Connecting the Capital

Our plan for new river crossings for London
The River Thames is why London exists as it does and is integral to the city’s continued success.

Historically, the waters have fuelled global trading links, driving diversity in London’s people, culture and economy, as well as providing a focal point for the Capital’s development. The river is an iconic landmark – and contributes £6.5 billion to the economy through trade and tourism. But it also creates a natural barrier between communities – a physical gap that affects the way people relate to the spaces around it and the journeys they make. If London and its communities are to continue to thrive, it is essential to increase the connections between the banks of the Thames.
Connecting the Capital

London is growing – and quickly. There are now more Londoners than at any time in the city’s history

London’s population is expected to rise from 8.6 million to 10 million by 2030 and to reach 11.3 million by 2050. This will result in increased pressure on the city’s infrastructure, including the cross-river connections that play a key role in moving people and goods around London. It is more important than ever that plans for the future are made so that this growth can be supported as sustainably as possible.

Through the Mayor’s Transport Strategy, Transport for London (TfL) has a plan for accommodating this growth, unlocking development land and galvanising the resulting economic opportunities through investment in existing and new infrastructure. New Thames crossings are an integral part of this strategy.

In light of the expected growth and the need to address various transport objectives for London, TfL has identified a number of proposals for new river crossings. These crossings will improve the reliability and resilience of the network, transform connectivity, bring in investment and open up London’s opportunities. They will also provide for the expansion of public transport connections and encourage more cycling and walking.

This document sets out the case for these new river crossings to better connect the Capital and cater for future growth.

London is growing by...

- Today (2015) the population is 8.6 million
- And by 2030, it will be 10 million
- 9 new residents every hour
- That’s a car load every 25 minutes
- 2 buses every day
- 2 tube trains every week
- 235 new residents every hour
- That’s a car load every 7.5 minutes
- 21 buses every day
- 21 tube trains every week
Crossing the Thames in London

The River Thames has shaped London’s development

London’s role as a pre-eminent world city is intimately connected with its location on the Thames. Historically, the Thames was London’s trade highway, linking it to coastal towns and cities across the country and around Europe. It later became the central hub for imperial trade during the days of empire. The banks and insurance firms that grew up around the shipping industry evolved into today’s global financial services hub.

The Romans created the first wooden crossing of the Thames close to the current site of London Bridge. The settlement that followed on the northern shore grew to become the City of London. As London grew, new bridges were built along narrow parts of the Thames. By the end of the 19th century many new crossings had been constructed along the river in central London and what are now parts of west and south-west London, knitting the two banks together and enabling the Capital’s economy to grow.

But rivers can divide as well as connect. Downstream of London Bridge, the river becomes navigable to shipping as it broadens and deepens – the distance from bank to bank at Dartford is nine times the distance at Richmond.

The Port of London was for many years the busiest port in the world, and the river east of London Bridge was lined with wharves, warehouses and other supporting industries; extensive docks were built inland to increase capacity and to handle goods more securely. This meant any crossing had to take account of this and was therefore much more difficult to provide.

Marc Brunel sought to overcome this through the construction of the world’s first underwater tunnel, from Rotherhithe to Wapping, built between 1825 and 1843. The tunnel was never used by road traffic and was later converted to a railway tunnel, now part of the London Overground.

The first road crossing downstream of London Bridge was Tower Bridge, which opened in 1894. It remains the only bridge crossing of the Thames in London east of London Bridge. Its famous opening design was intended to allow ships to retain access to the Pool of London, while providing a low-level crossing for pedestrians and road traffic when no ships were passing.

Tunnels capable of carrying horse-drawn carriages or to cater for pedestrians were built at Rotherhithe, Blackwall, Greenwich and Woolwich, to avoid interfering with the shipping above.

The Woolwich Ferry began operation in 1889 and carried workers across the river to the major employers in the Royal Docks and the Royal Arsenal, which at one time employed around 80,000 people. The crossings at Woolwich are the last within London, with the next at Dartford, some 14 kilometres downstream.

As a consequence of these historical and geographical conditions, in London today there are 20 crossings in west London, 19 in central London and 12 crossings east of Tower Bridge – only three of which are highway crossings.

But London and the use of the Thames are changing. Following the containerisation of the shipping industry, London’s docks were closed, being replaced by more modern facilities such as those at Tilbury. As other industries moved away from the river, new housing has been built in areas that were once industrial. The growing numbers of people living and working near the river is increasing pressure on crossings, particularly in the east where there are few crossings.

Richmond – 90m
Hammersmith – 180m
Tower Bridge – 270m
Silvertown – 370m
Woolwich – 450m
Charlton – 490m
Gallions Reach – 650m
Thamesmead – 620m
Belvedere – 730m
Dartford crossing – 810m
Change in the Capital

London’s population has been growing continuously for 30 years and this rate of growth has increased in the past decade

The Capital has been the fastest growing region of the United Kingdom, accommodating an additional 1.2 million people and one million jobs during the past 15 years, and generating a huge increase in the demand for travel – there are now 15 per cent more trips in London on a typical day than in 2000. These high levels of growth are expected to continue. By 2031, it is forecast that there will be almost 1.5 million more people living here, generating almost five million additional trips per day. There is a need to take action now to ensure that London’s transport network will be able to cope in the future.

All London’s boroughs will experience increases in population, but this growth will be highest in east London. The London boroughs of Newham and Tower Hamlets have been growing at three times the rate of the rest of the Capital, adding over 120,000 people between them since 2001. And we can expect over one third of future population growth to occur across the east London sub-region.

The plan opposite shows where population growth is expected to be highest, with growth clearly focused around the Thames. As the population increases, more shopping, leisure, work and education trips will be made from and between these areas. Enabling people to make these trips using new river crossings is key to supporting the housing growth that London badly needs.

London’s recent employment growth has largely been focused on its central areas, as well as specific hubs like Canary Wharf – places that require much of the labour force to cross the river to access them. Over 600,000 Londoners crossed the river to travel to their place of work in 2011, 23 per cent more than the 490,000 that crossed the river in 2001. As the number of businesses in the city expands, the number of goods transported by road continues to grow, with a 30 per cent increase in vans expected up to 2030. Improved river-crossing connectivity will be needed to ensure that London’s residents can continue to access employment opportunities, as well as to enable businesses to trade effectively with each other and transport the goods that London relies on.

River crossings are therefore a vital part of a transport network that will need to continue to expand and adapt to ensure that the benefits of growth can be accessed by all Londoners.
Why new river crossings are important

New river crossings can connect communities, support new development, encourage walking and cycling, reduce journey times and enhance people’s quality of life

New cross-river connections can unlock opportunities for local people and help transform an area, supporting regeneration and enabling development. They can do this by relieving pressure on existing networks. This reduces congestion and improves journey-time reliability, as well as helping to unlock the potential of new areas. This will:

• Increase the number and type of jobs and local services accessible. This can make an area more attractive for housing development; and
• Increase the size of workforce catchments, the range of suppliers, and the potential customer base. This can make an area more attractive for business expansion and inward investment.

New cross-river connections can also support growth and make areas where pressure on public transport and road links is high more liveable. They can encourage more walking and cycling by offering attractive routes across the Thames to replace journeys currently undertaken by public transport, reducing pressure on existing services.

East London
With just three road crossings in the 23 kilometres between Tower Bridge and the M25, road connections between east and southeast London are poor. There is enormous pressure on existing crossings, resulting in long delays and congestion. This in turn generates costs for businesses and reduces the number of jobs and services accessible to residents.

In addition to the congestion costs, estimated at over £10 million a year, there are wider costs related to reliability and customers. A survey of 500 businesses in east London during summer 2015 identified that:

• 62 per cent said that the predictability of journey times when crossing the river are poor or very poor
• 36 per cent said the river limits the number of customers that use their business
• 40 per cent said unpredictable journey times when crossing the river cause them to lose revenue
• 38 per cent said the river acts as a barrier to the development of their business
• Just 15 per cent said they thought current levels of cross-river capacity are sufficient.

These costs make east London less attractive for businesses to operate in, and limit the amount of inward investment and growth. This manifests itself in lower levels of employment growth, as well as lower land values, with office, retail and industrial rents all up to 20 per cent lower south of the river where access to customers and suppliers is poorer, in part due to the barrier effect of the river.

The Thames also acts as a physical and psychological barrier for the workforce. In Richmond, where there are many opportunities to cross the river, half of the labour force comes from the other side of the Thames. But the picture is very different in the Royal Docks, east London, where just 20 per cent come from the other side of the river.
Improving access across the Thames for workers not only increases the range and number of jobs available, it also increases the size of the potential workforce for businesses. This makes the labour market more efficient, enabling firms to expand.

As east London continues to grow, congestion will get worse at its river crossing points. Unless there are new ways of crossing the river, the number of jobs accessible for local residents will be further restricted.

The figure below shows that a large proportion of southeast London will have over 750,000 fewer jobs accessible within 45 minutes by car in 2031, largely as a result of increasing delays at the Blackwall Tunnel. Without addressing this issue, many of London’s most deprived areas will see a fall in the range and number of jobs accessible to them.

River crossings do not just enable more efficient movement of private and commercial vehicles; they also offer the potential to substantially expand the public transport network. East London has seen significant investment in rail-based infrastructure, led by the regeneration of Docklands. Six new rail crossings of the Thames in east London have been implemented, with a further crossing to come in the form of Crossrail.

This means that by 2020, there will be almost as many rail crossings to the east of Tower Bridge as to the west of Vauxhall Bridge. This investment has led to almost a tenfold increase in the capacity of the cross-river rail network east of Tower Bridge and has resulted in very high levels of rail usage. For example, in Canary Wharf over 82 per cent of employees travel to work via Underground and/or DLR.

Cross-river rail services in east and west London

Change in access to jobs within 45 minutes by car 2011 – 2031 without investment in improved river crossings

Key to lines
- District
- Jubilee
- DLR
- Crossrail
- National Rail
- Emirates Air Line
- Emirates Rail
- London Overground
- Victoria
However, the cross-river bus network is very poor. The figure below shows that there are 47 bus routes that cross the river west of Vauxhall Bridge, but only one that does so east of Tower Bridge. New river crossings can support a significantly improved bus network, enabling London’s most popular and flexible mode of public transport to serve key growth areas. An expanded cross-river bus network in east London would open up job opportunities and reduce pressure at key interchange locations.

Central London

And while it is east London that will experience the biggest changes over the next 15 years, central London will continue to grow as the city’s main centre for employment. Currently, over one third of all jobs in London are based in the centre and 40 per cent of future growth is expected to occur here. If London is to maintain high levels of inward investment, it must compete with other global cities as a highly liveable place with excellent quality of life. The ability to cycle or walk through the city is a key element of this. By improving cross-river connections in central London, we can help to maintain the city’s outstanding reputation, and support growth and continued economic success.

New connections in central London can encourage more cycling and walking, potentially helping to reduce pressure on the public transport network from stations such as Waterloo. They will also support growth areas such as Battersea Power Station – the largest regeneration site in central London.

The following section sets out the plan for a series of new crossings to support London’s growth.
The plan for new river crossings

TfL has a strategy for accommodating growth in the Capital through investing in existing and new infrastructure to unlock capacity and connect new development areas to the transport network.

New crossings of the Thames are an integral part of the strategy to support growth in London and to keep the city a highly liveable place. This includes rail crossings, road crossings and crossings for pedestrians and cyclists. Each crossing is responding to a unique and distinct set of local circumstances but broadly fall into three categories:

- Address existing bottlenecks and problem areas such as the Blackwall tunnel, reducing congestion and improving reliability.
- Provide new connections to unlock the growth potential of underused areas – these crossings could be road and/or public transport crossings.
- Support a shift toward shorter journeys being made on foot/cycle and improve quality of life.

While the focus of these new crossings is in east London, there are locations further west where new crossings can produce major benefits. The opportunities throughout London are set out on the map.

The need for each crossing is different, as are the constraints at each site associated with shipping activity, and so TfL is considering a range of new crossings. Each crossing must be designed in a way that ensures it meets the specific needs of the area while responding to its particular location along the Thames.

Crossings within central London can be low level and small scale, which often means they are cheaper to build. They are focussed on improving people’s quality of life, maintaining the city’s world-wide reputation and providing better opportunities to make shorter journeys by foot or bicycle.

As the Thames widens to the east, the scale of the crossings becomes bigger, catering for all road users. This change is reflected not only in the scale of the crossings but in their frequency, with many crossings close together in central London and the distance between them increasing as the Thames heads eastwards.

For example, although there are fewer large ships than during the docks’ heyday, commercial ships still use the Thames and leisure use of the river is growing. A new cruise terminal at Greenwich could increase the number of large cruise ships on the river and new crossings in east London must allow for this activity. This means crossings in east London have to be of a larger scale, in terms of design and cost, than those seen in central London.
Pedestrian and cycle crossings

More and more Londoners are choosing to walk and cycle. There has been a 54 per cent increase in cycle trips and 14 per cent increase in walking trips since 2003

With increasing numbers of people living, working in and visiting central London, the provision of good quality, attractive pedestrian and cycle crossings in the heart of the Capital will encourage people to make shorter journeys by foot or bicycle. Such crossings will also enhance the liveability of the city, support economic growth and offer the opportunity for river crossings to be attractions in their own right.

There are a number of new crossing proposals that could do many of these things, including the Nine Elms to Pimlico bridge and the Garden Bridge.

Nine Elms to Pimlico bridge
Pedestrian and cycle crossings in central London can link and support areas of growth. The bridge to connect Nine Elms with Pimlico is a key component of plans for the regeneration of Nine Elms on South Bank. It would improve access to and from the 16,000 new homes and 25,000 jobs being created in this growth area and open up jobs, homes, leisure opportunities and transport links for people on both sides of the river.

The feasibility study for the bridge indicates that, by 2031, daily demand could be up to 9,000 pedestrians and 9,000 cyclists per day – making it London’s 8th highest used pedestrian crossing and the 6th highest used cyclist crossing.

The Garden Bridge
The Garden Bridge is a proposed new footbridge connecting the Waterloo and South Bank area with Temple, the longest distance between bridges in central London.

It would help to support an increase in walking in central London. The number of passengers arriving at Waterloo has been increasing rapidly in recent years; by providing an attractive route towards the City, the bridge will encourage people to walk to their final destination, releasing capacity on public transport for those with longer onward journeys.

The bridge would also offer shorter journeys and reduce journey times between Temple Underground station and the South Bank.

New bridges have also been built or proposed across other waterways in London, where there are opportunities to improve local connections. A new bridge, funded by developers, has recently been built across the River Lea, connecting a new development area to Canning Town. Other opportunities to cross the River Lea include proposals for a new bridge where the Lea meets the Thames to provide a Thames-side link between Tower Hamlets and Newham; and across the docks around Canary Wharf, to improve access to the jobs, shops and public transport connections at Canary Wharf for local residents.
CASE STUDY

London Millennium Footbridge

The Millennium Footbridge linking the Tate Modern Gallery and St Paul’s Cathedral has been a key part of the cultural regeneration of areas on the south and north side of the Thames. It was the first new bridge to be built over the River Thames since Tower Bridge in the late 19th century.

An attraction in its own right, the bridge connects some major tourist destinations on either side of the river and provides a desirable walking route across the Thames. It therefore helps to boost London’s economy by drawing in visitors and encourages more walking, making central London a more attractive place to live and work.

The bridge has been a huge success and has more than its planned four million visitors per year.
Ferry services

New ferry services represent an opportunity to introduce flexible cross-river links for cyclists and pedestrians at a lower cost than constructing bridges or tunnels, and have proven successful in cities around the world.

In recent years, TfL and its partners have invested in improving the standard of river services through the River Action Plan. Through this plan, river services have become more integrated with walking, cycling and public transport networks, and the river bus has become part of TfL’s transport portfolio. Increasing numbers of people are using river services to make regular journeys, with commuters from upstream in Putney and downstream in Woolwich travelling to central London and Docklands via the river. Passenger journeys on river bus services – excluding tour boats – have risen from 860,000 in 2006/07 to 3.8 million in 2014/15.

Cross-river trips are a part of this mix, whether people are making short journeys on the east-west services – or using a dedicated cross-river shuttle, such as between Rotherhithe and Canary Wharf.

A significant advantage of new passenger ferry services is they can be introduced relatively quickly. The infrastructure and services can be altered to meet changing demand as development occurs.

Because of these advantages, river services can support growth areas as they develop and establish the pedestrian and cycle demand, helping make the case for larger scale and more costly crossings (such as bridges) at a later date.

As with other pedestrian and cycle crossings, ferry services can provide a number of benefits, including:

- Connecting cycle and walking routes north and south of the river, improving the range of destinations people can get to quickly and access to jobs and services.
- Encouraging more people to use river services to cross the river by foot or bicycle helping to support the Mayor’s vision to make better use of the river and increasing the number of people choosing to cycle in London.
- Providing an alternative to busy London Underground lines such as the Jubilee line from Canary Wharf towards Canada Water (to the west) and Greenwich Peninsula (to the east).
- Encouraging more people to use river services to cross the river by foot or bicycle helping to support the Mayor’s vision to make better use of the river and increasing the number of people choosing to cycle in London.

TfL and developers have identified an opportunity to introduce a ferry service linking the Isle of Dogs with the North Greenwich Peninsula. A new pier should be in place at Canary Wharf East by late 2016, with the potential to operate a cross-river service to the existing pier at North Greenwich. This could connect the existing Cycle Superhighway Route 3, north of the river, with the Greenwich Peninsula, south of the river.

There may also be other areas in east London, such as Barking Riverside and/or Charlton, where cross-river ferry services could support development and connect communities. TfL will monitor the development of these areas and identify opportunities as they expand.

To ensure ferries form an integral part of local journeys, new and improved piers and vessels can be complemented by improvements to surrounding infrastructure, in particular high-quality walking and cycling links into the local communities. Given the relatively low cost of infrastructure, commercial funding opportunities exist and will be explored further.

Locations where passenger ferries could have a role to play include:

- Rotherhithe to Canary Wharf
- North Greenwich to Isle of Dogs
- Charlton to Royal Docks
CASE STUDY

Rotterdam pedestrian and cycle ferry

Rotterdam has shown how river services can successfully provide flexible cross-river links. Land and pier-based infrastructure provides a walk and cycle ferry, which runs up to every 15 minutes. This ferry has dedicated space to store bikes on the vessel so cyclists can easily access the services.

Cycling in Rotterdam has been a mainstream mode of transport for decades and piers were built to accommodate both cycle and pedestrian demand. Although large-scale changes to existing piers may be more challenging in London, these schemes demonstrate how infrastructure and vessel improvements can be used to encourage both cyclists and pedestrians to use cross-river services as part of their commuter and leisure trips.
Public transport crossings

The first railway crossing of the Thames within London was the Richmond railway bridge, which opened in 1848, followed by a large number of new crossings in central and west London.

Recent years have seen the construction of a number of new and improved public transport crossings in east London: two DLR crossings; the Jubilee line passing under the Thames in three different locations; the development of the London Overground, which uses the Thames Tunnel as a core part of its network; and, in 2012, the Emirates Air Line. Yet there is more that can be done to improve cross-river public transport connections in central and east London and deliver improved capacity and connectivity to support growth in London.

Crossrail
Crossrail will run under the Thames between Woolwich and Custom House from 2018. This link will provide a direct route from Abbey Wood to Canary Wharf, central London and beyond, cutting journey times from southeast London to central London by at least 15 minutes. It will encourage sustainable economic development and population growth by increasing capacity and reducing congestion on the transport network and support at least 5,000 new homes in Woolwich.

Barking Riverside to Thamesmead/Abbey Wood
The London Infrastructure Plan 2050 identifies a possible extension of the Gospel Oak to Barking line from the proposed Barking Riverside station to Thamesmead and Abbey Wood. Such a line would connect Thamesmead to a range of transport services at Barking in around 10 minutes and help support major regeneration and housing development in this poorly connected part of London.

TfL will continue to review the need for a rail crossing as the Thamesmead and Abbey Wood Opportunity Area develops.

Crossrail 2
To the west, Crossrail 2 proposals include a new connection under the Thames between King’s Road Chelsea and Clapham Junction. This link forms part of the core route for the scheme and would deliver significant journey time savings between locations on either side of the river – the journey time from Clapham Junction to destinations such as Tottenham Court Road, Euston, Angel and Dalston could be halved.

Such a link would also provide people on the north side of the river with a frequent service to Clapham Junction, which provides connections to Brighton, Gatwick Airport and South West Trains services. TfL and Network Rail will continue to develop proposals for the scheme, and current proposals could see Crossrail 2 services operational by 2030.
CASE STUDY

DLR extension to Woolwich Arsenal

An illustration of how new river crossings can benefit local communities is the recent extension of the DLR from King George V station, under the river to Woolwich Arsenal.

The new station was opened in January 2009, connecting communities north and south of the river and giving those on the south side new links to Canary Wharf and central London, and with one interchange, access to seven TfL rail lines.

Outcomes
Within a few weeks of opening, more than 45,000 people a week were using the new station and gaining much faster access to key locations north of the river, such as Bank, Canary Wharf, London City Airport and Stratford. Significant development around Woolwich quickly followed. Construction of this link means that there are now around 230,000 weekly journeys to and from the station, with 18 per cent growth in the past twelve months alone. In response to this demand, TfL has lengthened many trains and doubled the off-peak level of service so that trains now operate at least every five minutes throughout the week.
Because large ships use the Thames east of London Bridge, there are significantly fewer road crossings in east London than in west London

East London will see the biggest increase in population, housing and employment in the coming years yet the crossings that do exist in this area all suffer capacity constraints. And, while TfL continues to support the shift to more sustainable modes of transport that has seen car use reduce by 13.5 per cent since 2001, there will always be trips for which the road network is essential, such as freight, servicing and many types of business activity.

Ninety per cent of freight and servicing trips are undertaken by road in the east London sub-region. The number of such trips is expected to grow significantly as the area adapts to a growing population, and as a result of the strategic role of the sub-region within an international gateway. Road crossings of the river are important to support this activity.

The limited number of crossings also means that the resilience and reliability of existing cross-river links is limited, with incidents at Blackwall or Dartford causing widespread disruption to travel. This is expected to get worse with increasing demands placed on existing crossings by the expected growth.

TfL is actively progressing three new road crossings east of Tower Bridge – at Silvertown, Gallions Reach and Belvedere. These will address the congestion and resilience issues at existing crossings and ensure London’s growth is supported. In addition, Highways England is looking at options for new capacity at the Dartford Crossing.

In London, road crossings are not only important for journeys that must be undertaken by vehicle, such as freight trips, but also to open up opportunities for new sustainable cross-river trips.

The road network provides the infrastructure on which London’s world-class bus network operates, carrying 2.4 billion passengers per year. With only one bus route in all of east London crossing the river, new crossings could transform the bus network for those living close to the Thames in east and southeast London.

New road crossings further east could also, in some instances, provide opportunities for walking and cycling links where none currently exist.
The Silvertown Tunnel
The proposed Silvertown Tunnel would connect the Greenwich Peninsula to the Royal Docks, providing an important new cross-river connection and addressing the congestion and reliability issues at the Blackwall Tunnel.

The Blackwall Tunnel is currently the only strategic crossing in east London. It carries the most traffic of any London road crossing. But the Blackwall Tunnel has three significant problems: congestion, closures and incidents, and a lack of resilience. These problems are long-standing and have significant adverse effects on the environment, the economy and users of the tunnel.

The Silvertown Tunnel is needed to directly address these issues. It would do so by adding an additional tunnel adjacent to the Blackwall Tunnel. Built to modern standards, the tunnel would be able to accommodate the tall vehicles that currently cause many closures of the Blackwall Tunnel. The existence of an alternative route so close to the Blackwall Tunnel would also reduce congestion and delay on the surrounding road network in the event of any future closures.

The scheme would introduce a user-charge to both the existing Blackwall Tunnel and the new tunnel to manage the traffic flow in the area, limit environmental impacts and help pay for the scheme.

The scheme would significantly improve journey times and the day-to-day reliability of the road network – for example, travel time through the Blackwall Tunnel in peak periods and peak directions would be reduced by around 20 minutes or more.

It would also allow for the transformation of cross-river bus services (including use of double-deck buses) to connect communities on either side of the river and integrate with existing networks.

The Woolwich Ferry
TfL is investing in the Woolwich Ferry in the short term to ensure it remains reliable and fit for purpose into the 2020s. Refurbishment work means the ferry docking areas are in good order and TfL is planning to purchase new boats to replace the current vessels.

As yet, no decision has been taken as to whether the ferry services would continue beyond the opening of the crossings at Gallions Reach and Belvedere (outlined on the next page). However, the new vessels will provide a number of years of lower operating costs, a more reliable service and better facilities for users.
Further east, there are proposals for two new multi-modal crossings – Gallions Reach and Belvedere. These crossings are key to unlocking the full potential of east London and helping drive its economy by addressing the severance caused by the Thames in this area. The crossings would:

- Better connect people, businesses and communities with each other, increasing access to jobs, education and leisure activities
- Make it easier for people and goods to cross the river in east London
- Create opportunities for new cross-river public transport links and improve local walking and cycling options
- Support London’s growing economy by better connecting businesses, and improving access to labour markets
- Encourage development in the area, helping to address London’s housing shortage
- Help manage the impact of population growth by reducing cross-river journey times and distances

These crossings would include free-flow user charging to help fund them and to manage demand.

Public transport would be an important element of both crossings. Bus connections form an essential component of the public transport provision, with complementary DLR and tram options being assessed at Gallions Reach. Additionally, specific space for pedestrians and cyclists could also be incorporated into the crossings, particularly if they are built as bridges.

It has not yet been decided whether the crossings should be bridges or tunnels. Factors such as environmental and visual impacts, public transport options and the value for money of each solution need to be further assessed before a decision can be made.

Irrespective of these decisions, it is clear that connections at Gallions Reach and Belvedere would deliver significant benefits to both local people and businesses. Initial work suggests a significant increase in the number of jobs reachable within 45 minutes, travel time by car and/or public transport. For example, a new crossing at Gallions Reach with a network of buses incorporated would increase the number of jobs reachable within 45 minutes from 600,000 to over 1.5 million from Thamesmead.

New connections across the river mean distances and journey times between destinations on either side of the river would be substantially reduced – helping to improve business efficiency.

The Lower Thames Crossing

Highways England is examining options for a new Lower Thames crossing near the existing Dartford Crossing. Successive studies commissioned by central and local government have identified the need for additional crossing capacity at Dartford.

A 2009 study identified short-term interventions that would provide short to medium-term relief of the congestion at Dartford and recommended that an additional crossing would be needed in the longer term. Detailed assessments are being undertaken to identify the best location for this additional capacity, with two options under consideration.

Subject to planning approvals and funding, it is expected that a new crossing could be open in 2025. TfL is working with Highways England to understand how the Lower Thames Crossing would impact on road journeys in the Capital.
The Mersey Gateway project consists of a new six lane toll bridge over the Mersey between Runcorn and Widnes. The bridge will open in 2017 and relieve the congested and ageing Silver Jubilee Bridge. Both the new Mersey Gateway Bridge and the Silver Jubilee Bridge will be tolled for most users.

The new bridge will ease the significant congestion experienced by users of the existing Silver Jubilee Bridge, leading to reductions in journey times of up to 10 minutes in peak periods. There is forecast to be 80 per cent less traffic using the Silver Jubilee Bridge, freeing it up for use as a local bridge.

The Mersey Gateway project will provide a major strategic new transport route linking the Liverpool city-region, north Cheshire and the north west to the rest of the country. The project is expected to support over 4,500 new jobs as a result of regeneration activity and inward investment. These jobs are predicted to result in over £60 million per year in Gross Value Added to the economy. In particular, the bridge is designed to support growth at Liverpool Ports and Liverpool John Lennon Airport.
Delivery of new crossings

Each crossing needs to respond to a unique set of local circumstances and the challenges of delivery will be different for each.

TfL will be looking at innovative ways of funding some of these schemes and road user charging will be essential to help fund those schemes with a road element.

One of the principal challenges to providing many of these new crossings is designing solutions that meet transport and wider objectives while also being acceptable to the Port of London Authority (PLA) and capable of being funded.

East of Tower Bridge any new crossing has to allow for the navigation of tall ships. This means crossings have to provide vertical clearances of around 50 metres, or be in a tunnel. While opening bridges are technically possible, the needs of shipping mean that a bridge would be required to be open for long periods of time to allow a ship to pass, delaying users and reducing journey times.

TfL is working with the PLA to explore opportunities for new kinds of crossings in east London, that balance the needs of shipping with the need to provide convenient routes across the river to accommodate the planned housing and business growth.

What next?

More detailed planning needs to be undertaken to progress projects outlined in this vision.

While some crossings are needed as soon as possible (such as Crossrail and Silvertown), the case for others will develop as the areas they connect continue to grow.

TfL is committed to keeping communities informed as each of the schemes outlined in this document is progressed.

TfL will consult throughout the planning stages to ensure the decisions made take account of the views of the public and other stakeholders.

Timeline for future crossings

- **2010s**
  - Crossrail
  - Garden Bridge
  - Nine Elms to Pimlico

- **2020s**
  - Silvertown Tunnel
  - Gallions Reach
  - Belvedere
  - Rotherhithe to Canary Wharf
  - Isle of Dogs to North Greenwich
  - Diamond Jubilee

- **2030s AND BEYOND**
  - Crossrail 2
  - Barking Riverside to Thamesmead/Abbey Wood
  - Charlton
This plan could help deliver up to:

- 100,000 new homes in opportunity areas served by the new crossings
- 6 new public transport crossings
- 8 new crossings for pedestrians and/or cyclists
- 4 new crossings for road traffic

New river crossings for London

### Public transport
- Diamond Jubilee
- Crossrail 2
- Nine Elms to Pimlico
- Garden Bridge
- Rotherhithe to Canary Wharf
- North Greenwich to Isle of Dogs
- Silvertown Tunnel
- Charlton
- Crossrail
- Gallions Reach
- Barking Riverside to Thamesmead
- Belvedere
- Lower Thames Crossing

### Walking/ cycling
- A pedestrian and cycle bridge linking Fulham with Battersea
- New rail tunnel as part of Crossrail 2 between Clapham Junction and Victoria
- A pedestrian and cycle bridge linking Vauxhall, Nine Elms and Battersea to Pimlico
- A new pedestrian crossing linking the South Bank to Temple station
- A pedestrian and cycle crossing linking Rotherhithe to Canary Wharf
- A pedestrian and cycle crossing linking North Greenwich and the Isle of Dogs
- A twin bore road tunnel connecting Silvertown on the north side to the Blackwall Tunnel approach on the south side
- A crossing linking the Royal Docks and Charlton Riverside
- A rail line linking Woolwich to Custom House and then onward to Central London and Heathrow
- A multi-modal crossing linking Thamesmead with Gallions Reach along a safeguarded alignment
- A London Overground tunnel extension from Barking Riverside to Thamesmead
- A multi-modal crossing connecting Belvedere with Rainham
- New road crossing linking Essex and Kent

### Road traffic
- Status: Planning
- Status: Feasibility
- Status: Planning permission granted
- Status: Feasibility
- Status: Planning permission granted
- Status: Feasibility
- Status: Planning permission granted
- Status: Feasibility
- Status: Planning permission granted
- Status: Conceptual
- Status: Conceptual
- Status: Under preparation
- Status: Conceptual
- Status: Under construction
- Status: Feasibility
- Status: Feasibility
- Status: Feasibility
- Status: Feasibility