Transport for London

The Garden Bridge

Summary of the Strategic Outline Business Case

May 2014

MAYOR OF LONDON

Transport for London

Overview

1.1 Introduction

1.1.1 Transport for London (TfL) is the strategic transport authority for Greater London, and is responsible for helping the Mayor of London to deliver the Mayor's Transport Strategy. This strategy includes the promotion of walking in central London and improving cross-river links.

1.1.2 At the request of the Mayor of London and Chancellor of the Exchequer, TfL in association with the Department for Transport has assessed the case for a Garden Bridge, promoted by the Garden Bridge Trust, alongside other options for improving pedestrian connections in this area.

1.1.3 A new charity, the Garden Bridge Trust, has been established to oversee the procurement, delivery and future operation of the bridge.

1.2 Description and location of the project

1.2.1 The Garden Bridge will provide commuters and tourists with a 370m pedestrian route across the River Thames linking the commercial areas around the North Bank, adjacent to the Temple Underground Station, to the cultural assets of the South Bank.

1.2.2 The establishment of a new crossing point across the River Thames will enable regeneration and economic growth on both sides of the river but especially around the North Bank area and the Waterloo Opportunity Area. The crossing will provide a strategic link between the West End, Covent Garden and the City to the South Bank and Waterloo Station.

1.2.3 The Garden Bridge will create a unique type of place, combining a green promenade (over 25 metres in width at its widest) and open space with a pedestrian bridge. The green promenade will be planted with trees, flowering shrubs, herbaceous plants and grasses providing a type of elevated urban park and public space in the heart of London. The engineering design encapsulated in making this possible will showcase the UK capabilities in delivering complex, multi-functional infrastructure.

1.2.4 The Garden Bridge will help realise the vision contained in the Mayor's London Plan that encourages improvements in movement, support economic development and help contribute to a higher quality of life. It will be a source of fascination and pride for Londoners and will attract visitors from the rest of the country and all around the world, much like the London Eye and the High Line in New York.

2 Strategic Context

2.1 Review of policy context

2.1.1 The Garden Bridge can draw support from national, regional and local policy. Strong alignment with the Mayor's London Plan and Transport Strategy supports the project alongside other policies and plans from the Department for Culture, Media and Sport, the Department for Transport, the Major of London, Greater London Authority and the London Boroughs of Lambeth and Westminster.

2.1.2 TfL has been working closely with the Garden Bridge Trust to develop the project. The Garden Bridge is important in achieving TfL's objectives that support its role as the responsible body for the day-to-day to operation of the Capital's public transport network and implementation of the Mayors Transport Strategy.

2.1.3 Specifically, the Garden Bridge project contributes to supporting objectives in the Mayors Transport Strategy that seek to:

(i) Improve public transport accessibility and conditions for walking and cycling;

(ii) Reduce the need to travel and encourage more sustainable, less congesting modes of transport;

(iii) Improve transport's contribution to the built and natural environment;

(iv) Support regeneration of Opportunity Areas; and

(v) improve the walking experience and encourage more people to walk around the Capital.

2.1.4 The Garden Bridge will also support the spatial vision for London to 2031 set out in the London Plan (2011). The Mayor's vision for the sustainable development of London is that London should 'excel among global cities - expanding opportunities for all its people and enterprises, achieving the highest environmental standards and quality of life and leading the world in its approach to tackling the urban challenges of the 21st century, particularly that of climate change'. The Garden Bridge will contribute to specific underpinning objectives that include improvement of the pedestrian environment and support of the Central Activities Zone (CAZ) of the city.

2.1.5 The Garden Bridge is also well aligned with the objectives of DfT in its role to support the transport network that helps the UK's business and gets people and goods travelling around the country. In particular, the project will support objectives to reduce the greenhouse gases and other emissions from transport and to make transport more accessible to all.

3 The Case for Change

3.1 Overview

3.1.1 The Garden Bridge responds to a number of significant problems in the way people move around central London and opportunities associated with a central London location. These are outlined below.

3.1.2 The existing network of pedestrian walkways does not connect important places in central London in the most effective way. Pedestrians have to walk further than is needed to get to key locations using routes that are unattractive and act as a deterrent to walking in the first place. The lack of connectivity and poor walking environment also places more stress on an overloaded public transport network that is expected to absorb more passengers from forecast levels of growth in the future. A lack of connectivity is also holding back regeneration in parts of the North Bank that have grown at a slower rate than surrounding areas. The area is therefore in a prime position to benefit from change that facilitates an improved level of connectivity and pedestrian circulation.

3.1.3 There are competing pressures for the use of space on all of the bridges across the Thames in Central London including demands from car users, freight (essential to support a growing city), buses, pedestrians and cyclists. By creating a new crossing that is dedicated for pedestrians this will ease some of the pressure on other bridges, potentially enabling greater priority and consideration to be given to other users.

3.1.4 Alongside the identified problems, a number of strategic opportunities have also been identified. These include taking actions that maximise the Waterloo Opportunity Area's development potential and provide new public park space in London.

3.2 Problems

3.2.1 **Problem: Quality of the pedestrian environment on existing bridges in central London –** Waterloo Bridge offers some excellent views of the city yet the pedestrian environment is poor, with high volumes of vehicular traffic. This poor environment is likely to worsen with increased pressure from the growth that is expected in the future and forecast increases in traffic congestion.

3.2.2 **Problem: Poor access onto Waterloo and Blackfriars bridges from the Thames Path –** The Thames Path along the South Bank now carries millions of pedestrians each year, but did not exist when the road bridges were first built. Access onto the bridges for pedestrians on the Thames Path is poor, with limited step-free access points.

3.2.3 **Problem: Missing link between Waterloo and Blackfriars bridges for pedestrians** - Central London's bridges are already generally more widely spaced apart than in many similar cities. The spacing between bridges is particularly large between Waterloo and Blackfriars bridges, at around 850m at mid-river compared with a more typical range of 300-400m elsewhere in central London. This reduces the

connectivity and level of interaction that might otherwise take place, acting as a brake on growth.

3.2.4 **Problem: Underground access to the South Bank area -** Temple Underground Station lies just 350 metres from the opposite bank, where there are a number of large destinations including the National Theatre, ITV studios, IBM, Gabriel's Wharf and the Oxo Tower. Getting to those locations currently involves either crossing at Waterloo Bridge involving a 950 metres or a 1.4 km walk via Blackfriars. Use of these two routes means walking an additional 600 metres or 1,050 metres dependent upon the route taken. Spare capacity at Temple Underground Station is also not being fully utilised in place of busy Waterloo and Embankment stations.

3.2.5 ***Problem: Onward distribution of passengers from Waterloo Station –*** Around 85,500 passengers have to be moved through Waterloo Station daily onto the underground or bus routes. Some of this growing pressure could be relieved if some of those arrivals were diverted onto walking to their ultimate destination rather than continuing their journey by public transport. There are an estimated 37,600 potentially walkable journeys from Waterloo Station. Currently, over a quarter of the commuters with a destination just to the north of Waterloo Bridge don't walk, even though it is a walk of just a few hundred metres and additional fares are payable on the Underground or buses.

3.2.6 ***Problem: Supporting economic activity and development on the North Bank –*** Major ambitions exist to regenerate the Strand / Aldwych area which is relatively quiet especially at weekends. In 2013, the North Bank Business Improvement District (BID) was established to co-ordinate efforts amongst major local businesses to improve the area between Trafalgar Square and Westminster's boundary with the City.

Footfall declines sharply east of Waterloo Bridge and there is an opportunity for more people to visit this part of central London. There is a need to encourage people into these areas by making a walking trip easier. The opening up of the Temple and South Bank Area would be consistent with the London Plan and the policies of Westminster and the Corporation of London.

3.3 Opportunities

3.3.1 ***Opportunity: maximising Waterloo Opportunity Area's development potential -*** The London Plan (2012) estimated that the 78-hectare area has the potential to accommodate up to 15,000 additional jobs and up to 1,900 new homes by 2031. The full-scale redevelopment of Waterloo Station over the next 15 to 20 years could result in 20,000 to 30,000 new jobs in the area. This equates to a potential 20% increase in total employment across the borough.

3.3.2 ***Opportunity: Provide new park space in central London*** - London is a growing city with more jobs having to be accommodated in a limited amount of space. The average office worker now occupies around 35% less than in 1997, and development in central London is increasing in density to accommodate more workers. Pressure on park and open spaces in central London is therefore expected to increase over time, with the available open space per person decreasing. Any open space

provision will help address this deficit in open space and allow London to still provide a quality working environment.

3.3.3 ***Opportunity: Supporting growth in the London economy by encouraging and protecting tourism revenues*** – London has a well-established position in mature tourism markets like the rest of Europe and the US. Future growth will depend upon attracting visitors from emerging markets especially in East Asia. Securing and maintaining future market share will depend upon London's capacity to innovate in the face of a highly competitive market for visitors over the coming decades. Innovation in this context means refreshing the offer so that visitors from existing markets see a reason to make repeat visits, whilst visitors from new markets have a reason to come to London on a first occasion. Visitor exposure to new and exciting features of the London experience also helps market the capital's capability as a destination for investment. This will lead to a development of complementary activities and uses that will generate jobs in the local economy on both sides of the river and an increase in total UK tourism revenues as London acts as a gateway.

3.3.4 ***Opportunity: Showcasing UK expertise and innovation in engineering, design and landscape –*** UK Government policy is to promote a re-balancing of the economy and it is important for the country to demonstrate capabilities in practical skills essential to civil engineering and the remodelling of cities to manage climate change and environmental risk. Providing opportunities to showcase the UK's commercial interests around the world is at the centre of the Government's foreign and economic policies under one strong national brand.

3.3.5 ***Opportunity: Supporting the UK's internationally renowned creative sector*** - The bridge will improve connections between two international clusters of cultural and creative activities (Covent Garden and the South Bank). This includes key destinations such as Royal Festival Hall, National Theatre, South Bank Centre, Somerset House and Kings College.

3.3.6 An opportunity exists to improve the connectivity of two areas of economic activity physically separated by the River Thames helping to create a single major cluster of more than 100,000 creative and cultural jobs, representing nearly one third of the entire sector in London. An improved ability of people to meet and exchange ideas in this environment may help creative industries to grow and enhance productivity in ways that are particularly effective in these industries where "face to face" contact is important.

4 Scoping Objectives

4.1 Overview

4.1.1 The review of the case for change and strategic context supports the following set of investment objectives that will act as a basis for assessing options.

4.1.2 **Objective 1**: **To create a new pedestrian crossing of the Thames in central London that will reduce severance and contribute towards an increase in north-south movements across the river by foot;**

The problems associated with a poor pedestrian environment and lack of connectivity provided by the existing network of bridges (Waterloo and Blackfriars) including the absence of an effective pedestrian link between Temple Underground Station and the South Bank is a concern. This objective also addresses the need to help move people out of Waterloo Station to their ultimate destination without adding to public transportation demand. The objective also helps facilitate development around Temple Underground Station; North Bank Business Improvement District and the Waterloo Opportunity Area.

4.1.3 Objective 2: To contribute towards improving the quality of the pedestrian environment and public realm in central London that will support an increase in walking across central London as a whole and help contribute towards MTS targets

This objective addresses the same range of physical connectivity problems as described under Objective 1 but from the perspective of encouraging more people to walk rather than use other modes of transport, which is attractive across a range of strategic objectives including public transport management; health; climate change and economic development (greater footfall in relation to businesses reliant upon passing trade).

4.1.4 Objective 3: To improve transport connectivity, efficiency and resilience for the South Bank area by providing a direct connection to the Underground network at Temple

This objective supports the removal of constraints to growth created by weak linkages between the key creative/ cultural assets around the South Bank and commercial areas on around North Bank. Tourism potential is possibly being foregone as a result of poor access.

4.1.5 Objective 4: To support the economic development of areas adjoining the bridge on both sides of the river and to help bring forward development

This objective recognises that any integration that occurs between the North and South Banks of the River Thames will help establish a stronger local economy supporting future growth and jobs.

4.1.6 Objective 5: To support central London's visitor and tourist economy

Tourism is a major contributor to the London and UK economy with many foreign tourist trips to the UK starting or ending in London.

4.1.7 Objective 6: To create a new public open space and garden in central London

High quality open space can act as a draw for people to come into areas and spend money. This type of stimulus can help reinvigorate the areas around Temple Underground Station and in North Bank Business Improvement District. Open spaces and gardens can also showcase design and engineering expertise especially when the environment is highly challenging like a central area of a city.

5 Scoping Options

5.1 Overview

5.1.1 In progressing the business case for the Garden Bridge, a number of other options have been assessed against the objectives.

5.1.2 The generation of options must account for the investment objectives and wider strategic framework within which this proposal is framed. Problems with physical connectivity between the two sides of the River Thames are recurring themes throughout the case for change reinforcing the objectives supporting investment and could generate a number of different options. The type of solution is constrained by the wider investment objectives relating to tourism value and the creation of green space within the centre of London. These are only possible if the standard transport solution is tested against more innovative approaches that address a wider spread of challenges (they have to be fixed e.g. not a ferry and above surface e.g. not a tunnel). Collectively, the investment objectives support a highly visible permanent physical connection being made between the two banks of the Thames – a bridge.

5.1.3 Bridge based solutions can however vary in terms of their location and design characteristics and the use made of the existing bridges over the River Thames. These considerations led the project team to consider the following options in relation to investment objectives:

1. Do nothing: No change to existing arrangements

2. Enhance/modify existing bridges in central London: Invest in improvements to the ambience of existing central London bridges, including planting if possible

3. New bridge elsewhere in central London: Build a new pedestrian bridge in another part of central London

4. New bridge between Temple and South Bank (no garden): Build a new simple footbridge between Temple and the South Bank

5. New Garden bridge between Temple and South Bank: Build a new bridge with a garden between Temple and the South Bank

6 Options Appraisal and Preferred Option

6.1 Overview

6.1.1 The five identified options have been appraised against the project objectives as part of the full business case. A summary of the results of the appraisal for each option is outlined below.

6.1.2 The appraisal process identifies Option 5, the building of new Garden Bridge between Temple and South Bank, as the strongest option for which a detailed analysis of the costs and benefits is undertaken.

6.2 Option 1 – Do nothing

6.2.1 Leaving things unchanged with the existing bridges and the connectivity they currently allow simply perpetuates the status quo. None of the investment objectives would be met and its impact is rated as Neutral. This option does not respond to the case for change and identified project objectives. It is therefore discounted from further consideration.

6.3 Option 2 –Enhance/modify existing bridges in central London

6.3.1 Enhancing one or more existing bridges in central London would involve remodelling them to become more pedestrian friendly through the removal/ re-prioritisation of traffic and enhancements to planting and landscaping. The idea most likely to meet the project objectives is to use Waterloo, which lies in the heart of central London between the West End and South Bank, but which offers a relatively poor environment for pedestrians.

6.3.2 Whilst this option might improve the pedestrian experience, it lacks the scale of impact needed in relation to the investment objectives and may actually worsen conditions by taking away road space from other users.

6.3.3 The potential displacement of bus services and private traffic may simply worsen congestion on other bridges whilst the retention of a limited vehicular carriage way would mean less space for public realm improvements. The existing bridge structures may not be able to sustain the additional heavy loads created by landscaping without structural modification. These issues undermine the acceptability of this option and as such it has been discounted.

6.4 Option 3 – New bridge elsewhere in central London

6.4.1 This option would involve creating a new bridge in central London, The most promising location for a new bridge in central London, other than at Temple (see next option), linking the North Bank and South Bank is between Lambeth and Vauxhall Bridge. The riverbank is not as constrained as in other areas of central London, so construction of a footbridge is likely to be feasible. The presence of the Tate Britain and Milbank Millennium Pier on the North Bank, and emerging commercial development on the South Bank in this location, suggest there is merit in considering this as an appropriate option.

6.4.2 Whilst this option would improve pedestrian connectivity across the River Thames, it would do little to support central London's visitor and tourist economy and would not provide any additional connectivity to the South Bank from the London Underground network.

6.4.3 There may be other reasons for pursuing this option separately, but this option would not fully meet these project objectives.

6.5 Option 4 – New bridge between Temple and South Bank

6.5.1 A conventional footbridge across the River Thames from the North Bank, adjacent to the Temple Underground Station, to the South Bank, near to the National Theatre and Gabriel's Wharf, would provide a solution to the functional needs of moving people through the area.

6.5.2 Whilst a conventional bridge would address some of investment objectives aimed at relieving connectivity problems and some regeneration issues, it would fail in delivering the type of iconic development capable of attracting international attention or visitors and help unlock the full economic potential of areas surrounding the bridge on both banks of the river. Accordingly this option only partially meets the investment objectives identified.

6.6 Option 5 – New Garden Bridge between Temple and South Bank (preferred option)

6.6.1 This option involves a new Garden Bridge for pedestrians only providing a route across the River Thames from the North Bank, adjacent to the Temple Underground Station, to the South Bank, near to the National Theatre, Gabriel's Wharf and the Bernie Spain Gardens.

6.6.2 The Garden Bridge would create a unique type of place, creating a green promenade that provides a unique experience in London. The green promenade would be planted with trees, flowering shrubs, herbaceous plants and grasses providing a type of elevated urban park and public space in the heart of London. This option combines the functional requirements involved in making movement in this part of central London more effective whilst creating something without parallel in Europe capable of drawing an audience.

6.6.3 This option meets all the identified project options across connectivity and support of wider regeneration and UK business. It is the only option to do so and is therefore the preferred option taken forward for detailed analysis.

7 Benefits and Costs

7.1 Overview

7.1.1 To develop the business case TfL has developed specific criteria for assessing the economic return on investment along with the wider direct and indirect benefits that can be gained by the project. Best practice evidence and precedents are used to calculate the economic impact and wider benefits from investing in public parks inform the assessment.

7.1.2 As noted above, Option 5 is the only option that fulfills all the objectives of the project, and is therefore the only option for which a detailed analysis is presented within this document. A summary of the benefits and costs of all options is presented in the Full Business Case.

7.2 Benefits

7.2.1 A wide range of potential impacts to London and the UK economy have been considered:

• Journey time (walk time saving) • Journey Quality (ambience) • Severance • Crowding • Road safety	• Pedestrian exposure to emissions • Health impacts (physical activity) • Business and property impacts • Showcasing Britain • Tourism

7.2.2 This project is not a conventional transport project and the assessment of benefits must account for the less tangible benefits of a scheme that combines transportation outcomes with benefits for tourism, quality of life, world city image and area regeneration. The aggregate economic benefits will exceed those that have been quantified in the current business case.

7.2.3 An outline of the estimated economic value of each benefit is outlined below.

Walking time savings

7.2.4 Pedestrian journey times will be reduced between Temple Underground Station and the South Bank as a result of the Garden Bridge. The annualised total travel time saving is 27,000 hours representing an annual benefit of around £200,000. This figure excludes the value of any new trips arising as a result of people opting to walk as a result of their destination being easier to reach or more pleasant to undertake.

Reduced severance

7.2.5 The Garden Bridge will provide a crossing that will link cultural centres and tourist attractions on the North and South Bank. It will also provide a new link to the Waterloo Opportunity Area. With the new bridge in place distances will be shorter in some cases and avoid the need to cross busy major roads.

7.2.6 The Garden Bridge will reduce the current level of severance, with a slight positive impact benefiting 5,000 people every day.

Reduced crowding

7.2.7 Encouraging the use of Temple Underground Station provided by the Garden Bridge could divert people away from Embankment thereby rebalancing demand and resulting in a small reduction in crowding at Embankment Underground Station.

Pedestrian safety

7.2.8 The Garden Bridge will create new routes between key attractions that avoid busy roads and allow for safer walking journeys. Pedestrian safety will therefore be improved over the current situation.

Pedestrian exposure to emissions

7.2.9 Any option other than the status quo reduces pedestrian exposure to air pollution. Moving pedestrians away from higher trafficked roads to alternative routes lessens exposure to pollutants. The other bridge options are unlikely to have large benefits however as the routes pedestrians take through the surrounding network will not change. Nor will the crossings in these options take pedestrians away from traffic in a significant manner.

7.2.10 The Garden Bridge option entails a fixed pedestrian link with no traffic and therefore reduces pedestrian exposure to NO_2. To demonstrate this, the average NO_2 concentrations on 4 walking journeys with and without the Option 5 Garden Bridge were compared. The analysis indicates that routes involving the Garden Bridge have 20% to 30% lower NO_2 concentrations. The results demonstrate that the average concentration to which pedestrians are exposed is significantly reduced with the Garden Bridge in place.

Increased physical activity

7.2.11 Encouraging an increase in regular walking is linked with reductions in premature mortality, due to the increased physical activity of those making more walking trips, or walking further. The forecast is that the Garden Bridge will prevent 0.37 to 0.7 deaths per year. This equates to an annual benefit of nearly £1 million.

Benefits of increased footfall

7.2.12 There will be a significant increase in footfall and pedestrian activity on the North Bank area as the Garden Bridge will complete a missing link between the South Bank and areas to the north such as Covent Garden and the Temple. This increase in

footfall will occur at all times of the day/week from different users of the bridge including commuters, visitors and people living/working/studying nearby. Pedestrian flows on streets south of the Strand and Aldwych are currently very low relative to other parts of Central London and as a result there is limited frontage activity. The Garden Bridge will transform this area and be a major catalyst for change that will lead to an increase in new business activity in the form of restaurants and shops and increase land values.

Higher land and property value – Empirical evidence

7.2.13 Well designed and managed green space can help raise nearby property values and their yields as well as supporting economic development activity. For example, more than $2 billion (£1.2 billion) has been invested in the district surrounding the High Line in New York as a direct result of the High Line's design and construction. The High Line has parallels with the Garden Bridge in terms of its design concept. These similarities suggest that the Garden Bridge will have a similar positive impact.

7.2.14 A number of schemes exist in the planning pipeline and additional schemes may come forward in the future. The Garden Bridge may act to provide a catalyst to increase the speed of development (i.e. planned schemes coming forward faster) and changes in the mix of development (e.g. increased retail and hospitality at street level due to increases in footfall).

7.2.15 The financial performance of the existing property in the area might also be expected to improve near the Garden Bridge. Existing properties may become prime locations attracting higher capital values and rents from residential and retail units. The occupancy and yield for each hotel room and turnover per square metre for retail and hospitality uses may also improve. Views of the Garden Bridge may attract a premium suggesting an uplift as high as 34% although a more conservative estimate would suggest around 5%.

7.2.16 These effects would also increase tax revenues for the Exchequer derived from various sources including revenue from income, business and sales taxes such as VAT and Stamp Duty Land Tax (SDLT). For example, New York's Central Park generated revenues of $136 million (£82 million) in 2007 from concessions and other commercial uses. This resulted in $16 million (£9.6 million) of additional income for New York City and the Department of Parks and Recreation through income, sales and business taxes and permits for concessions and events.

7.2.17 The area surrounding the proposed Garden Bridge site has a high density of jobs and people. More than 513,300 jobs and 38,300 residents were within 1,500m of the Garden Bridge site in 2011. In 2011, there were around 390,600 jobs and 23,700 residents within a 20-minute walking distance on the North Bank whilst the South Bank equivalent contains 229,100 workplace jobs and 21,100 residents.

7.2.18 Between 2001 and 2011, the number of jobs within the 20 minute walk time catchment of the North Bank grew by just 1.5% (5,900 jobs) or about 0.2% each year – much less than one third of the national average growth and significantly below the growth levels seen in the surrounding central London boroughs: Westminster

(10%), Lambeth (13%), Southwark (17%) and City of London (21%). The South Bank catchment experienced more jobs growth over the last decade (+6% or +12,800 jobs) but this also lagged behind the London average and was less than half the growth rate achieved in Lambeth and Southwark.

7.2.19 By 2021, there will be an estimated additional 7,100 residents and 21,600 jobs within the 20-minute North Bank catchment due to the Garden Bridge's impacts on connectivity and permeability within the urban form and across the Thames. By 2021, there is estimated to be an additional 5,400 residents within the 20 minute South Bank catchment due to the Garden Bridge's impacts. However, the total number of jobs increases by 103,800 due to the extension of the 20-minute catchment into central London including Bloomsbury and Holborn.

7.2.20 The increase in the population and employment within the 20 minute walk catchment over and above trend forecasts can be expected to support increased levels of cross river pedestrian movement especially of commuters travelling north and south. The increased leisure usage of the Garden Bridge by residents and workers will act to increase the local market size and spend for retail, hospitality and other convenience or discretionary spend. Increases in density of commercial activity should result.

Higher land and property value – Estimated impacts

7.2.21 Higher land and property value benefits generated by the Garden Bridge can be estimated in terms of planned development, current businesses and residential property.

7.2.22 **Planned development:** Recent and planned developments within about 500m of the Garden Bridge on the South Bank will provide 170,000 m^2 of office, commercial and other floorspace, 1,400 residential units and more than 1,000 hotel bed spaces. Together this £1.33 billion programme of investment would accommodate 10,000 jobs and 3,000 new residents.

7.2.23 Similarly £351 million of residential development is planned at One Arundel Great Court and 190 Strand closing the northern landing point.

7.2.24 If the development value was increased by 5% due to the effects of the Garden Bridge (in line with the average in the literature) this would result in a gross benefit worth £84 million.

7.2.25 Opportunities may exist to capture some of this value through planning obligations and other levies to support the construction and longer term upkeep of the bridge.

7.2.26 **Current businesses and property -** An increase in footfall associated with Garden Bridge users would affect the income generated by nearby businesses and the value and yield of existing property. Along the South Bank there is already an established and high level of pedestrian activity which supports a range of business and leisure related activities. On the North bank the situation is quite different where there is a

significant drop off in footfall to the south of the Strand meaning little or no market for ground floor activities on many of the streets.

7.2.27 Over 4,000 people per hour would use the Garden Bridge during peak times at the weekend with many of these journeys starting or ending on the north side of the river. This will have a transformational effect on footfall on streets such as Arundel Street and the southern side of the Strand leading to a major increase in the potential for business activity along these frontages.

7.2.28 A 5% increase in turnover at a few key locations could result in increased revenues of £12.9 million each year and also support increased levels of employment.

Showcasing of Britain

7.2.29 The Garden Bridge will have significant promotional and branding benefits for the UK and London bringing more visitors to the UK (in effect an export) and helping to reinforce the UK's competitive position as the home of engineering and design excellence, helping to secure additional work both at home and overseas.

7.2.30 In 2010 the GVA output of the UK's construction sector was worth £83 billion, contributing 6.3% of national economic output. The Garden Bridge can be expected to be a global marketing icon for UK design, engineering and construction skills and support export activity.

7.2.31 UK construction exports are dominated by high-value services such as engineering consultancy and design, architectural activities, and property management. With exports of construction services amounting to £1.22 billion in 2027, a 0.5% increase in this activity due to the Garden Bridge would be worth £6.1 million a year. As the impact will fade over time, the value of this benefit has been applied over 5 years rather than 60 years. There are many examples of London icons being used to showcase and promote London and the UK, with the aim and effect of attracting investment from overseas.

Job creation

7.2.32 The Garden Bridge is expected to create construction employment of around 250 jobs (full time equivalents, or FTE). Additional construction employment would also be associated with any net additional development triggered both north and south of the Thames.

7.2.33 Operational employment at the Garden Bridge is estimated to result in 20 jobs (FTE). Posts could include gardeners, cleaners and security staff. In addition, there would also be related staff employed at the Garden Bridge Trust.

7.2.34 While the population and employment in catchment area is forecast to grow in the future, the improved connectivity and urban permeability that the Garden Bridge will bring will further increase the people and jobs within the 20-minute catchment of its proposed site.

Tourism revenue

7.2.35 A new Garden Bridge on the Thames has the potential to add to London's cultural offer and provide a new attractor for tourists.

7.2.36 The different bridge options are likely to attract tourists to varying degrees with those options that involve more iconic design and a better visitor experience likely to attract more tourists.

7.2.37 Tourism in London is a key sector and supports 226,000 jobs or around 5% of all employment in the capital and accounts for £6.6 billion 'tourism direct GVA' of £34.3 billion nationally. London is one of the most visited cities in the world with nearly 15 million international visitors annually. The average holiday visit including a stay in London in 2012 was around 5 nights, with an average spend per night of £125.

7.2.38 The same survey results also show that 64% of all overseas visits to London include seeing a park or garden. If 5% of those overseas visitors who visit a park or garden were assumed to spend an additional hour on average in London with a Garden Bridge in place, the estimated additional annual tourism revenue generated by the Garden Bridge is £2.5 million.

7.3 Costs

7.3.1 The estimated cost for the Garden Bridge is £120 million. This is the estimated cost in 2014 prices and includes scheme development, planning and construction as well as an allowance of £25.6m for risk and contingency. It also excludes VAT which would be payable and not able to be recovered by the Garden Bridge Trust. When including inflation of £12.7 million and VAT of £26. In total the cost rises to £159 million.

7.3.2 The cost of ongoing operation and maintenance is estimated to be £2.5 million per annum in 2014 prices. As the bridge structure is being designed so that it is very low maintenance, it will be the garden itself that will be the main source of ongoing more intensive maintenance and there will be a requirement for permanent staffing, including gardeners and supervisory staff undertaking landscape maintenance tasks most days. It could also involve the use of volunteers and incorporate education/training elements.

7.3.3 The maintenance regime will cover annual planting and soil treatment requirement, maintenance of plant and equipment, provision of gardening consumables and cyclical landscaping "renewal" and "enhancement". In addition to soft landscaping responsibilities, hard landscaping will require regular maintenance to keep all surfaces clean and serviceable with repairs and replacements undertaken as they become necessary. There will also be ongoing costs associated with crowd control and security.

7.4 Summary

7.4.1 Analysis undertaken as part of the business case for the project shows that a broad range of benefits can be expected from the Garden Bridge. The economic value of these benefits has been estimated as far as it is possible to quantify impacts. In total, the estimated quantifiable economic benefit is in order of £482 million over a 60-year appraisal period.

7.4.2 The estimated economic value of benefits of £482 million compares with a scheme cost (capital and operational) of £234 million (2014 prices).(£120m + £26m + £2.5m x 60 = £296m at today's prices)

7.4.3 The nature of the project means that many of its expected benefits are less tangible than the more typical economic impacts of jobs and income. The aggregate economic benefits are therefore likely to exceed those that have been quantified in the current business case.

7.4.4 The following table provides a summary of the estimated impacts:

Impact / Benefit	Option 1 - Do Nothing	Option 2 - enhance Waterloo Bridge	Option 3 - bridge between Lambeth & Vauxhall bridges	Option 4 - bridge between Temple & South Bank (no garden)	Option 5 - garden bridge between Temple & South Bank
Walking time savings	None	None	Slight positive £100,000 p.a.	Slight positive £200,000 p.a.	Slight positive £200,000 p.a.
Journey quality	None	Slight positive	Slight positive	Moderate positive	Large positive
Severance	None	None	Slight positive	Slight positive	Slight positive
Crowding	None	None	None	Slight positive	Slight positive
Road safety	None	None	None	Slight positive	Slight positive
Pedestrian exposure to emissions	None	None	None	Slight positive 20% to 30% lower NO_2 concentrations on some pedestrian trips	Slight positive 20% to 30% lower NO_2 concentrations on some pedestrian trips
Health impacts (physical activity)	None	None	None	Slight positive £963,000 p.a.	Slight positive £963,000 p.a.
Business impacts	None	None	None	Moderate positive £5.4m p.a.	Large positive £13.5m p.a.
Residential property values	None	None	None	Moderate positive £33.6m (one-off value increase)	Large positive £84.1m (one-off value increase)
Showcasing Britain	None	None	None	None	Moderate positive £6.1m p.a. for 5 years
Job creation	None	Slight positive Construction – 35 FTE jobs Operation – 5 FTE jobs	Moderate positive Construction – 100 FTE jobs None	Moderate positive Construction – 100 FTE jobs None	Large positive Construction – 250 FTE jobs Operation – 20 FTE jobs
Tourism	None	None	None	None	Moderate positive £2.5m p.a.
TOTAL BENEFITS	**None**	**Slight**	**Slight**	**£6.6m per annum plus one-off value benefits of £33.6m**	**£23.2m per annum plus one-off value benefits of £84.1m**
Construction cost	None	c. £20 million	c. £60 million	c. £60 million	c. £150 million
Construction disruption	None	Slight negative	None	c. £3.2 million	c. £3.2 million
Operating cost	None	c. £1 million p.a.	c. £0.5 million p.a.	c. £0.5 million p.a.	c. £2.5 million p.a.
Operational disruption	None	Slight negative	None	None	None
TOTAL COSTS	**None**	**£20m plus £1m p.a.**	**£60m plus £0.5m p.a.**	**£63.2m plus £0.5m p.a.**	**£153.2m plus £2.5m p.a.**
BCR (assuming public funding)	**N/A**	**0**	**0**	**1.7**	**1.9**
BCR (£60m public contribution)	**N/A**	**0**	**0**	**1.7**	**3.5**

8 Benefit-Cost Ratio

8.1 Overview

8.1.1 The approach used by TfL in setting out business cases ensures decisions are made which take account of all the relevant information in accordance with Treasury guidance. The aim of guidance is to answer the question "What value for money does the proposal represent?".

8.1.2 The Benefit Cost Ratio (BCR) is a useful tool in answering this question as it encourages all economic costs and benefits to be considered in the round and expressed as a ratio known as the Benefit/ Cost Ratio. In practice however, there may be a number of benefits that are not possible to express in monetary terms and account needs to be taken of impacts taking a qualitative form.

8.2 Benefit Cost Ratio Estimate

8.2.1 It has not been possible to quantify all of the benefits, with some subjects being assessed only qualitatively, but where possible all the costs and benefits have been appraised and a Benefit:Cost Ratio (BCR) produced.

8.2.2 The results of the Benefit:Cost ratio calculations are:(see 7.4.2)

- Option 1: **n/a,** no BCR calculated for Do Nothing scenario
- Option 2 (part-pedestrianise Waterloo Bridge): BCR of **0:1,** as the slight benefits are not easily quantifiable
- Option 3 (Lambeth footbridge): BCR of **0:1,** as the slight benefits are not easily quantifiable
- Option 4 (Temple footbridge): BCR of **1.7:1**
- Option 5 (Garden Bridge): BCR of **1.9:1** assuming public sector funded in its entirety, and **3.5:1** taking into account the expected third party contributions towards this option.

8.2.3 Accordingly, there is a sound economic case for taking forward the preferred option – the Garden Bridge.

9 Delivery

9.1 Overview

9.1.1 This section sets out the commercial, financial and management case in relation to risks and constraints. There are three key phases in the project – the development phase, the construction phase and the operational phase.

9.2 Commercial case

9.2.1 The process of securing planning powers for the scheme is being undertaken by TfL on behalf of the Garden Bridge Trust. The responsibility for delivering all other activities will transition to the Garden Bridge Trust once the planning application has been submitted. It is expected that TfL will continue to have a role in supporting the Trust.

9.2.2 TfL have an internal project team and have contracted Arup, with sub contractors Heatherwick Studios and Dan Pearson, to work on the Garden Bridge project. This team has been developing the design to RIBA stage C, and submitted a planning application to City of Westminster and LB Lambeth at the end of May 2014.

9.2.3 TfL have set up a new charitable trust, The Garden Bridge Trust, who are responsible for securing funds for construction and future maintenance, and for the delivery of the project.

9.2.4 The construction phase will be led and managed by the Garden Bridge Trust. TfL will provide support to the Trust during construction.

9.2.5 Once the bridge is open it will be owned and operated by the Garden Bridge Trust. They will be responsible for managing and maintaining both the bridge structure and the garden. This could be managed directly by the Trust, or they could secure an agreement with another body to take responsibility for this.

9.3 Financial case

9.3.1 The estimated cost for the Garden Bridge is £159 million (outturn prices, i.e. including inflation and contingency on top of the base estimate of £137m). This includes scheme development, planning, construction, VAT and risk allowance.

9.3.2 The estimated maintenance cost for the Garden Bridge is £2.5 million per year from 2018 onwards. This includes the cost of bridge maintenance as well as the running costs for the garden associated with staffing the bridge – e.g. gardeners and potentially security. The final cost is dependent on the way the bridge is managed and it is a high level estimate at this stage.

9.3.3 The Garden Bridge Trust is the promoter of the scheme and is responsible for securing the necessary funds for both the construction and the on-going maintenance cost. Discussions have taken place with a number of parties, including one family and one charitable trust. The outcomes will depend on suitable terms being agreed and conditions of the funding.

9.3.4 HMT and TfL have each pledged to contribute £30 million towards the scheme that includes £5 million already committed from TfL, to fund the initial scheme development costs. Both TfL and HMT contributions will be provided in stages and the total public sector contribution of £60 million would cover less than half of the capital cost. The Trust is also looking at a public fundraising campaign that could start in 2014.

9.3.5 The profile of funding is also important, in terms of timing and whether there is the potential for any gap funding, lending or underwriting of the project, and a discussion with HMT about how any funding support might be structured would be beneficial and will be sought. The overall funding package for the on-going maintenance cost will be set out and secured by the Garden Bridge Trust.

9.3.6 TfL has committed to support the delivery of the Garden Bridge by leading the process of securing the necessary planning powers; helping to secure third party funding and establish an appropriate structure for delivery and providing its project management expertise to the delivery. However, it is the responsibility of the Garden Bridge Trust to secure all the funds needed to build and operate the Garden Bridge.

9.4 Management case

9.4.1 The scheme is being promoted and will be delivered by the Garden Bridge Trust, a new charitable trust that has been set up for this purpose. The Trust will apply for powers to construct the bridge through planning applications to Lambeth and Westminster Councils, with assorted other consents from the appropriate statutory body (such as the PLA, EA, etc.).

9.4.2 The Trust is responsible for raising the necessary funding package for both the capital construction costs and the on-going maintenance costs of the Garden Bridge. They will be responsible for procuring and managing the construction process, and will own the structure once it is complete.

9.4.3 Lord Mervyn Davies is the Chairman of the Trust and its founding members include Paul Morrell (formerly the UK government's Chief Construction Advisor). All trustees have been appointed for their relevant experience, skills and time to successfully deliver the project to programme and budget. The Trust is composed of highly experienced professionals with experience in construction, finance and law.