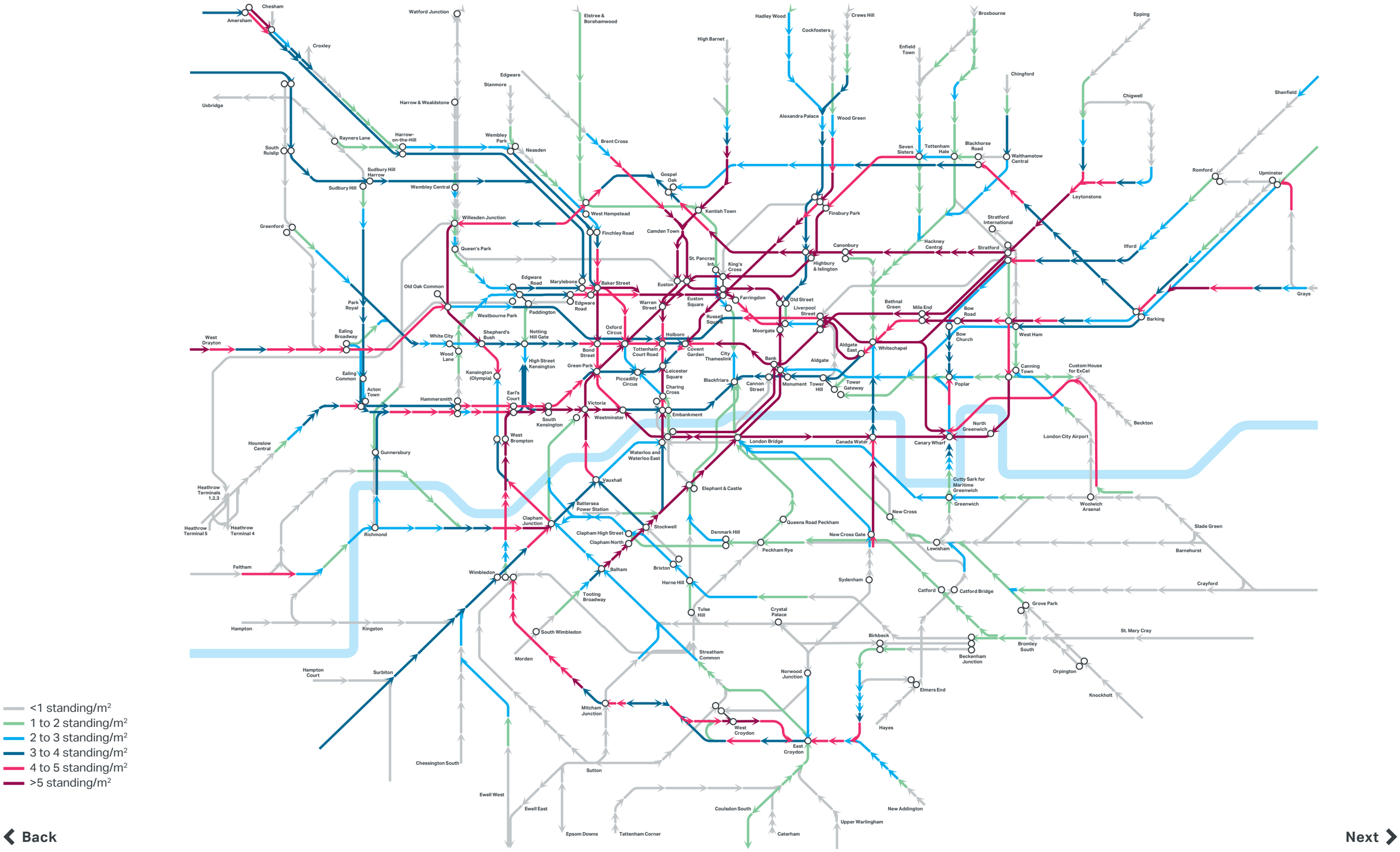


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FIGURE 33: CROWDING ON THE RAIL, TUBE, DLR AND TRAM NETWORK, 2041, MORNING PEAK, WITH THE (FULL) STRATEGY

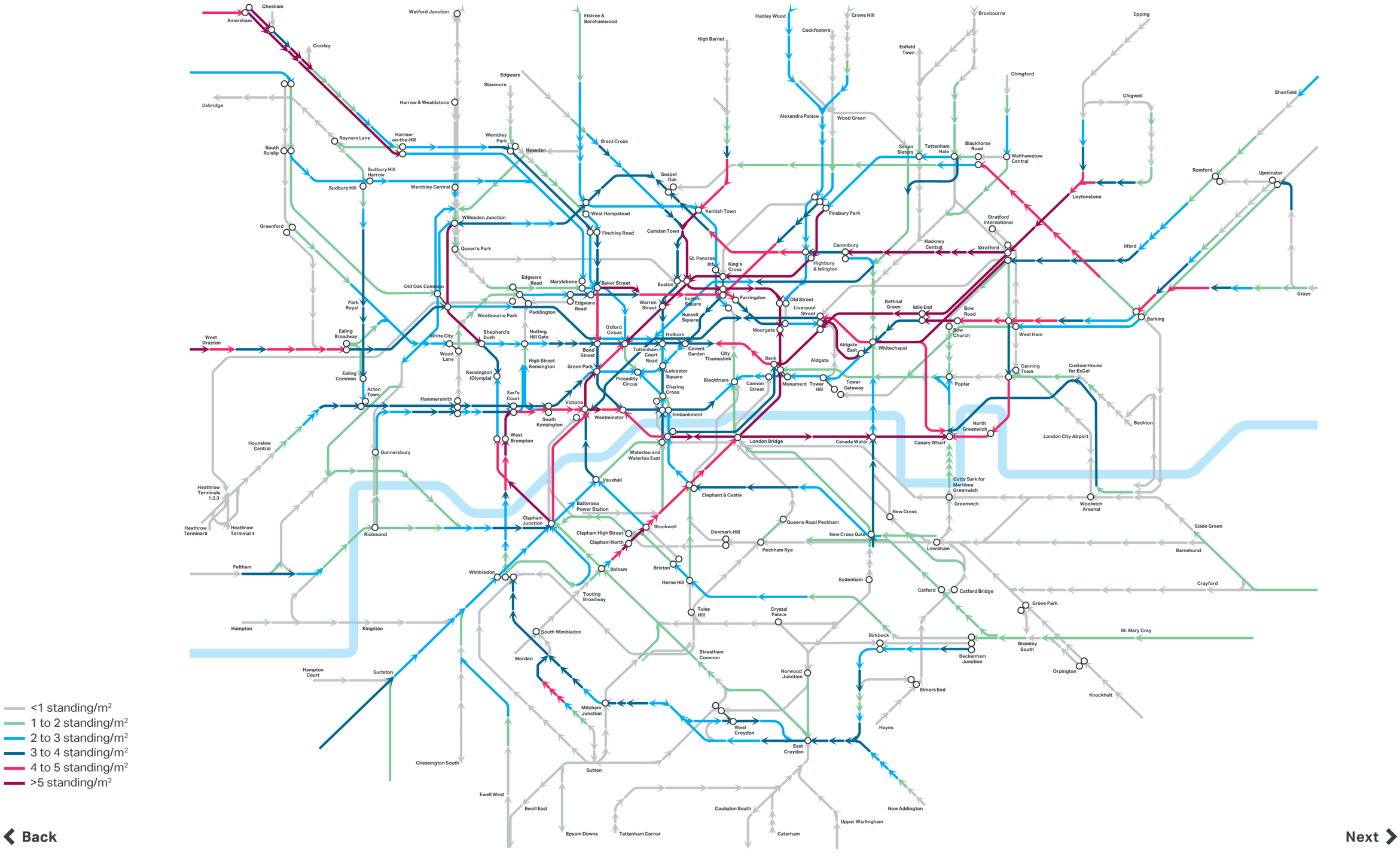

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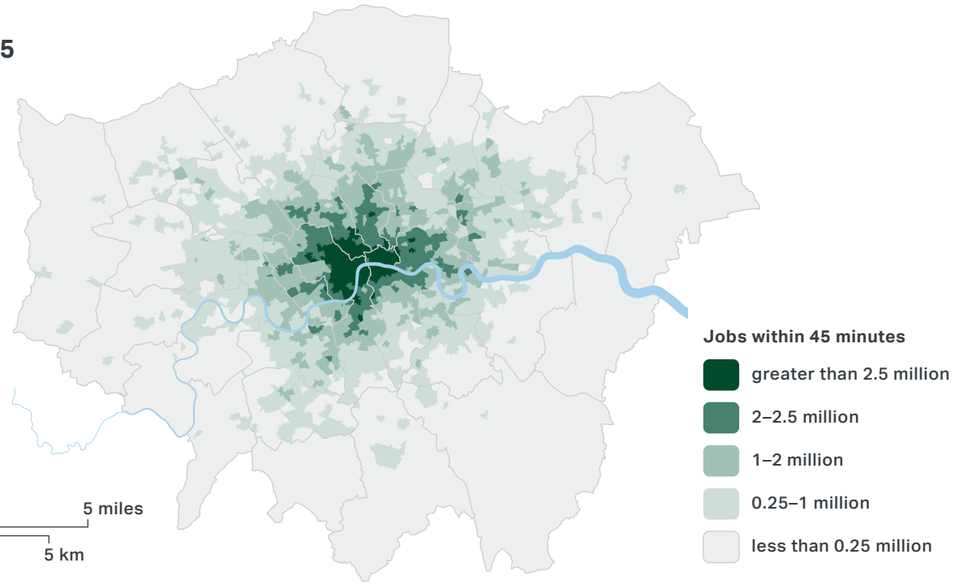
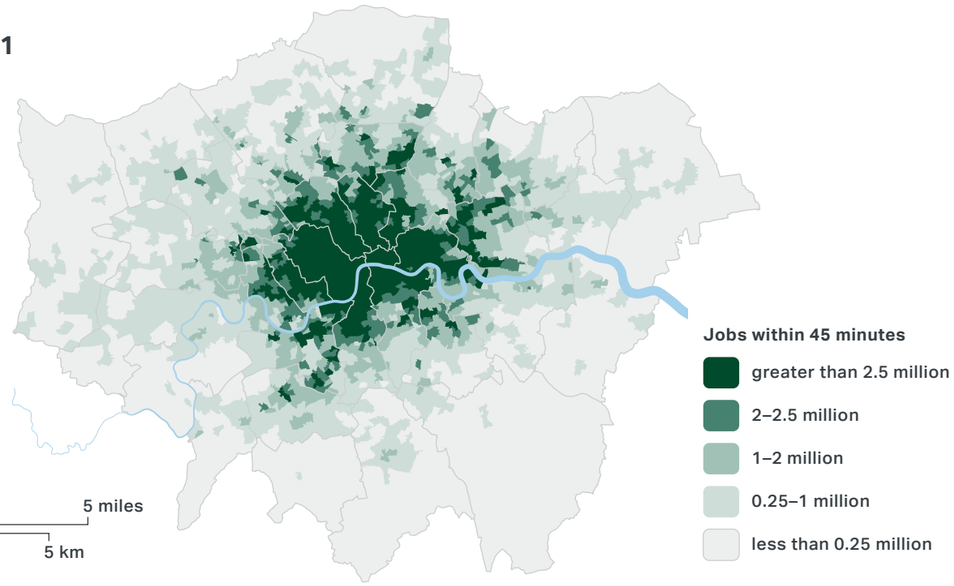
FIGURE 34: IMPROVED ACCESS TO EMPLOYMENT BY PUBLIC TRANSPORT, 2015 AND 2041

2015



2041



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FOCUS ON: RIVER SERVICES

River services are an integral part of London's public transport system and will play a role in supporting growth, particularly in east London where there is limited access to public transport. The Port of London Authority's (PLA) 2035 Thames Vision sets out proposals to better integrate piers and river services with other transport modes such as walking and cycling. The Mayor supports more freight on the river, and sees opportunities both to directly serve developments on the river and to help reduce lorry traffic. A new Thames and London Waterways Forum has been set up to co-ordinate improvements.

Policy 17
The Mayor, through TfL and the boroughs, and working with stakeholders, will seek the use of the full potential of the Thames to carry passengers, to integrate river services with the public transport system, walking and cycling networks, and to enable the transfer of freight from road to river in the interests of reducing traffic levels and the creation of Healthy Streets.

Proposal 72
The Mayor, through TfL, will work with the Port of London Authority to produce a London Passenger Pier Strategy which will promote new piers and additional capacity at strategic piers. TfL will also investigate the feasibility of new cross-river ferry services, including services between the Isle of Dogs and North Greenwich to enhance resilience in the busy Jubilee line corridor.

An extended River Bus service to Barking Riverside would provide new links to the Opportunity Area and help achieve the PLA's 2035 Thames Vision target to double the number of annual river users to 20 million by 2035. This extended service is likely to reduce crowding on other public transport modes and the street network, as well as potentially encourage more walking and cycling. New piers could be provided as part of riverside developments and would help enable new river service connections.

Proposal 73
The Mayor, through TfL, will work with host boroughs and river service operators to investigate the potential for an extension of river transport services to Barking Riverside by the early 2020s to connect key growth areas with Canary Wharf and other new developments in east London.

To support sustainable passenger and freight growth on the Thames, the Mayor will work with the PLA and other stakeholders to investigate enhanced boatyard provision on the Thames, such as at Albert Island.

The Mayor and the PLA could better manage the river if powers to regulate vessel safety and river emissions were devolved to London, so the Mayor will lobby the Government for the devolution of these powers.

FOCUS ON: LONDON'S LINKS WITH THE WIDER SOUTH EAST AND BEYOND

For London to be a less car-dependent city, and to ensure that the wider city region remains economically successful, fully inclusive public transport must not only be provided for travel within London, but should be improved for travel between London, the Wider South East and the rest of the UK, as well as to international destinations via the Channel Tunnel and via ports.

Policy 18
The Mayor, through TfL and the boroughs, and working with stakeholders, will support improvements to public transport to enhance travel between London, the rest of the UK and international destinations, and will require regional, national and international transport schemes to be integrated into London's public transport system wherever possible.

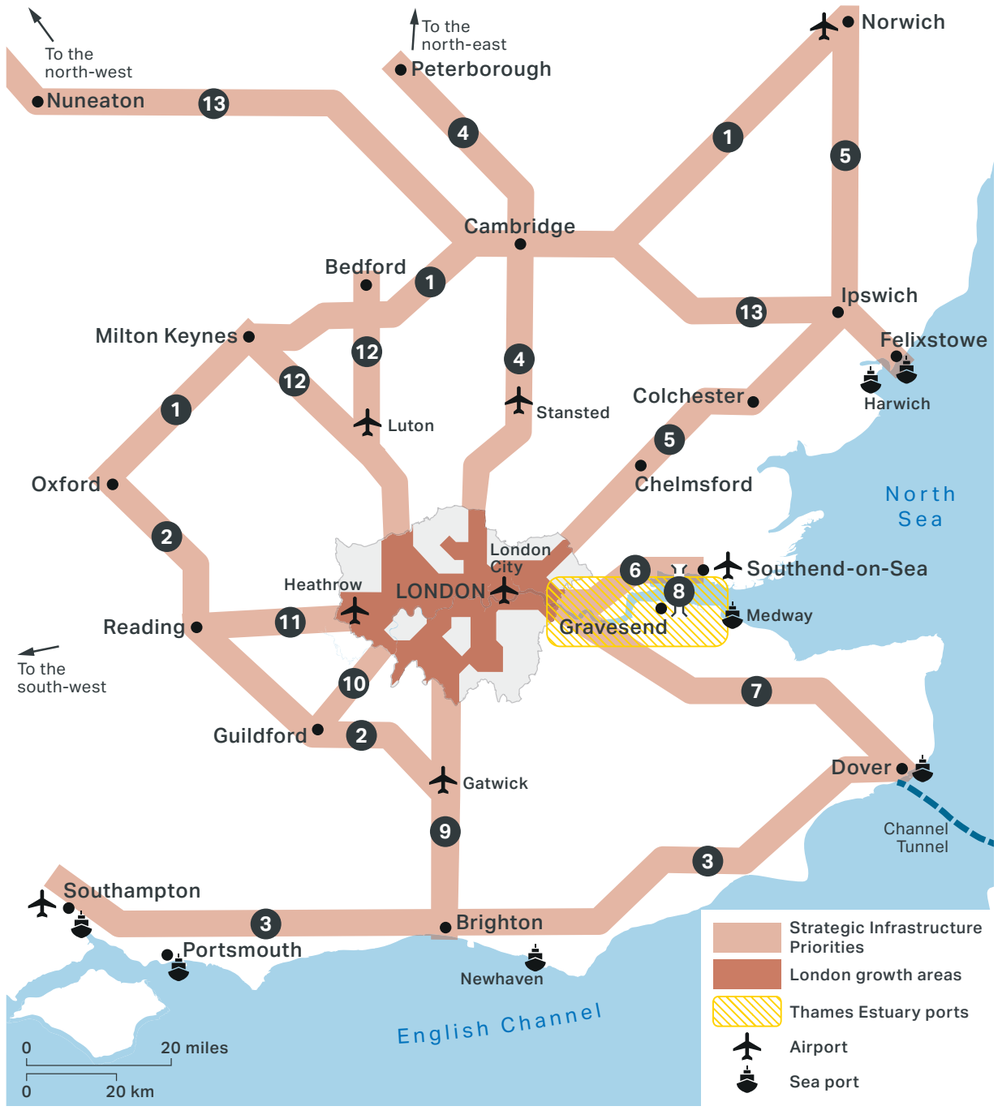
London's airports also play a vital role in maintaining and enhancing international connectivity. Proposals relating to airports are set out in Chapter five.

Wider South East

Economic growth and the provision of new housing in London and the Wider South East – the economic powerhouse of the country – depend on improvements to the connectivity and capacity of the strategic transport network. Improvements to the rail network are particularly important, as they support more active, efficient and sustainable travel. Figure 35 shows the initial strategic infrastructure priorities the Wider South East partners have broadly agreed for further investment. The orbital links (such as Dover to Southampton) are important for travel across the Wider South East and will also reduce pressure on London's crowded and congested transport system.

Proposal 74
The Mayor, through the GLA and TfL, will work with relevant stakeholders to seek to ensure that transport investment in the Wider South East supports the realisation of any associated economic and housing growth potential.

FIGURE 35: 13 INITIAL STRATEGIC INFRASTRUCTURE PRIORITIES



Strategic Infrastructure Priorities

1 East West Rail and new Expressway road link (Oxford-Cambridge)

2 North Downs Rail Link (Gatwick-Reading) including extension to Oxford

3 A27/M27/A259 and rail corridor (Dover-Southampton)

4 West Anglia Mainline, Crossrail 2 North (London-Stansted-Cambridge-Peterborough) and M11

5 Great Eastern Mainline (London-Ipswich-Norwich) and A12

6 Essex Thameside, A127 and A13 corridor

7 Thames Gateway Kent: Elizabeth line extension and HS1 (London-North Kent-Channel Tunnel)

8 Lower Thames Crossing

9 Brighton Mainline (London-Gatwick-Brighton)

10 South West Mainline, Crossrail 2 South West (London-Surrey/Southern Rail Access to Heathrow) and A3

11 Great Western Mainline (London-Reading/Western Rail Access to Heathrow)

12 Midlands and West Coast Mainline (London-Luton-Bedford/Milton Keynes)

13 Felixstowe-Nuneaton/ Midlands and A14

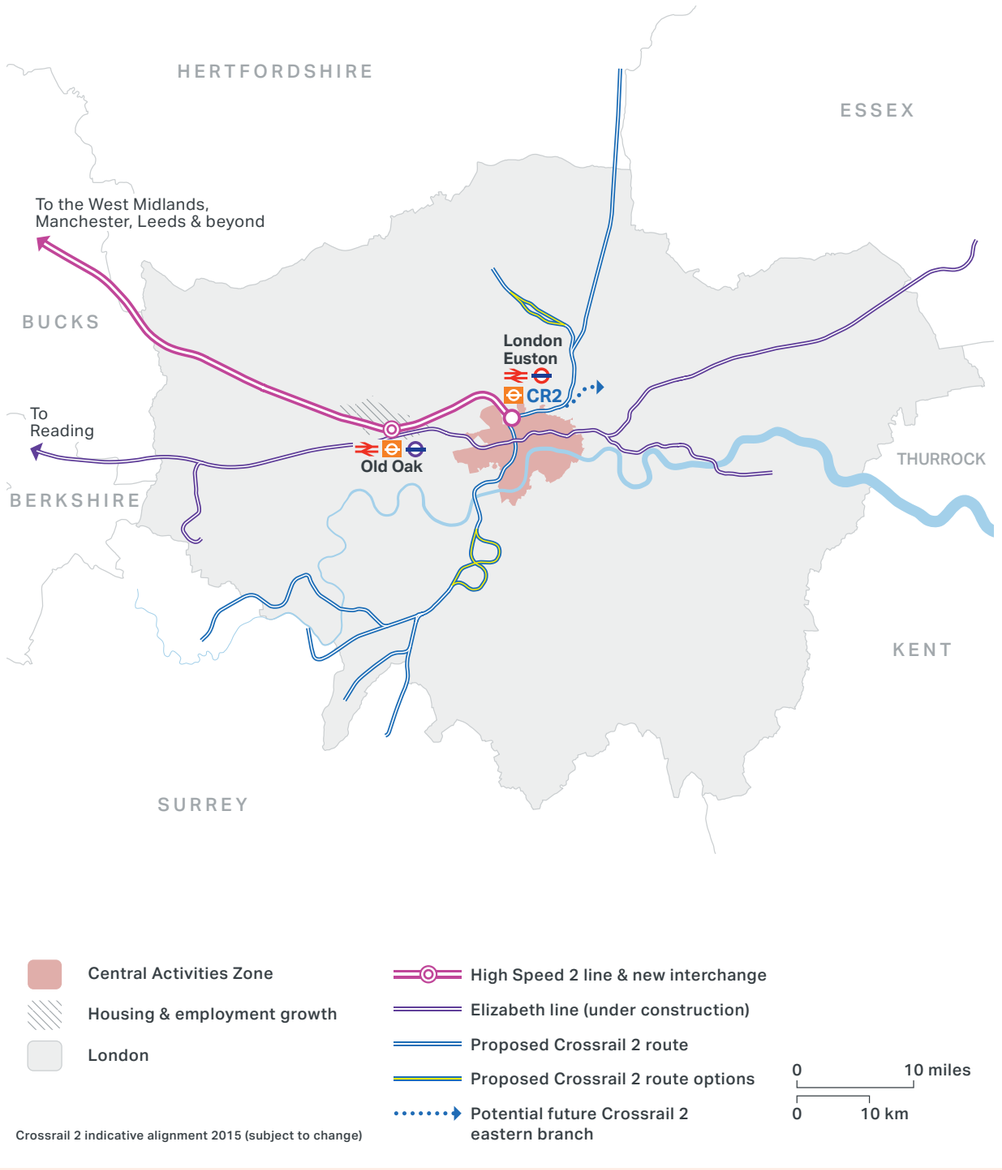
FOCUS ON: LONDON'S LINKS WITH THE WIDER SOUTH EAST AND BEYOND (continued)

High Speed Two
HS2 is the Government's scheme to improve rail capacity between London, the Midlands and the North. In order to be a success, the line must be fully integrated into the capital's public transport network to ensure access to central London from the rest of the UK, helping to spread the benefits of investment across the country.

Easy onward movement from HS2 termini will be critical to this. At Euston – where morning peak arrivals are forecast to double from about 30,000 now to more than 60,000 with HS2 phase 2 – this will necessitate Crossrail 2, a rebuilt Tube station and new bus, taxi and cycling facilities, plus improvements to walking routes in the area. It will also require a new transport hub at Old Oak Common station, linking HS2 with the Elizabeth line, London Overground and the Tube.

Proposal 75
The Mayor, through TfL, will work to encourage the DfT to ensure the delivery of High Speed Two is complemented by Crossrail 2, new gateway stations at Euston and Old Oak Common and other improvements to London's transport system, so that people are able to reach their final destination efficiently and in a timely manner by public transport, cycling or walking.

FIGURE 36: INTEGRATION OF HS2 WITH ELIZABETH LINE AND CROSSRAIL 2



FOCUS ON: COACH SERVICES IN LONDON

Coaches can play an important role in enabling people to access London for tourism, leisure and business, and to reach other parts of the UK and Europe. They are an affordable mode of travel and can be efficient for some group travel, such as, for example, school trips in outer London.

It is important that coaches are able to operate efficiently in London and are integrated into the wider public transport and street networks. This will enable improved connectivity to national and international destinations (including airports).

However, the use of coaches must be considered alongside the need to create Healthy Streets and the impact they can have on vulnerable road users. This means coaches will need to play their part in reducing vehicle dominance, particularly in central and inner London.

TfL does not operate coach services but is responsible for managing some facilities used by coaches – notably the Victoria Coach Station (VCS). It is expected that, from 2023, parts of the VCS facility will start to become unavailable to coaches due to requirements for a Crossrail 2 worksite and the expiry of leases.

Proposal 76
The Mayor, through TfL and the boroughs and other stakeholders, will ensure new coach facilities are well connected with London's public transport system while, at the same time, seeking to reduce coach kilometres travelled in central London. This will include:

a) Working with stakeholders to identify and deliver replacement facilities for Victoria Coach Station through the provision of one or more hubs.

b) Continuing to work with the coach industry to enable the provision of adequate on-street and off-street coach infrastructure in appropriate locations across London for scheduled and tourist coach services, and to allow for their safe and efficient operation.

c) Working with delivery partners including the coach and tourism industries to include coaches in the Fleet Operator Recognition Scheme (FORS).

FOCUS ON: PUBLIC TRANSPORT AND THE NIGHT-TIME ECONOMY

London's night-time economy accounts for 8 per cent of the city's GDP, contributing around £26.3bn annually, and it represents 40 per cent of the entire UK night-time economy[7]. It employs over 700,000 people. The Mayor wants to see this activity grow and has established a Night Time Commission and appointed a Night Czar to champion opportunities for businesses, restaurants, theatres and other cultural activities to make London a more vibrant city and offer an exciting experience for Londoners, visitors and tourists. This requires a comprehensive, integrated night-time public transport service.

Policy 19
The Mayor, through TfL and the boroughs, and working with stakeholders, will seek the development of London's public transport services to support the growth of the night-time economy.

The Mayor opened the first Night Tube services in August 2016 on the Central and Victoria lines, with services on the Jubilee, Northern and Piccadilly lines following. More than 200,000 journeys are made on these Night Tube services on the busiest weekends, giving users an average 20-minute journey time saving compared to using other forms of public transport.

The Night Tube service has already been extended to parts of the London Overground and there is potential for expansion to other parts of the transport network in response to demand and other factors.

In expanding the night-time network, services will be planned so that London's residents are not unfairly impacted by unwelcome noise and vibration, and policed to address any concerns regarding anti-social behaviour. Clustering night-time activity around new and existing public transport links will help to avoid noise nuisance.

Cultural events involving street closures will also be used to activate the night-time economy, helping Londoners and visitors to see how streets can be used differently at night, as well as during the day.

Around 2,000 permanent jobs are expected to be created by Night Tube, adding approximately £360m to the night-time economy over the next 30 years.

Night Bus services will be adjusted to complement night-time rail services and areas with a thriving night-time economy. In addition, more dedicated and accessible taxi ranks will be provided at strategic locations and interchanges to link with night rail services.

London's streets will be well lit and inviting at night, providing a safe, secure and enjoyable experience for those travelling on foot and by cycle. This will ensure London maintains its status as a vibrant, 24-hour capital of business and culture.

7 London's 24 hour economy, London First and Ernst & Young, August 2016

FOCUS ON: TAXIS AND PRIVATE HIRE VEHICLES

London's taxis provide a reliable and trusted service to Londoners, tourists and business people from home and abroad, offering customers safety and convenience, aided by drivers' extensive knowledge of the capital's streets. Taxis are particularly important in central London, occupying 17 per cent of the road space on an average weekday, with a further 10 per cent occupied by Private Hire Vehicles (PHVs).

Policy 20
The Mayor, through TfL and the boroughs, and working with stakeholders, will seek to ensure London has a safe, secure, accessible, world-class taxi and private hire service with opportunity for all providers to flourish.

Taxis can expand travel horizons for those requiring safe, accessible travel options. High-quality accessible taxi ranks across the capital are vital to this. New safety, equality and regulatory knowledge assessments for PHV drivers will be introduced by TfL by 2018. As Night Tube expands, new and improved taxi ranks at stations will provide safe and accessible options for onward journeys.

Taxis also have a key role to play in tackling London's air quality challenge. From 2018, taxi electric charging points will be provided to support the roll-out of zero emission capable taxis as outlined in the Ultra Low Emission proposals in Chapter three.

It is essential that the iconic London taxi brand is maintained and enhanced as its environment continues to change. This means continuing to monitor service standards, facilitating customer feedback, further improving the customer experience using technology (such as including taxi options in TfL's Journey Planner), and exploring new ways to reduce the barriers to becoming a black cab driver without compromising the quality of service offered.

It is important to raise standards for PHVs, recognising that they have a role to play in moving people around but also contribute towards increasing congestion. TfL should be given more powers over the private hire market in London, including the ability to cap overall numbers of PHVs. The Government should also introduce legislation to provide statutory definitions of plying for hire and pre-booked services to clarify the difference between taxi and private hire services.

Issues of licensed taxis and PHVs working remotely from the area in which they are licensed are increasingly commonplace. It cannot be right that taxi and private hire licensees license themselves with one authority with, for example, the sole intention of working the majority of time in another authority area.

Taxi and PHV legislation also needs to take account of technological change, and new types of service, as the PHV and taxi trades are both evolving, for example through the emergence of customer and booking platforms and pooling services. The safety and fair treatment of drivers and passengers remain a top priority.

Proposal 77
The Mayor, through TfL, will seek:

a) Powers to limit the overall number of private hire vehicles licensed for use in London so as to manage their contribution to overall congestion, particularly in central London.

b) Powers to introduce a requirement to ensure that taxi and private hire journeys by TfL-licensed drivers must either start or end in the Greater London area.

Illegal and non-compliant taxi and private hire activity poses a risk to passenger safety and undermines the legitimate and law-abiding trades. Improving compliance and the safety of travelling by taxi and private hire remains a priority for the Mayor and TfL.

Proposal 78
The Mayor, through TfL, will raise the safety standards for all customers travelling by taxi and private hire vehicles through effective and transparent regulation and enforcement.

Regulations regarding the use of pedicabs in London are required to ensure the safety and security of passengers and other road users, and to reduce the impact they have on congestion, particularly in the West End.