



A3 Decking at Tolworth

Strategic Outline Business Case



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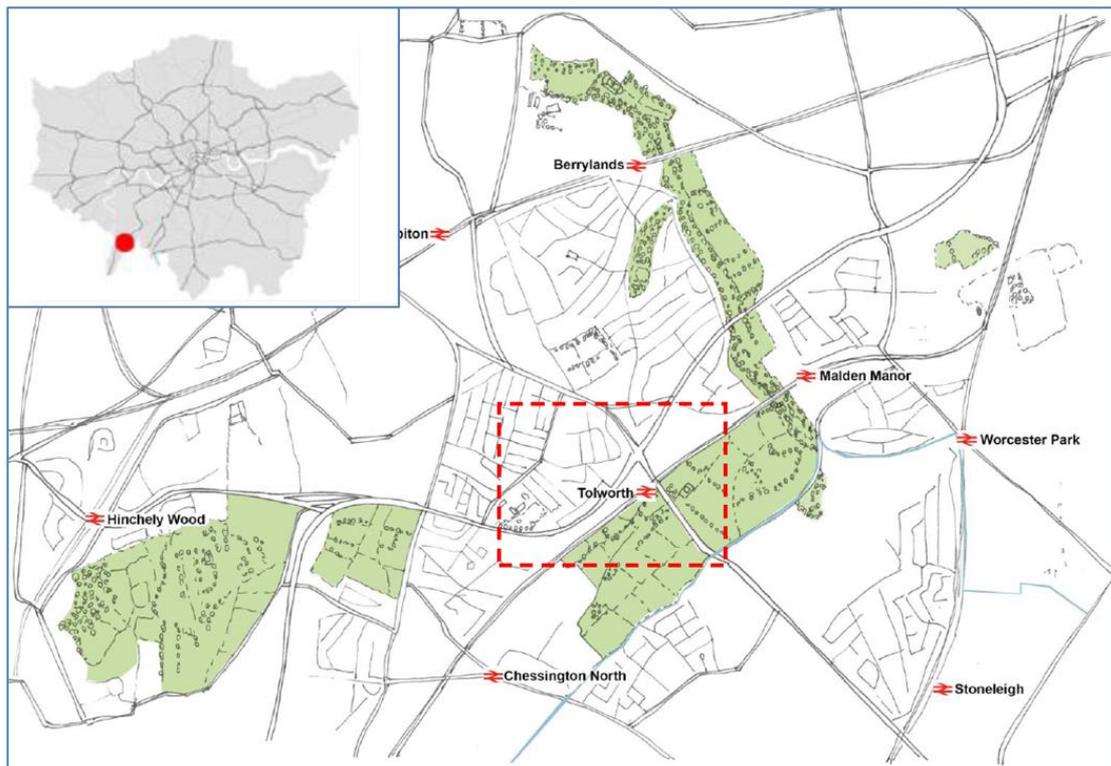
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Executive Summary

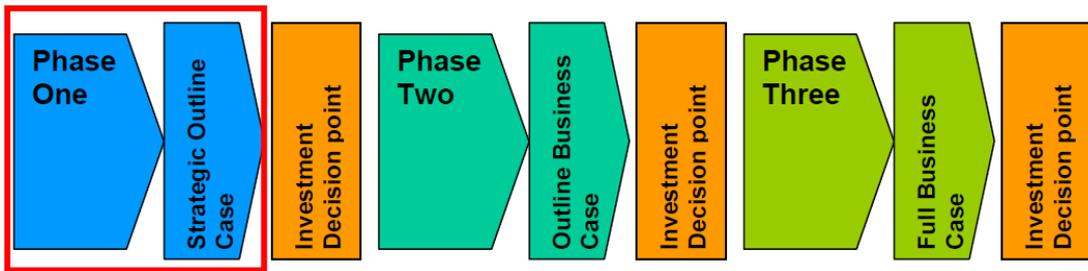
Purpose of this document

1. Transport for London (TfL) is proposing a major road-decking scheme on the A3 at Tolworth. It is proposed to build a deck over the A3 (and lower the road) along a 270 metre section immediately to the southwest of the interchange with the A240. Figure ES 1 shows the location of the proposed scheme.

Figure ES 1 – Proposed location of decking of the A3 at Tolworth



2. The A3 Tolworth decking would unlock a transformational change for the local area by tackling problems of severance, inhospitable local environment and poor prospects for redevelopment. Combined with the Crossrail 2 project, which is proposed to serve Tolworth station from 2030, the decking scheme has the potential to enable significant housing and commercial development to take place on development sites around Tolworth.
3. This document is the **Strategic Outline Business Case (SOBC)**, the first phase of the **decision making process**. The SOBC sets out the strategic fit for the scheme and scopes out the initial intervention proposal.



4. This SOBC is presented in accordance with the DfT's Business Case Guidance which stipulates a five case model to developing transport business cases which considers whether the scheme:
- is supported by a robust case for change that fits with wider public policy objectives – the 'strategic case';
 - demonstrates value for money – the 'economic case';
 - is commercially viable – the 'commercial case';
 - is financially affordable – the 'financial case'; and
 - is achievable- the 'management case'.

Policy framework

The Mayor's Roads Task Force (RTF) has set the vision for London's roads and streets

5. The RTF report, 'Vision for London's Roads and Streets' (2013) set out three core aims:
- To enable people and vehicles to move more efficiently on London's streets and roads;
 - To transform the environment for cycling, walking and public transport; and
 - To improve the public realm and provide better and safer places for all the activities that take place on the city's streets, and provide an enhanced quality of life.
6. Particular objectives from the RTF report of relevance to this business case include:
- Release land at the surface for development;
 - Improve the public realm;
 - Create new green space;
 - Provide better facilities for pedestrians, cyclists and public transport users;
 - Reduce severance;
 - Reduce the negative impacts of roads on noise and air quality.

7. Following the publication of the RTF report, TfL undertook a series of studies to identify opportunities for decking over or tunnelling under roads at a number of locations around London in order to unlock development opportunities.
8. The initial phase of work identified 70 potential locations, and sifting work identified 15 locations suitable for high level feasibility work. This feasibility work identified five of these locations with the potential to make a significant contribution to achieving the aims and objectives of the Roads Task Force. Further feasibility work was carried out for each of these five locations resulting in the production of a Strategic Outline Business Case for each scheme. These locations are:
 - **A3 Tolworth;**
 - A13 Barking Riverside;
 - A4 Hammersmith;
 - A316 Chalkers Corner;
 - A406 New Southgate.

Overall, the A3 decking scheme conforms to policy at all levels, helping to secure London and the UK's continued prosperity

9. Due to the role of the A3 decking in addressing the challenges London faces, it makes a significant contribution to policy at all levels. At a National level the proposal strongly supports the intended outcomes in the DfT's priorities for the transport network. The scheme also supports London-wide and local policy – in particular in the Mayor's Spatial Development Strategy (known as the London Plan), the Mayor's Transport Strategy (MTS), and London 2050 Infrastructure Plan. It is also supportive of goals in local planning documents such as the Royal Borough of Kingston's Core Strategy and the Tolworth Regeneration Strategy.

Introduction to the scheme

The A3 is a heavily used section of the Transport for London Road Network, providing a strategic link between London and the South Coast

10. The A3 forms part of the Transport for London Road Network (TLRN). It is a vital strategic link between London and key destinations in Surrey, Hampshire and the south coast. The A3 carries Average Annual Daily Traffic (AADT) flows of 110,000 vehicles through Tolworth, of which approximately 3% are Heavy Goods Vehicles.
11. At its junction with the A240, the A3 enters a flyunder, resulting in a wide, difficult to navigate barrier that divides Tolworth in two – cutting off the town centre on the north side of the road from other key destinations such as the station and development opportunities to the south. Whilst combined at grade and sub-surface

pedestrian and cycle access exists, this requires movement through the middle of the busy A3 / A240 interchange and through the central reservation of the A240, making for a hostile and uninviting environment, exacerbated by the increasing congestion and deterioration of environmental conditions associated with traffic growth on this part of the network.

TfL has identified a solution to address the issue of severance and support the development of Tolworth, whilst maintaining the capacity and function of the A3

12. The option to provide an at-grade, decked section of the A3 at Tolworth has been shortlisted because it meets policy objectives in the London Plan and the Mayor's Transport Strategy (MTS), is considered to be practical to construct, addresses issues of deteriorating environmental quality and is likely to be both feasible and viable.
13. The proposed deck would be constructed along an existing stretch of the A3 for approximately 270m immediately south west of its junction with the A240. The proposed scheme will require the lowering of the existing A3, the realignment and conversion of existing on / off ramps to form local roads and the construction of a level deck over the existing A3 carriageway.
14. The proposed deck would be landscaped, creating a new area of linear, publically accessible open space fronting onto new development sites (including the former MoD, Toby Jug site and potential redevelopment of Charrington Bowl) adjacent to the south of the A3.
15. The primary purpose of the scheme is to improve the quality of the local public realm by addressing the significant issues of severance on this part of the network as well as improving and enhancing the quality of environment within the vicinity of the A3 /A240 junction. These environmental and connectivity improvements will help address those issues which act as a barrier to the continued success of Tolworth as a district centre and will make a positive contribution to established regeneration objectives for the local area. These benefits will be significantly reinforced should the proposed Crossrail 2 scheme serve Tolworth station from 2030. It is these benefits on which the project is predicated.
16. Whilst the proposed scheme will not provide additional road capacity, or a significant transport benefit itself, the decking scheme will reduce severance and improve connectivity between Tolworth's main residential areas, its town centre, station and future development locations, which will help to reduce reliance on the private car and improve the competitiveness and development prospects of Tolworth as a District Centre. Importantly, it will achieve these goals while maintaining the capacity and performance of the strategic A3 road corridor.

The Strategic Case

17. The Strategic Case demonstrates the problems identified, the need for an intervention and the possible solutions to the problems.

The future of the UK's economic performance lies in improving the performance of its cities. In particular, London is the driver of the UK's economic growth

18. Cities drive the UK economy – they are home to 54 per cent of the population, generating 60 per cent of its GVA, containing 53 per cent of all businesses and 72 per cent of all highly skilled workers¹ within just 9 per cent of the UK's land area. London contributes an estimated 21 per cent of total UK tax revenues².
19. London's rapidly growing population is linked to and necessary to its strong economic performance. Over the period 1991 to 2011, London's population increased by 1.4 million, enabling the number of jobs in the capital to increase by 900,000. London's population surpassed its 1939 peak of 8.6 million in early 2015 and is forecasted to reach 10.1 million by 2036.
20. Since 1994, on average, 29,700 new jobs a year have been created within London. This employment growth is expected to continue. London Plan forecasts suggest that the number of jobs in London is expected to grow by 1.4m between 2011 and 2036.

London is ranked alongside New York as the most competitive city in the world³, but its success cannot be taken for granted

21. Recent evidence suggests some deterioration in London's international rankings, including cost of staff (a result of a high cost of living) and quality of life. The housing issues that lie behind these factors are fundamental to maintaining London's competitiveness and will be exacerbated by continued population growth.

London must offer an attractive public realm to remain competitive

22. Some of the most successful cities around the world have invested in improvements to the quality of the urban realm alongside investment in public transport capacity. Providing cover over major roads helps to maintain road network functioning while delivering higher-quality places where people will want to live and socialise.

¹ Centre for Cities website, 'City by City', <http://www.centreforcities.org/cities/>

² Research Report: London's Finances and Revenues: City of London Corporation & CEBR (2014)

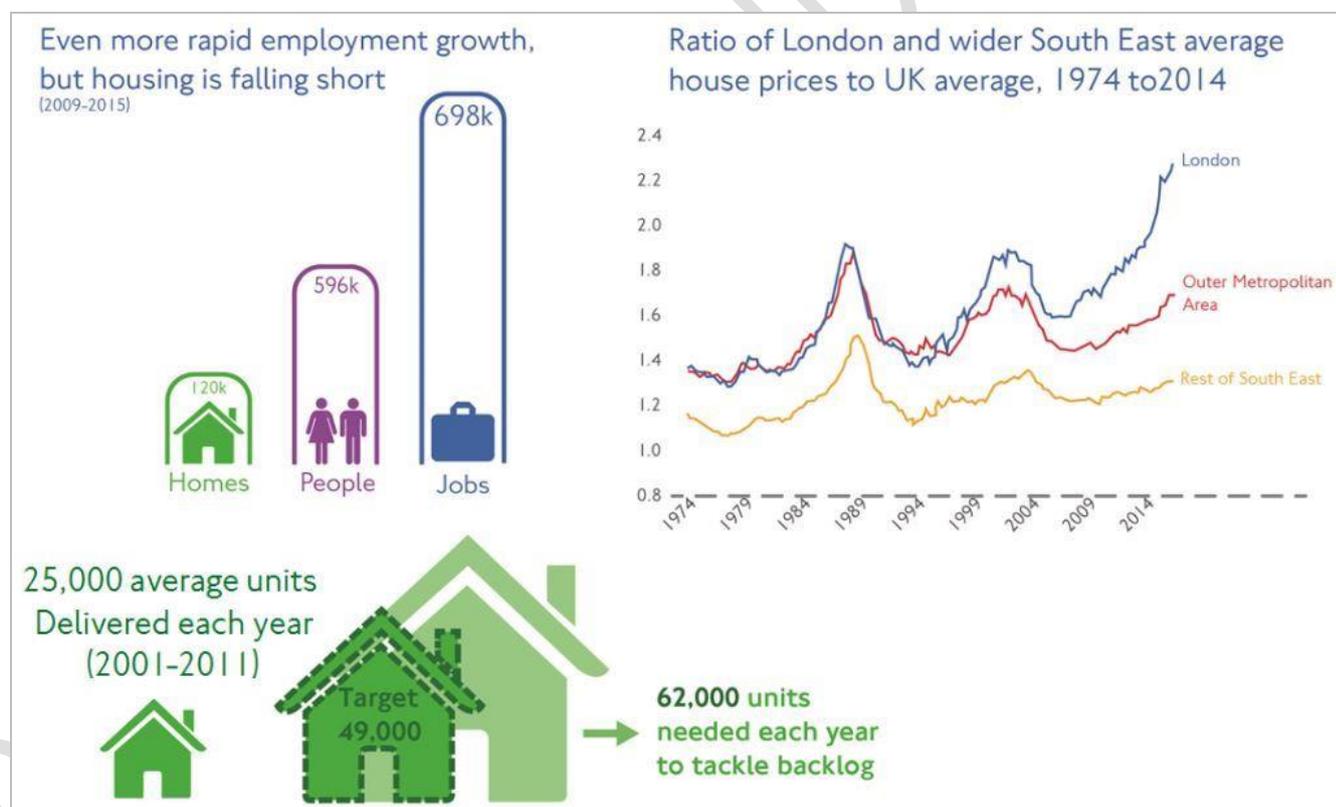
³ based on the Global Financial Competitive Index assembled by Longman Finance and the Qatar Financial Centre Authority, 2015

23. By contrast, failing to invest in the road network while congestion is increasing will lead to a deteriorating quality of place. This could make London a less attractive location for footloose companies to be based, reducing investment and the economic success of the city.

London's future economic growth depends on having an increased housing availability to support labour supply

24. London's projected employment and population growth provide an opportunity for further driving the UK's economy, but also present a considerable challenge. The Greater London Authority (GLA) estimates that 49,000 new housing units need to be built each year for housing supply to keep up with the growth in demand. An even higher figure of 62,000 new housing units are estimated to be needed every year up to 2031 if the current gap between supply and demand (which has built up due to the failure in recent years to construct sufficient housing) is to be eliminated.

Figure ES 2 – Summary of housing supply and affordability issues facing London



London must unlock new development opportunities to support delivery of new housing and jobs

25. London's supply of new land to support housing and jobs growth is limited and the development potential of brownfield land and other opportunities must be maximised. An innovative approach to unlocking this land to support new

development is therefore urgently required if the Capital's housing needs are to be met.

26. A number of key sites with potential to host high levels of housing growth, such as Tolworth, are currently under-utilised due to the negative impacts of busy roads on public realm, connectivity and environmental quality. By unlocking these areas, several thousand new homes and jobs could be created.

The proposed scheme, alongside Crossrail 2, will maximise the amount of housing that can be delivered in Tolworth

27. The delivery of Crossrail 2 has the potential to transform Tolworth. The number of trains serving the station will double from at least two to four per hour in each direction, and passengers will be able to travel directly through central London to new destinations including Victoria, Tottenham Court Road and Euston St. Pancras, reducing journey times and increasing the number of jobs local residents will be able to access within a 45-minute journey time. The station will be likely to receive an upgrade including step-free access from platform to street.
28. A major objective of Crossrail 2 is to stimulate new housing and commercial development along its route, to help combat London's housing shortfall. As a station on the route with considerable brownfield land nearby, Tolworth is a prime candidate to contribute to Crossrail 2's goal to stimulate construction of around 200,000 new homes and 200,000 new jobs.
29. Research by Crossrail 2 suggests there is the potential for up to 8,000 of these homes to be built near Tolworth station. However, the viability and feasibility of dense, well-connected development near Tolworth station is limited by the severance, environmental problems and poor public realm around the A3. This constraint can be demonstrated by a number of sites having already been identified as suitable for redevelopment as part of the Tolworth Regeneration Strategy, but as yet not being delivered.
30. By improving the connectivity between the developed area of Tolworth and major development opportunities around the future Crossrail 2 station, the proposed scheme would help facilitate the deliverability of these sites, helping to ensure development proposals come forward at optimum densities.
31. New pedestrian and cycling routes from Tolworth town centre to the Crossrail 2 station and new development areas would encourage existing and new residents to access the new rail services via active means of travel, helping to reduce car traffic in the area. Without this scheme, many of the existing and future residents of Tolworth would have to access the station via the existing, hostile route through the A3/A240 interchange, reducing the attractiveness and perceived improvements to the area resulting from Crossrail 2. Taken together, these are likely to increase the reliance on

the private car, which given the existing highway constraints in the area could limit development capacity overall.

32. The decking scheme would therefore help to ensure that the unprecedented opportunity for this area offered by Crossrail 2 would be fully capitalised upon, delivering a station properly integrated into its surrounding community and supported by appropriate levels of development that make a contribution to reducing London's housing shortage.

Building a deck over the A3 at Tolworth will improve local connectivity, urban realm and environment

33. The A3 and its junction with the A240 cause significant severance between Tolworth's town centre and key destinations. The proposed scheme will help to create a safe, integrated link connecting the town centre and station, encouraging the uptake of more sustainable modes of transport and improving accessibility within the area as a whole.
34. The scheme will also help address issues of air quality, noise and residential amenity, all of which will encourage new development and allow it to better integrate with the existing built environment and Tolworth town centre.

There is a need to improve surface connectivity without impacting upon the capacity or functionality of the A3 corridor

35. The A3 is a strategic road carrying extremely high volumes of traffic between central London, Surrey and the south coast. Whilst there is a need to address existing and future problems caused by the road, it is necessary to protect the capacity and strategic network functionality of the A3.
36. The importance of addressing issues on the A3 in support of sustainable economic growth, whilst maintaining its capacity and functionality has been highlighted by the Government's commitment to investing in other junction improvements along its route as part of the Government's 'Road Investment Strategy' to help unlock Britain's economic potential⁴.
37. The construction of this decked section provides a good solution to address these issues by protecting the capacity of the A3 while also unlocking the potential of the Tolworth area.

⁴ As part of its Road Investment Strategy, the Government announced significant investment in in the M25 / A3 Wisley Interchange

The key points arising from the Strategic Case can therefore be summarised as:

- The scheme would improve opportunities for development and the continued growth of Tolworth, through enabling higher density development alongside the deck and providing better connectivity between major sites around Tolworth. These benefits are vital to maximising the impact of Crossrail 2 in this area.
- The scheme would help reduce significant severance currently caused by the A3 at its junction with the A240, improving connections between key destinations and opening up future growth opportunities. More space could be devoted to cycling and walking, as well as providing new open space in Tolworth.
- The scheme would combat the negative impacts of heavy traffic flows and congestion from the A3 at Tolworth by enclosing the traffic flow within the existing flyunder. This would allow for a transformation in the quality of the public realm, plus benefits in terms of noise and air quality.
- The A3 is a strategically important road corridor, and it is important that its capacity be maintained. This scheme would enable this capacity to remain untouched while significantly reducing the negative impacts associated with the road.

The Economic Case

38. The economic consequences of the proposed scheme have been assessed.

The A3 decking scheme would deliver significant development and regeneration benefits

39. The assessment of regeneration and development benefits has demonstrated that the scheme would make a positive contribution to housing supply within Tolworth – not only in terms of quantity but also quality in relation to how the development would relate to the new public realm and existing built up area.

40. Research by Crossrail 2 suggests there is potential for that scheme to enable up to 8,000 new dwellings and 60,000sqm of commercial space to be built in the area around Tolworth station. Improving connectivity across the A3 in the local area will be vital to realising the area's full development potential, although at this stage in the development of this economic case, new development attributable to the decking scheme has been assumed to apply only to the land parcels immediately adjacent to the southern side of the A3 (MoD/ Toby Jug/ Charrington Bowl). The decking scheme will, however, play a potentially vital role in enabling the delivery of the remaining

homes and jobs that would be stimulated in the wider area by the construction of Crossrail 2.

41. At present it is not possible to directly attribute how many of these homes would be enabled by Crossrail 2 and how many by the decking scheme. To avoid double-counting homes for both this scheme and Crossrail 2, a conservative approach has been adopted in this case to consider just the site immediately adjacent to the deck and not consider the wider housing opportunities south of the A3. This leads to much more modest forecasts of development attributable to this scheme than is likely to be the case in practice.
42. Further work on this scheme will take place as part of an integrated planning exercise for the Crossrail 2 station at Tolworth. This will seek to maximise the benefits from both schemes and the strong synergies between them. This will lead to clearer identification of the level of development directly attributable to this decking scheme, which will then be incorporated into future versions of this Economic Case.

The scheme will directly increase development potential of an important regeneration site alongside the proposed deck

43. There is a collection of brownfield sites sandwiched between the A3 and the railway station. These sites have been the subject of planning (and withdrawn) applications in the last 10 years, and redevelopment is yet to occur.
44. In a 'do nothing' reference case, (without the decking scheme), the MoD / Charrington Bowl site would see 774 homes (gross) delivered as this is the amount currently subject to a live application on the site. With the additional land and improved layout allowed for by this scheme, this would increase to 848 (gross) homes – allowing for an additional 74 dwellings within the site. Taking displacement effects into account, there would be ~~46 net additional dwellings at the Borough level and~~ 37 net additional dwellings at the London level.
45. In employment terms, the net additional employment would be 20 additional jobs for London with the decking alone. Alongside the indirect employment associated with this housing, this would generate a net additional GVA of ~~£18.2~~ £12.6m for ~~the Borough~~ or £12.6m at the London-wide level.
46. With Crossrail 2 delivered, the 'do-nothing' scenario would increase development potential to 1,306 new homes (gross), which would rise to 1,436 (gross) homes taking into account the decking scheme. Therefore, if both the decking and Crossrail 2 were delivered (including displacement), there would be ~~24 net additional dwellings at the Borough level and~~ 62 at the London level directly attributable at this stage to the proposed scheme. The net additional employment would be ~~44~~ 35 additional jobs with

both the decking and Crossrail 2. Alongside the indirect employment associated with this housing, this would generate a net additional GVA of ~~£40m for the Borough or~~ £32m-21m at the London wide level.

Table ES 1 – Summary of additional impacts of decking the A3 at Tolworth (at London level)

<i>Development and Regeneration benefits of the decking scheme at Tolworth</i>	<i>Without Crossrail 2</i>	<i>With Crossrail 2</i>
Additional homes on MoD/Charrington Bowl site	35	62
Additional jobs (direct and indirect) resulting from MoD/Charrington Bowl site development	20	3635
GVA generated by additional jobs resulting from MoD/Charrington Bowl site development (direct and indirect) (£m PV)	£1813m	£3221m
Additional potential Crossrail 2-related homes which decking scheme could help facilitate in the wider area	N/A	Up to 8,000

Traditional appraisal methods based on transport user benefits are not the right way to evaluate this scheme

47. If considered solely as a transport scheme, the A3 decking scheme would not be considered to represent value for money.
48. In line with WebTAG guidance, cost-benefit analysis has been undertaken to assess the scheme's value for money. This has been undertaken using TUBA, a DfT compliant modelling appraisal tool.
49. Over the 60 year appraisal period using the DfT Value of Time (VoT), the net present value (NPV) of the scheme is estimated at -£102m with a Benefit Cost Ratio (BCR) of 0.15 using DfT Values of Time (not including any additional land acquisition costs) and a BCR of 0.19 if using TfL Values of Time. This suggests that the scheme would be "poor" value for money. Further information on this calculation can be found in Section 3 of the main report.
50. Although WebTAG guidance requires the reporting of a Benefit to Cost Ratio (BCR), this is not an appropriate metric by which to judge the scheme. It is important to note that the primary purpose of the scheme is not aimed at relieving existing traffic issues and is primarily driven by the need to address significant severance, improve environmental quality, and support the regeneration and growth of Tolworth. It is these wider benefits

that underpin the case for delivering the proposed scheme. This scheme enables these benefits to be delivered while protecting existing transport movements, delivering a far better transport solution than would be possible with other schemes that might deliver similar benefits but at the major (and unacceptable) cost of significantly reducing the capacity of the A3.

The project would improve quality of life, facilitating a reduction in noise and improvements to the public realm

51. A high level WebTAG compliant noise appraisal has been carried out to assess the benefits of the scheme for local residents. The noise assessment concluded that decking the A3 would have significant benefits in relation to reducing noise impacts on existing residents (by up to 10dB). This would have a NPV of around £2m. If the development which could be brought forward on the MoD / Toby Jug site is also included, the NPV will increase to £10.5m..
52. The provision of improved public realm and high quality open space would contribute to the overall offer of Tolworth, helping to improve local values and make Tolworth a more attractive place to invest. It would also improve the opportunities and environment in which local users have to cross the existing A3, making the A3/A240 junction safer and more amenable than it is today.

The key points arising from the Economic Case can therefore be summarised as:

- The A3 decking scheme delivers important benefits in terms of encouraging regeneration, jobs and much needed housing, unlocking economic benefits for London. This is potentially significant in the context of maximising the benefits from Crossrail 2.
- WebTAG guidance requires the reporting of traditional transport BCRs. If traditional transport user benefits were to be considered in isolation, then this scheme would offer poor value for money.
- However, given that the focus of the scheme is on maximising wider development opportunities associated with Crossrail 2 and the regeneration of Tolworth, the BCR is not an appropriate metric by which to assess the scheme.

The Financial Case

53. The Financial Case sets out the project and ongoing operating costs and financing and funding arrangements to deliver the scheme.

Cost estimates suggest the proposed scheme will cost £170m to construct

54. Project costs have been estimated using costs derived in support of similar projects. It is estimated that the total cost of the decking scheme will be £170m in 2015 prices – including 15% risk and 66% Optimism Bias. These costs include land acquisition costs (which have been estimated to be c£33m) and operational costs which are estimated at £0.8m per annum (which includes a £0.3m annual allowance for lifetime renewal costs).
55. These costs do not include any costs associated with traffic disruption as a result of construction or potential improvements to the A3/A240 roundabout.

Non-grant sources could contribute to the funding for the proposed scheme

56. TfL would fund the project directly up to the award of planning powers. TfL would then use a variety of alternative sources in addition to grant funding.
57. The following funding sources for this scheme have been considered:
- Funding from taxes on new development (incremental Borough Community Infrastructure Levy, business rates and stamp duty);
 - Funding from developing land directly on the schemes and additional land purchased around them;
 - Funding from taxes on existing residential development (council tax).
58. These would build on the success of securing significant funding from alternatives to central Government grant and TfL's own income in relation to the Crossrail and Northern Line Extension projects.
59. At this stage, it is difficult to identify the funding contributions based on the new development associated with this scheme as the full development impact of the scheme alongside Crossrail 2 has not been fully determined.
60. Looking at just the development sites immediately south of the A3 (the MoD/Toby Jug/Charrington Bowl sites), funding from development-related sources could contribute 3.2% of the construction costs of the scheme. If the developments stimulated in a wider area by this scheme alongside Crossrail are also considered, there is the potential for this figure to rise.

TfL is seeking further powers and fiscal devolution to enable more of the cost of construction to be raised from local funding sources

61. In addition to the funding options presented above, TfL has considered stamp duty as a possible funding source for this project, given the link between the scheme and unlocking construction of new homes. If the stamp duty revenue within a designated zone was devolved, or an equivalent earnback arrangement created, then this could provide a potential funding source for decking the A3 at Tolworth.

The key points arising from the Financial Case can therefore be summarised as:

- Current cost estimates suggest the decking will cost £170m to construct in 2015 prices, including 66 per cent optimism bias and land acquisition costs.
- Once built, annual operations and maintenance will be £0.8m (2015 prices) including £0.3m per annum for lifetime renewals.
- Opportunities exist to refine construction cost as more detailed scheme design is progressed.
- A range of funding sources have been considered, though further work to identify the development impact of the scheme will be necessary to give a clear indication of the potential of these sources to contribute funding.

The Commercial Case

62. This case sets out the commercial structure, the accounting treatment and procurement approach for this scheme.
63. The scheme is being promoted by TfL. All potential suppliers will be required to consider the Mayor of London's Responsible Procurement Policy in their bid as part of any Invitation to Tender (ITT) for the design and build contract.

TfL has substantial experience of delivering complex highway schemes, which will be applied to the procurement, funding and financing of this scheme

64. TfL has significant experience in the procurement and construction of major infrastructure projects, such as Crossrail, Docklands Light Railway extensions and major station schemes such as Kings Cross St Pancras. Examples of significant highway improvements delivered by TfL include the Chiswick Bridge refurbishment and the Cycle Superhighways programme.
65. It is expected that the construction stage of the project would be led by TfL and where involving infrastructure owned by other stakeholders, these parts of the scheme will be delivered in partnership.

TfL can achieve efficiencies by delivering the A3 decking scheme within a wider programme of tunnel/decking schemes and linked into a wider highway capital investment programme

66. TfL is undertaking and proposing a range of large capital infrastructure projects that involve procurement of skills and services that will all be highly relevant to approaches that will need to be adopted for this scheme. For example, the Cycle Superhighways, Better Junctions programme and Roads Modernisation Plan along with design and planning work associated with the planned Silvertown Tunnel and other proposed Thames river crossings has led to an increase in skills associated with large scale highway engineering and construction traffic management.
67. The scheme is being proposed as part of a wider programme of Roads Task Force (RTF) schemes at a range of locations throughout London. If these projects are progressed, some significant economies and efficiencies of scale could be achieved as a result of co-ordinated delivery.

TfL utilises supply chains from across the UK – ensuring the construction of the scheme could support employment outside London

68. Although TfL schemes take place within the Capital, the wider benefits to the UK economy are extensive, with over 60,000 jobs estimated to be supported by services TfL procures from outside of London. The construction of the scheme would add to the pipeline of capital investment that supports jobs across the UK.
69. The procurement strategy for this stage of the project will be refined and improved as the scheme is developed further.

The key points arising from the Commercial Case can therefore be summarised as:

- The proposed scheme to deck over the A3 at Tolworth is being promoted by TfL. All potential suppliers will be required to take account of the Mayor's Responsible Procurement Policy in their bid.
- TfL has substantial experience of delivering complex highway schemes, which would be applied to the procurement, funding and financing of the proposed scheme.
- TfL can achieve efficiencies by delivering the decking within a wider programme of river crossings and road decking/tunnel interventions, linked into a wider highway capital investment programme.
- As TfL utilises supply chains from across the UK, the proposed scheme is likely to support a number of jobs outside London.

The Management Case

70. The purpose of the Management Case is to assess whether a proposal is deliverable. It reviews evidence from similar projects, and sets out the project planning, governance structure, risk management, communications and stakeholder management, benefits realisation and assurance.

TfL will make full use of best practice within the company and more widely from industry

71. TfL has extensive experience in developing, promoting and implementing significant infrastructure projects. This ranges from modifications to existing infrastructure (such as repairs to the A4 Hammersmith flyover, modernisation of the London Underground, extensions to Tramlink and DLR) to major schemes such as Crossrail. TfL also has demonstrable experience in delivering major road junction improvements, pedestrian and cycle schemes, and wider public realm improvements. TfL will continue to actively incorporate best practice and experience from these schemes into the development of the Tolworth decking project.
72. The proposed decking of the A3 is part of the wider Roads Task Force programme sponsored by the Managing Director of TfL Planning. There are a number of programme linkages with other schemes being taken forward as part of the RTF Key Corridor Interventions Programme, which will present opportunities to share best practice as these schemes progress.

A comprehensive and robust project management framework will be applied, helping to ensure scope, cost and benefits are controlled

73. TfL uses a number of mechanisms to improve the management of its major projects in order to help ensure the objectives and benefits of a scheme at inception are realised following implementation. TfL's project management framework, known as 'Pathway' provides consistency in approach and the tools required for planning and delivery teams, whilst retaining flexibility in its application to manage and control a project. Embedded into Pathway is a delivery assurance process using stage gates, upon which TfL utilises industry-leading external expertise to review and challenge all aspects of the project.

Rigorous assurance processes will provide close scrutiny and challenge of risk management and decision-making throughout the project

74. TfL also receives project review and assurance from the Independent Investment Programme Advisory Group (IIPAG), which report to the Mayor of London concerning TfL's Investment Programme. This includes all maintenance, renewal, upgrades and major projects (excluding Crossrail).

75. TfL has the option of establishing an Independent Peer Review Group (IPRG). This approach has been followed for other major TfL projects, so given the scale of the Tolworth decking project, this could warrant a similar approach. If appropriate, an IPRG can be set up for the scheme if further development of the project is approved. Initially it could oversee the refinement of delivery sub-options and review engineering feasibility studies and scheme appraisal undertaken.
76. Stakeholder engagement has already been undertaken and there is strong support for the scheme from the Royal Borough of Kingston. A future programme of stakeholder engagement as the scheme progresses has been developed.
77. The current anticipated key milestones for the project are shown in Table ES 2 below. Any changes to baseline scope, cost and schedule will be reviewed, impact assessed and approved following the change control process.

Table ES 2 – Key project development milestones

Milestone Description	Date
Further feasibility – scheme development, modelling, construction methodology, finance and funding options	2016
Planning, Design, Approval and Procurement	2016 -2025
Construction and Testing	2025 – 2031
Operation	2031

78. There are a number of programme linkages with other schemes being taken forward as part of the Key Corridor Interventions Programme, which will present opportunities to share best practice. There is also an opportunity for the scheme to build on existing investment in Tolworth Greenway and there is a highly significant interface with the proposed delivery of Crossrail 2. Opportunities to bring forward the decking scheme can be explored further so that the benefits of both this scheme and Crossrail 2 can be maximised.

The key points arising from the Management Case can therefore be summarised as:

- TfL will make full use of best practice within the company and more widely from industry
- A comprehensive and robust project management framework will be applied, helping to ensure scope, cost and benefits are controlled
- Rigorous assurance processes will provide close scrutiny and challenge of risk management and decision-making throughout the project

Conclusions

There are strong regeneration benefits of decking the A3 at Tolworth and TfL should continue to progress and develop this scheme in the context of Crossrail 2

79. The proposed decking of the A3 at Tolworth will maximise the opportunities that a Crossrail 2 branch to Chessington via Tolworth would generate for new high-density redevelopment of brownfield land between the A3 and the railway line. It will create a new publically accessible open space, enhancing and improving the public realm and addressing existing issues of severance, poor environmental quality and isolated development opportunities caused by the A3 at its junction with the A240.
80. The largest recipients of benefits are expected to be local residents and pedestrians requiring access across the A3. The new pedestrian / cycle access from Princes Avenue will provide better access from the station and development sites to key destinations such as Tolworth Hospital and Tolworth Broadway, whilst local traffic accessing developments on either side of the decking will benefit from easier access from both directions. The decking will also allow for denser development to the south of the A3 close to the station and help facilitate the wider growth and regeneration of Tolworth.
81. The SOBC for the decking of the A3 at Tolworth demonstrates that across the Five Case Model:
 - There is a clear robust case for change for a road intervention to address existing issues of poor environmental quality, severance and poor connectivity caused by the A3 at Tolworth, and ensure that the benefits of Crossrail 2 are maximised. This **‘strategic case’** is closely related to national, London-wide and local policy objectives, with particular reference to the London Plan, the Mayor’s Transport Strategy and the Roads Task Force Vision document.
 - The scheme assists in the economic regeneration of Tolworth and supports the delivery of additional housing and employment. If looked at only in terms of the transport benefits and traditional BCR measure, the **‘economic case’** suggests the scheme is poor value for money – with a BCR of 0.15 using DfT VoT and 0.19 if using TfL VoT. However, this is not the appropriate measure by which to judge the scheme given its focus is on regeneration and improving the urban realm.
 - The scheme is commercially viable – the **‘commercial case’** demonstrates that although project development is at an early stage, the report sets out the procurement, commercial structure, and proposed allocation of risk and funding.

- The scheme is financially affordable – the ‘**financial case**’; the analysis sets out the project cost, describes the funding mechanisms available to deliver the scheme and the proposed financing arrangements.
- The proposed decking is deliverable – the ‘**management case**’ sets out a clear governance, process and programme for the further development of the scheme by TfL, an authority with a very successful experience and record in major project delivery.

It is suggested that further feasibility and scheme development work takes place in relation to the proposed decking of the A3 and that this is linked to the ongoing development of Crossrail 2.

82. Given the strong case for decking the A3, TfL is proposing to continue developing the scheme beyond this Strategic Outline Business Case. This case has reported initially on the likely impacts of the scheme, and further work is now required on a number of areas to fully understand the benefits the scheme offers.
83. It will be necessary to explore further the air quality, noise and social/distributional impacts of this scheme in any future Outline and/ or Full Business Case. This further work will elaborate on the potential commercial case and various sensitivity tests.
84. It is of particular importance to better understand the interdependencies and synergies between the A3 decking scheme and Crossrail 2, and how the benefits to Tolworth of both schemes can be maximised. The interaction of these two schemes in enabling new high-density, mixed-use development to come forward on the south side of the A3 needs to be further studied. This work will seek to quantify the role and overall contribution of the decking scheme in relation to realising the wider opportunities associated with Crossrail 2 serving Tolworth, thus enabling standalone Economic and Financial cases to be prepared for this scheme alongside the case for Crossrail 2.

1. The Approach to the Business Case

Introduction

85. Transport for London (TfL) is assessing a major decking scheme on the A3 at Tolworth, which would include reconfiguring the existing on / off slip roads and providing a new publically accessible, linear park on the deck above the road.
86. The scheme has been identified following the recommendations of the Roads Task Force (RTF) Report: 'Vision for London's Roads and Streets' published in 2013. The scheme is one of five schemes along key RTF corridors which form part of the first tranche of opportunities identified by the RTF to address challenges on the Transport for London Road Network (TLRN), and which have been subject to detailed feasibility work. Notwithstanding this, all schemes are at an early stage in their development stage and further, detailed design and assessment will be undertaken during 2016.
87. The proposed decked section will occur along an existing stretch of the A3 for approximately 270m immediately south west of its junction with the A240 at Tolworth. Figure 1 shows the location of the proposed decked section of the A3 relative to its junction with the A240 south of Tolworth Broadway. The extent of the scheme is shown in Figure 2.
88. The scheme will require the lowering of the A3 to ensure sufficient head height, as well as realignment of existing slip roads to provide the beneficial environmental enhancements. Given existing constraints associated with the current flyunder, it may be necessary to depart from current construction standards in order to maintain the number of lanes through the decked part of the road network during construction.
89. Importantly, the reconfigured slip on / off ramps will not affect the access to / from the A3 at Tolworth, maintaining appropriate access to the strategic road network in this location. A pedestrian and cycle link will be provided from Princes Avenue north of the A3, across the deck and linking with development opportunities to the south.
90. This document is the Strategic Outline Business Case (SOBC) for the project.

Figure 1 – Proposed location of decking of the A3 at Tolworth

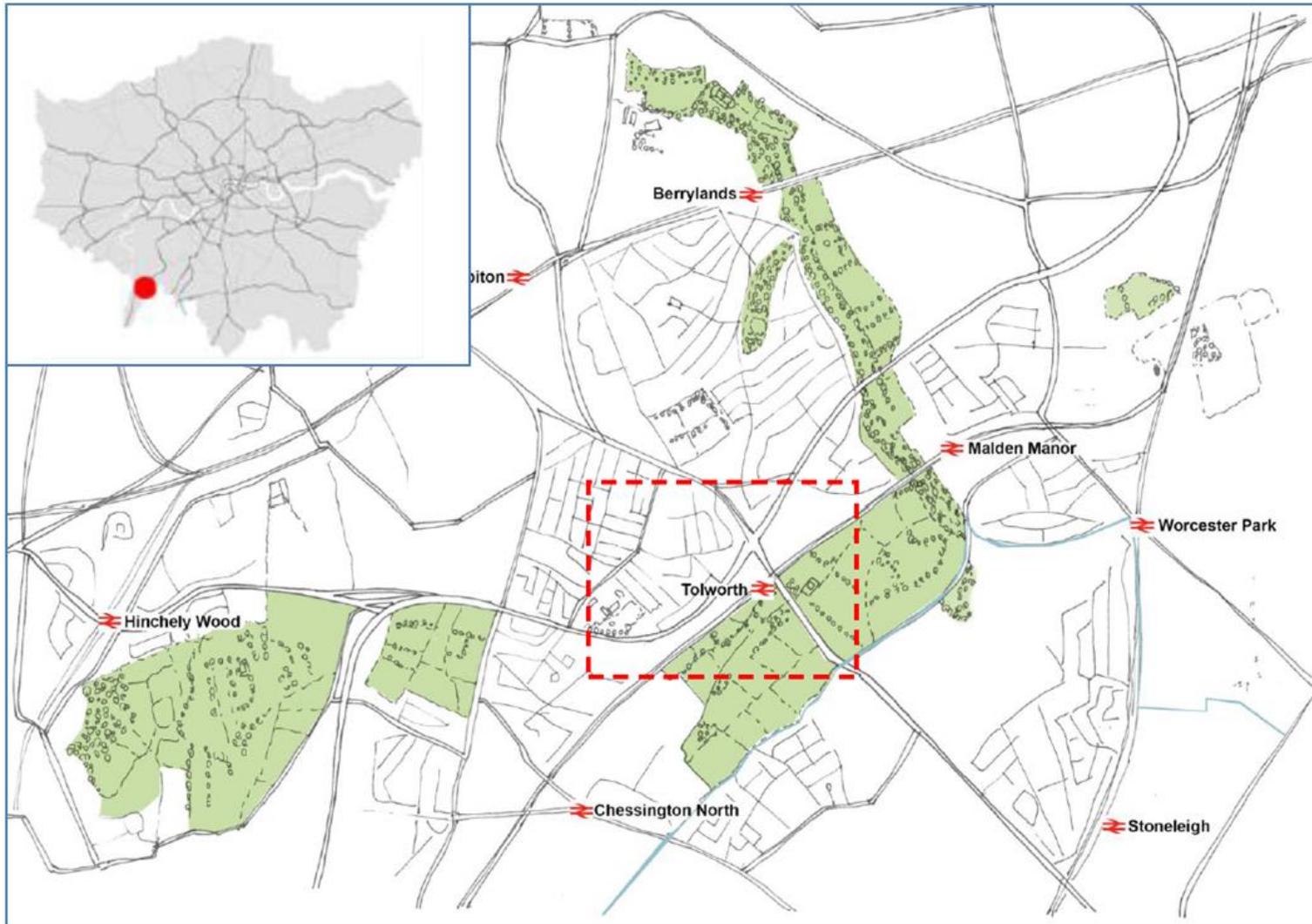


Figure 2 – Proposed decking arrangements



The Five Case Model for Transport Appraisal

91. The purpose of this Strategic Outline Business Case is to provide evidence-based information in relation to investment programmes. Guidance for the preparation of Business Cases for Transport Schemes has been published by the DfT⁵. This is based on H.M. Treasury's advice on evidence-based decision making as set out in the Green Book⁶ and uses the best practice five case model approach.
92. This approach assesses whether schemes:
- are supported by a robust case for change that fits with wider public policy objectives – the '**strategic case**';
 - demonstrate value for money – the '**economic case**';
 - are commercially viable – the '**commercial case**';
 - are financially affordable – the '**financial case**'; and
 - are achievable – the '**management case**'.
93. The evidence gathered as part of the business case preparation has been prepared using the tools and guidance provided by the DfT, notably WebTAG⁷. This approach ensures that the evidence that has been produced is robust and consistent for all the options examined in detail. This applies equally to those options proposed for investment and those which, following assessment, are not to be developed further.

The Decision Making Process

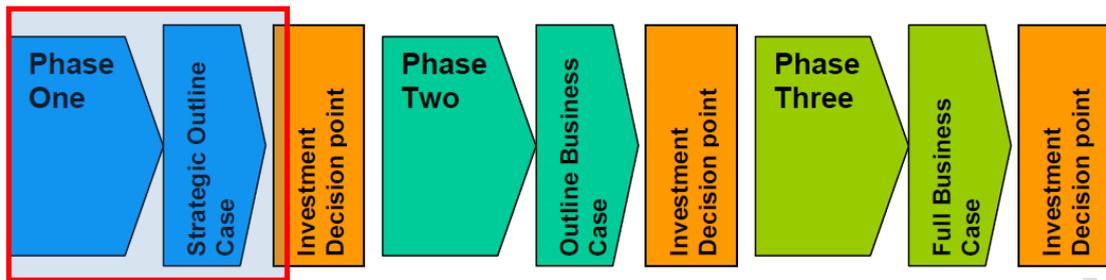
94. The decision making process, of which this Strategic Outline Business Case forms part, usually takes place in three phases. Each phase includes the preparation of a business case followed by an investment decision point. Each business case builds upon that previously prepared. Evidence is reviewed to ensure that it remains up to date, accurate and relevant. The current Strategic Outline Business Case is in 'Phase One' of this iterative process, with two further future stages of development to follow, as shown below.

⁵ See https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/85930/dft-transport-business-case.pdf - accessed 5 September 2014

⁶

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf accessed 5 September 2014

⁷ See <https://www.gov.uk/transport-analysis-guidance-webtag> accessed 5 September 2014



95. The current ‘**Phase One**’ focuses on articulating the need for the intervention and summarising the range of options developed and considered, and:
- is used to set out the strategic fit of the project with achieving relevant national and London Mayoral and TfL policy objectives;
 - confirms the strategic fit and the case for change;
 - scopes out the initial investment/intervention proposal; and
 - provides details of the project’s overall balance of benefits and costs against objectives.
96. In ‘**Phase Two**’ which will follow over the course of 2016, TfL will reconfirm the conclusions from Phase One and will concentrate on a more detailed assessment of the options to find the best solution, culminating in the preparation of an Outline Business Case, which will build on this Strategic Outline Business Case:
97. The final phase in the process, ‘**Phase Three**’, will result in the production of the Full Business Case – this will accompany the TWAO / DCO application or other consenting process.

The Role of the Mayor of London and TfL

98. This investment proposal is made by TfL acting as the body responsible for planning, organising and controlling, and in some instances operating transport within London for the Mayor, who is charged with setting the policy and strategy for transport which he has done by the publication of the Mayor’s Transport Strategy (MTS).
99. TfL is responsible for operating, maintaining and improving the strategic road network (TLRN) in Greater London, including the A3 in south west London. The TLRN represents 4 per cent of London’s road network, but carries 30 per cent of all traffic in London.
100. The strategy of TfL is decided by the Mayor through the MTS. The MTS is the principal policy tool through which the Mayor exercises his responsibilities for the planning, management and development of transport in London, for both the movement of people and goods. It takes into account the policies in the London Plan

and the Mayor's Economic Development Strategy (EDS). It provides the policy context for the more detailed plans of the various transport-related implementation bodies, particularly TfL and the London boroughs.

101. The legislative framework for the MTS is laid down by the GLA Act 1999 as amended by the GLA Act 2007. The GLA Act 1999 sets out the general transport duties of the Mayor and the GLA. It specifies that the transport strategy must contain policies for 'the promotion and encouragement of safe, integrated, efficient and economic transport facilities and services to, from and within Greater London', and proposals for securing the transport facilities and services needed to implement the Mayor's policies over the lifetime of the MTS, with regard to the movement of people and goods. TfL is under a duty to use its powers to facilitate and implement the policies and proposals of the MTS.

Summary of Consultation to Date

There is support for decking over the A3 at Tolworth. This will be tested further as the project progresses.

102. To date, there has been ongoing local engagement with the Royal Borough of Kingston in relation to the proposed scheme. This has consisted of a series of Officer level meetings as well as high level political engagement.
103. Given that the project is still at a relatively early stage of development, the level of engagement has been proportionate to the stage at which the project has reached, and there has not been any formal public consultation. As the project develops, formal consultation will be undertaken with the public and relevant stakeholders at the earliest opportunity.
104. Notwithstanding this, the Roads Task Force (RTF) consultation in 2012⁸ asked stakeholders to provide their views on the main challenges facing London's roads, and how these should be tackled. The report from this consultation revealed that key concerns shared by London boroughs, the public and other stakeholder organisations included quality of place, noise and air pollution, increased pressure on roads as a result of congestion, and safety concerns relating to walking and cycling.

⁸ TfL (2012) Roads Task Force: Response to Consultation, November 2012.
https://consultations.tfl.gov.uk/roads/taskforce/consult_view

2. The Strategic Case

Introduction

105. Transport for London (TfL) is proposing to build a deck over the A3 at Tolworth (and lower the road) along a 270 metre section immediately to the southwest of the interchange with the A240.
106. This Strategic Case has been prepared by TfL, in consultation with the Royal Borough of Kingston (RBK), and with support from an independent Expert Group comprised of experts in economic appraisal of major transport infrastructure projects. It forms the first of the five cases forming the Transport Business Case. Its purpose is to set out the need for investment in the road network at Tolworth. It will state how the decking proposal would complement the opportunities for growth enabled by an improved rail service to Tolworth as a branch of Crossrail 2.

Structure of the strategic case

107. This part of the Strategic Outline Business Case will:

- describe the key challenges and pressures facing London's strategic road network including the need to protect and enhance the economic efficiency of London, including south London;
- set out the findings from the Mayor's Roads Task Force's report;
- set out the objectives for how problems and issues across London's strategic road network should be addressed;
- identify the specific problems and issues that this decking project will need to address and the elements of the RTF's toolkit that will be applied in addressing the problems and issues;
- based on the problems and issues, define scheme objectives and measures of success for an intervention on the A3 corridor at Tolworth;
- based on the option assessment, show how decking over the A3 at Tolworth close to its junction with the A240 would help towards solving some of these local challenges as well as those facing London as a whole, such as enabling housing growth and supporting the efficient functioning of the road network; and
- demonstrate how the proposed decking intervention will achieve a strong fit with policy at all spatial scales.

108. The Strategic Case will demonstrate a strong fit with policy at all spatial scales. It is structured into eight sections:

- **Part A:** Maximising the economic potential of London through supporting sustainable growth
- **Part B:** The problems identified affecting TLRN corridors
- **Part C:** Objectives for action for TLRN corridors
- **Part D:** Options for addressing the problems on the TLRN at priority locations
- **Part E:** The problems identified for the A3 at Tolworth
- **Part F:** Objectives for the A3 at Tolworth and options identified
- **Part G:** How the decking option addresses the problems
- **Part H:** Strategic context

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Part A: Maximising the Economic Potential of London Through Supporting Sustainable Growth

Section Summary:

This section sets out the need to maximise the economic potential of London through accommodating growth in a sustainable and efficient manner and underpinning the competitiveness of London in a changing context.

London is a growing world city - which needs its transport system to function efficiently now and in the future

- London is a thriving, globally competitive economic centre that makes a significant and growing contribution to the UK economy in employment, GVA and tax revenues
- Employment levels in London are growing rapidly, helping to encourage population growth in response
- Dense cities are the way to accommodate growth most sustainably and most efficiently
- London is delivering 25,000 new homes a year, when it needs to deliver at least double this volume, resulting in worsening housing affordability
- London's growth is being constrained by a chronic shortage of housing in which is driving up housing costs as a proportion of household income. To achieve housing targets existing brownfield land must be unlocked
- The strategic road network will remain vital for London, but as the city grows the level of congestion is forecast to grow, even with sustained investment in public transport capacity. At the same time, the competing demands for space for walking, cycling and creating better places will become ever more important

Better use of road space on strategic roads is a possible means of improving quality of place and unlocking additional development, but this needs to be balanced against continued needs for movement

- A joined-up approach to planning and infrastructure investment by the GLA, TfL and boroughs will help to unlock development in areas with high regeneration and growth potential
- The road tunnel schemes being considered are sub-regional or local schemes aimed at releasing the potential of specific areas and supporting particular areas for housing and wider development
- To retain London's competitiveness, further investments in transport links and the public realm are required to facilitate delivery of more successful places and new housing in areas adversely impacted by traffic

London is a growing world city - which needs its transport system to function efficiently now and in the future

London is a thriving globally competitive economic centre that makes a significant and growing contribution to the UK Economy in employment, GVA and tax revenues

- I 09. London is the UK's core engine of economic growth, contributing 22 per cent of total UK Gross Value Added (GVA) in 2013 and generating £56,687 GVA per worker compared to the UK average of £41,088. Evidence suggests that within large cities, greater employment density drives higher productivity through skills specialisation and clustering. These agglomeration effects help London to drive UK's international competitiveness through increasing employment densities in the Central Activities Zone (CAZ).
- I 10. The strength of London's economy makes it a vital contributor to the UK's finances. In 2013/14, an estimated £127 billion of tax revenue was estimated to have been generated through economic activity in London, comprising an estimated 21% of total UK tax revenue. Investing to support the growth of London is essential to build strong public finances.
- I 11. Since 1994, on average, 29,700 new jobs a year have been created within London. The city's economic growth is forecast to be 4.2 per cent in 2014 and 3 per cent each year to 2020. This is faster than the projected UK growth rate overall, partly driven by forecast increases in population and the size of the workforce. The latest GLA employment forecasts suggest that on average, 41,000 new jobs a year in London will be created to 2036.

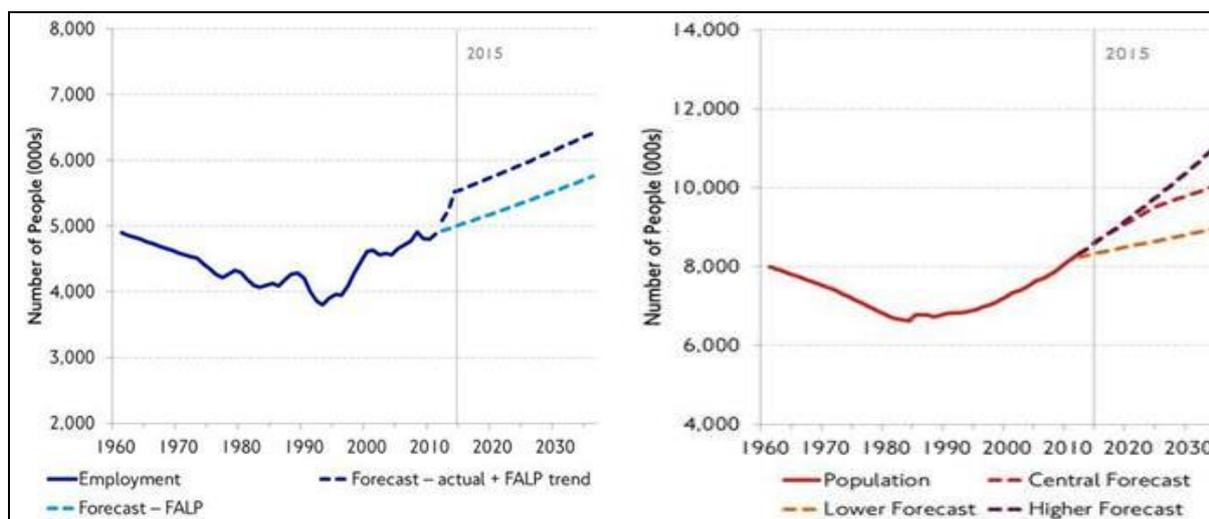
Key Finding:

The London economy makes a vital contribution to the success and competitiveness of the UK, and if London succeeds, the UK as a whole benefits.

Employment levels in London are growing rapidly, helping to encourage population growth in response

- I 12. After reversing a steady period of decline London has been on a growth trajectory since the 1980s. These trends are shown in Figure 3.

Figure 3 – Historic trends and projected growth in London’s employment and population to 2036



113. Between 1991 and 2011, the number of jobs in London rose by 900,000 and over the same period, the population rose by 1.4m. The number of jobs in London is expected to grow by 1.4m between 2011 and 2036. As the left hand graph in Figure 3 above shows, a total of 650,000 of these jobs have already been created between 2012 and 2014⁹. Rapid employment growth in London has been driven by a range of factors including the UK’s flexible labour markets, high skill levels and openness to Foreign Direct Investment. Employment growth has been felt most acutely within central London, where connectivity is highest.
114. The UK Office for National Statistics projections expect a 23 per cent rise London’s Population between 2011 and 2031 which equates to a 1.9m increase, taking the population to 10.1m¹⁰ by 2036, as shown in the right hand graph in Figure 3. The London Infrastructure Plan predicts a 37 per cent increase in population between 2011 and 2050, driving the need for an additional 1.5m additional homes and a 50 per cent increase in public transport capacity over and above what is already planned¹¹.
115. As Figure 4 shows, London’s continued economic growth and competitiveness is increasingly being threatened by a constrained supply of housing, which frustrates population growth and labour supply.

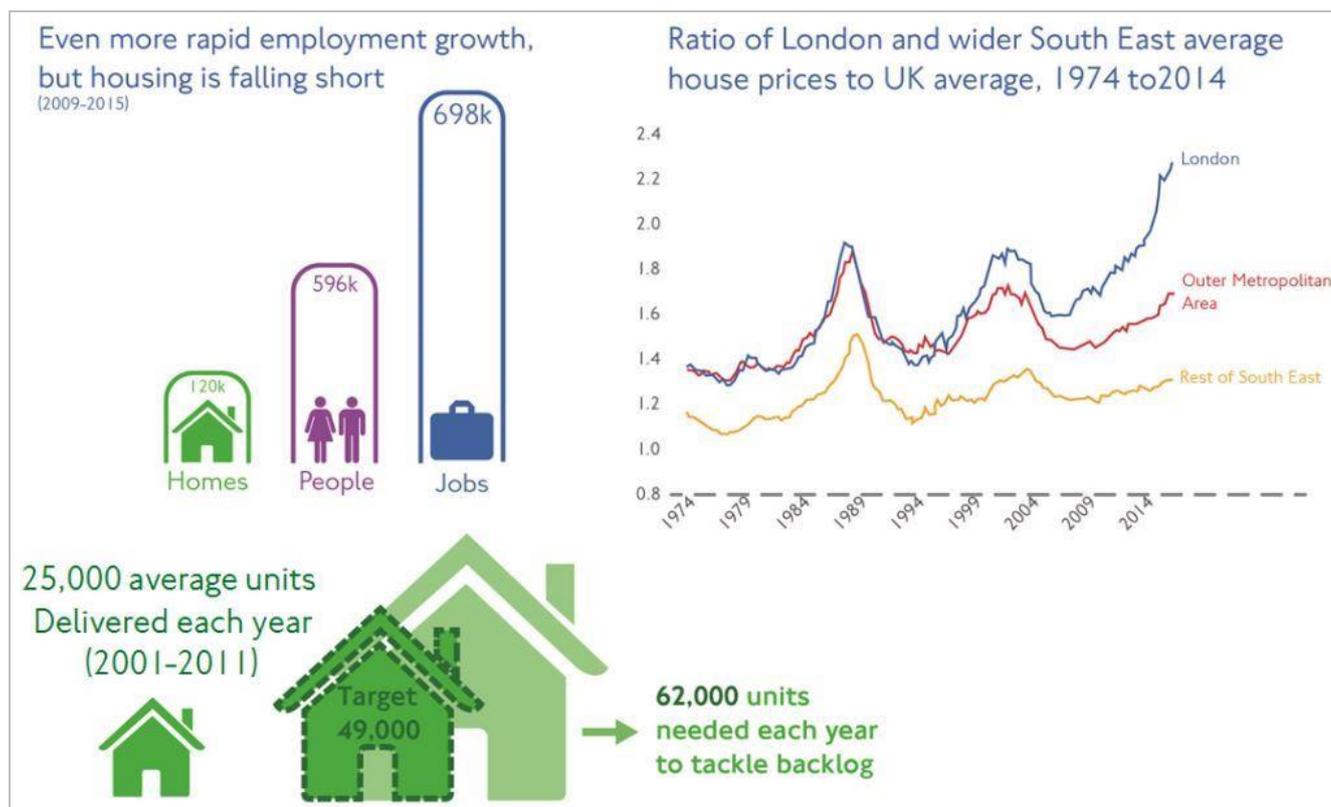
⁹ This trend is regarded as a short term phenomenon reflecting London’s resilience to economic shocks in recent years and it is expected that job growth will revert to historic trend levels going forward.

¹⁰ FALP (2014) - GLA Population forecasts

¹¹ London Infrastructure Plan 2050

<https://www.london.gov.uk/sites/default/files/LIP%202050%20update%20presentation%20March%202015.pdf>

Figure 4 – Summary of housing supply and affordability issues facing London



116. This housing shortage could potentially result in a deteriorating quality of life. The sense of place and quality of life is becoming more important in supporting London's competitiveness as a world city and for London's success. London is competing on quality of its offer, not on cost. These labour supply and housing cost problems affects the decisions of businesses to invest in London and workers to live there.

Key Finding:

London's population and employment levels are growing rapidly. This is due to the clustering of economic activity, particularly within central London. London's future economic success depends on its ability to continue to accommodate population and employment growth and offer a high quality environment.

Dense cities are the way to accommodate growth most sustainably and most efficiently

117. Densification reduces the capital and operating costs of infrastructure as well as increasing agglomeration benefits. Within London, there are opportunities to increase the density of housing development and there are opportunities to create new sites for development but these require co-ordinated investment.

118. London has grown sustainably through densification and efficient recycling of redundant or under-utilised land. It has successfully recycled redundant industrial land. In the period 2001-10 London lost over 800 hectares of industrial land (10 per cent of its total stock) enabling this land to be recycled into other uses, predominantly residential.
119. This densification has been made possible by increases to the capacity of the public transport network, to meet increased levels of travel demand from a growing population. Alongside growth in use of rail and bus networks, recent travel trends have seen increased levels of walking and cycling. Nevertheless the road network plays a vital role in the efficient functioning of the city.

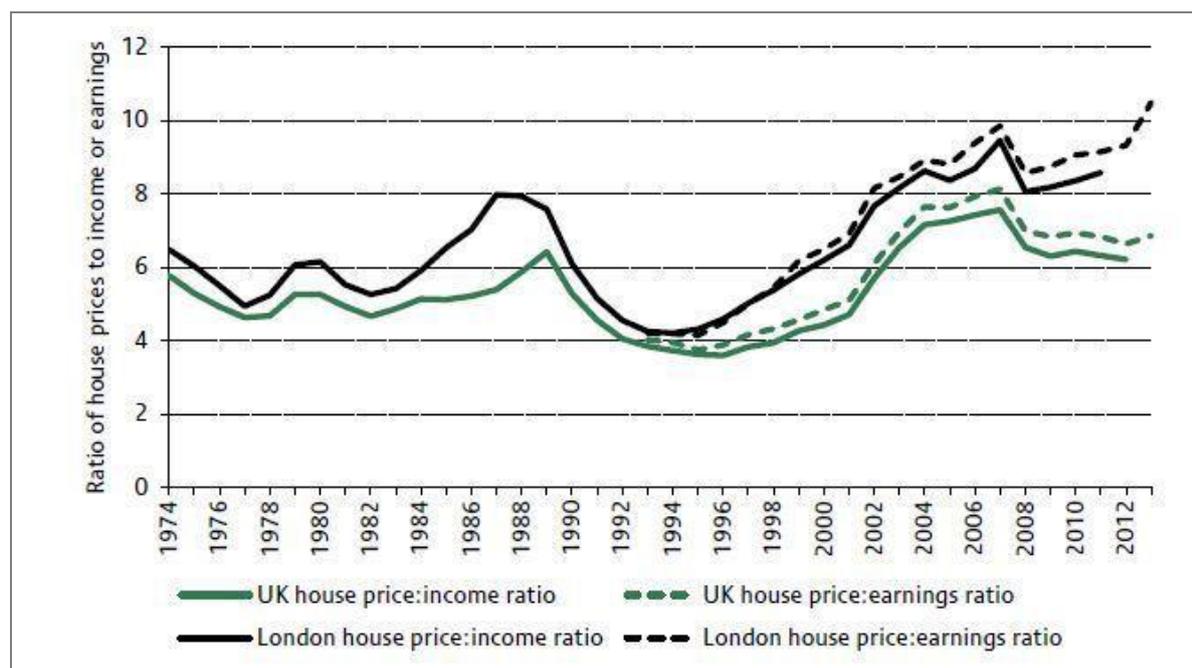
Key Finding:

Further densification will require further investment in transport infrastructure enabling London's increasing population the opportunity to access London's jobs and simultaneously giving London's businesses access to a large pool of well qualified labour. Investment to ensure a well-functioning strategic road network will help support this growth.

London is delivering only 25,000 new homes a year, when it needs to deliver at least double this volume, resulting in worsening housing affordability

120. Housing delivery is falling well short of demand. This is leading to rapid house price and rent inflation, which is reducing affordability of housing and squeezing disposable income or leading to longer less sustainable commuting patterns.
121. Demand for new housing is outstripping supply by a factor of three to one. Over the decade when London's population grew by more than a million, its housing stock grew by less than 300,000. At least a 47 per cent increase from current levels of delivery is now required to meet London's housing targets for 2015-2025.
122. As a result, house prices have spiralled - the average house in inner London now costs over 13 times the average wage. Properties in some prime central London areas cost more than 30 times the average wage. This has priced many people on modest incomes out of large parts of the city. Figure 5 shows the ratio of house prices to both income and earnings for the UK and for inner London. Housing in London is significantly less affordable than in the rest of the UK.

Figure 5 – House price to income and earnings ratios for the UK and London



Source: Nationwide, Labour Force Survey, Family Expenditure Survey and Family Resources Survey

123. Providing sufficient housing to meet demand is essential to London’s ability to attract and retain talented workers and in turn maintain the city’s competitiveness. Providing sufficient – and sufficiently affordable - housing is also important if the city’s communities are to remain cohesive and vibrant and avoid the problems associated with social polarisation.

London’s growth is being constrained by a chronic shortage of housing which is driving up housing costs as a proportion of household income. To achieve housing targets existing brownfield land must be unlocked

124. This shortage of housing is raising the cost of living and ultimately undermining London’s and the UK’s competitiveness.
125. To meet London Plan delivery goals, London needs to build 49,000¹² new homes per year between 2015 and 2036 to house the growing population.
126. A total of 15 of the 32 London boroughs fell short of annual targets between 2010 and 2013¹³. Housebuilding targets are set by the Mayor but it is accepted that more

¹² London Plan March 2015

<http://www.london.gov.uk/sites/default/files/London%20Plan%20March%202015%20%28FALP%29.pdf>

incentives have to be put into place in order for boroughs to meet their targets¹⁴. However sites in the vicinity of the TLRN, such as those along the A3 at Tolworth, due to noise and air quality impacts are less viable for developers to consider for high-density residential development.

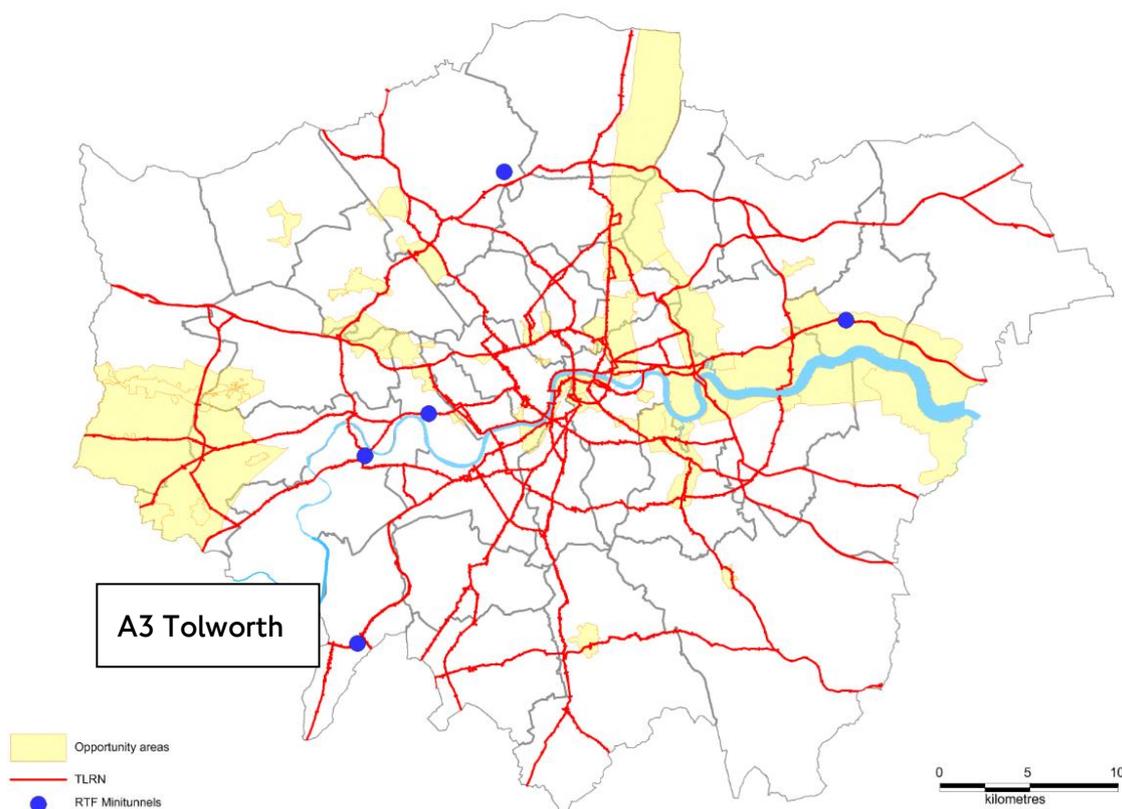
127. Infrastructure schemes can play a role in creating the right incentives for developers through boosting the attractiveness of locations through provision of enhanced transport accessibility and public realm improvements.
128. London's 38 Opportunity Areas (OAs) are shown in Figure 6. They represent "London's major source of brownfield land with significant capacity for new housing, commercial and other development linked to existing or potential improvements to public transport accessibility¹⁵". However, there are no OAs in south west London. All parts of outer London must help to accommodate more homes.
129. If London is to meet its housing needs then it has to utilise its land as effectively as possible and be creative about assembling sites for development and identifying more usable space. Or as Policy 3.3E of the London Plan states:
130. "Boroughs should identify and seek to enable additional development capacity to be brought forward to supplement these targets having regard to the other policies of this Plan and in particular the potential to realise brownfield housing capacity through the spatial structure it provides".
131. Unlocking development at Tolworth through the provision of a high-capacity frequent Crossrail 2 rail service, with the decking scheme performing a complementary supporting role in maximising the development potential that Crossrail 2 brings is particularly helpful because relatively lower value areas such as these can deliver affordable housing. Transport infrastructure improvements will help to overcome viability constraints while still keeping the new housing delivered within a relatively more affordable price range.
132. These homes are necessary, and a proportion would be affordable, but enabling housing to come forward needs to be supported through transport infrastructure, otherwise it can't happen. Alongside Crossrail 2 serving Tolworth, there needs to be complementary investment in improving quality of place and local connections.

¹³ London First, Carrots and Sticks: a targets and incentives approach to getting more homes built in London (May 2015) http://londonfirst.co.uk/wp-content/uploads/2015/05/Carrots-and-Sticks-Report_Web.pdf

¹⁴ London First propose a London Housing Delivery Bonus (LHDB) scheme for boroughs and greater powers for the Mayor of London to determine planning of all applications for 50 homes or more

¹⁵ London opportunity areas for large-scale development
<https://www.london.gov.uk/priorities/planning/opportunity-areas>

Figure 6 – Opportunity areas in proximity to the TfL road network



Key Finding:

Alongside growth within OAs, Areas for Intensification and Housing Zones, there is a need to unlock development potential of other areas, in particular town centres such as Tolworth. A sustainable way of accommodating the growth of cities is by increasing the density of development in these more accessible locations.

As London grows, the level of congestion on its strategic road network is forecast to grow, even with sustained investment in public transport capacity

133. In 2013, road congestion cost the London economy £5.4bn, accounting for 41 per cent of costs to all of UK's large urban areas¹⁶.

¹⁶ The future economic and environmental costs of gridlock in 2030, Centre for Economics and Business Research/INRIX, July 2014 http://www.cebr.com/wp-content/uploads/2014/10/INRIX_costs-of-congestion_Cebr-report_v5_FINAL.pdf

134. Around two-thirds of these costs accrue from delays in Outer London where car driver/passenger share within/to/from Outer London accounts for 48 per cent of modal share compared to 10 per cent in within/to/from Central London¹⁷.
135. London's growing population, as well as supporting employment growth in the CAZ will strain TfL's strategic road network as car-dependency remains a key issue in Outer London. In particular, this will lead to significant increases in congestion on key strategic arterial roads into London.
136. The Government's National Infrastructure Plan 2014¹⁸ clearly sets out the scale of investment required for the UK's Strategic Road Network (SRN), committing £15.2bn between 2015-16 and 2021-21 to transform it – the biggest programme of investment since the 1970s with investment tripling from current levels by 2020. The importance of addressing issues on the A3 in support of sustainable economic growth has been highlighted by the Government's commitment to investing in other junction improvements along its route as part of the Government's 'Road Investment Strategy' to help unlock Britain's economic potential¹⁹.
137. However, the £15bn precludes any investments to improve the Transport for London Road Network (TLRN) – the Roads Task Force Vision states that at least £30bn of investment is required over the next 20 years on London's streets and roads.
138. Without significant investment, congestion and road traffic delay will grow in many areas as illustrated in Figure 7.
139. A planned 70 per cent increase in rail capacity through Tube upgrades, Crossrail and Thameslink programmes is underway. This is likely to aid modal shift from private vehicles to rail but is not sufficient by itself to address London's road congestion issues.
140. Strategic TRLN routes in London, whilst playing a strategic traffic function differ significantly from inter-urban motorway and trunk road corridors outside London. The majority pass through urban and suburban areas, with active frontages of retail, employment and residential uses. Traffic has an impact of quality of life.

¹⁷ Based on percentage of average daily trips in three year period 2007/8 to 2009/10

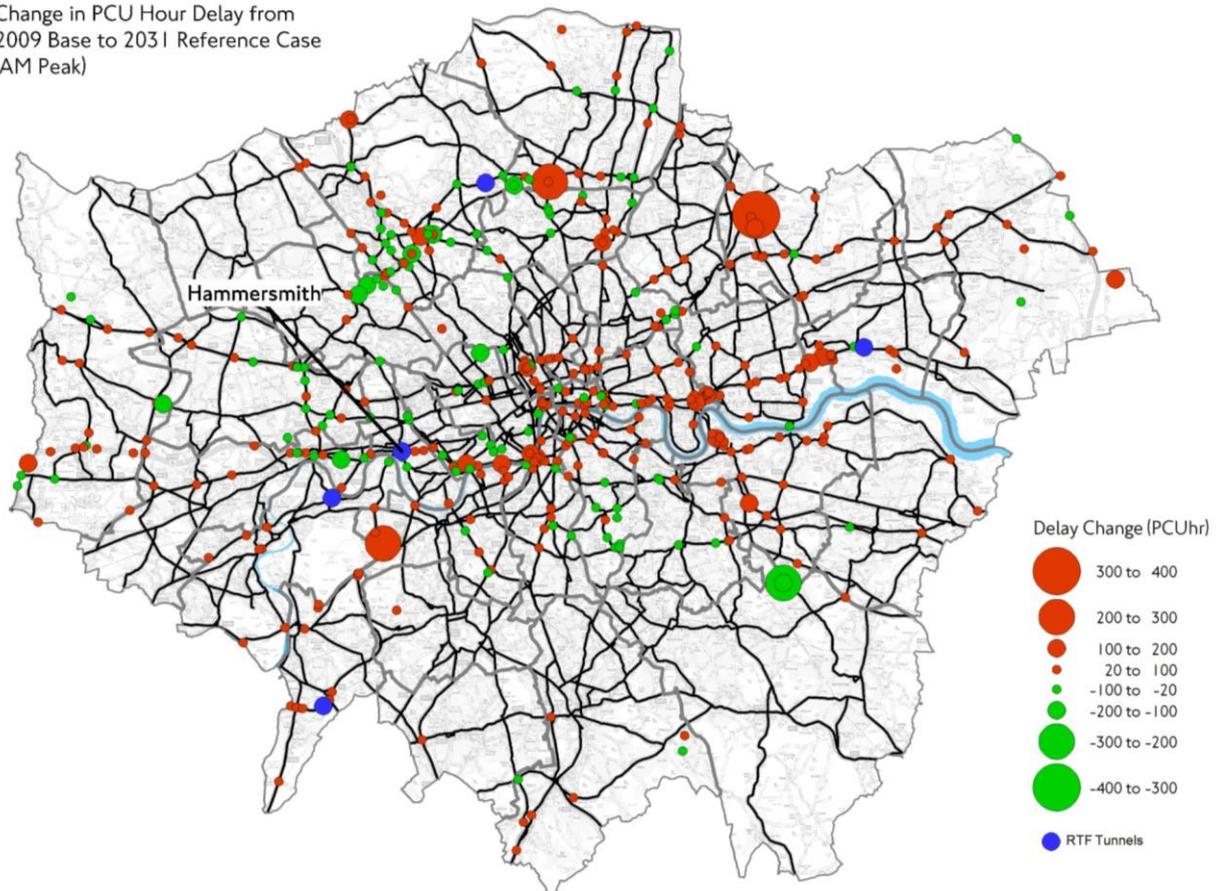
¹⁸ National Infrastructure Plan 2014

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/381884/2902895_NationalInfrastructurePlan2014_acc.pdf

¹⁹ As part of its Road Investment Strategy, the Government announced significant investment in in the M25 / A3 Wisely Interchange

Figure 7 – Change in PCU hour delay, 2009 – 2031

Change in PCU Hour Delay from
2009 Base to 2031 Reference Case
(AM Peak)



Key finding:

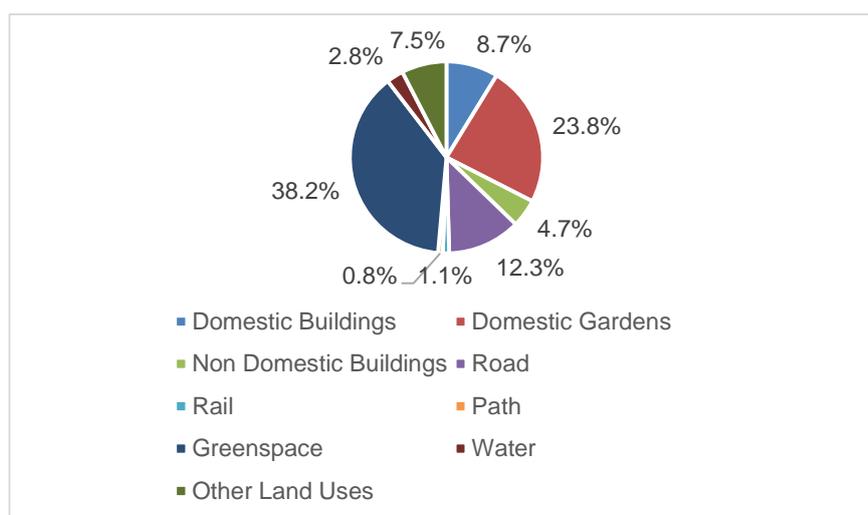
The pressures on London's roads are growing and there is a need for a major investment programme to maintain the strategic movement function of roads such as the A3 corridor, whilst tackling other issues which require commensurate investment such as enabling growth, and improving quality of place. The urban nature of the TRLN requires different solutions to those suitable for inter-urban corridors outside of London.

Better use of road space on strategic roads is a possible means of improving quality of place and unlocking additional development, but this needs to be balanced against continued needs for movement

141. The Mayor's 2020 Vision²⁰ is for London to be the greatest city in the world to live, play, study, invest and do business.
142. Inevitably, this Vision requires balancing the competing spatial demands for transport infrastructure, urban realm and housing – all of which are crucial to attracting skilled labour to work in London's agglomeration clusters.
143. Whilst motorised traffic has fallen by 10 per cent in Greater London Area between 2000 and 2011, during 2014 and 2015, traffic volumes have increased. Between 2000 and 2011, congestion has risen by around 10 per cent. In central London, this is partly due to an increase in construction activities disrupting the road network. It is also due to the reallocation of road space from private traffic to public transport, cycling and walking. This reflects existing trends in modal shifts and TfL's vision for better quality public spaces and more sustainable transport.
144. However, motorised traffic remains critical to London, whether it is for deliveries, taxis, emergency services or driving commuters, further investment in roads is required to keep London moving.
145. The need for maintaining and improving traffic flows is especially relevant to the A3 corridor – as this route plays a strategic role for vehicle trips between different areas of south west London and central London.
146. Figure 8 shows that in 2005, 12.3 per cent of the total area of London was taken up with roads, more than the amount of land occupied by domestic dwellings. Better use of road space is a potential source of development land that is worth exploring further. However, given the challenges of increasing congestion and the economic impacts of this, it needs to be done in such a way that also protects the function of key strategic road corridors.

²⁰ Mayor's 2020 Vision <https://www.london.gov.uk/mayor-assembly/mayor/vision-2020>

Figure 8 – London area by land use



Source: Land Use Generalised Land Use Database 2005

Key Finding:

Land in the vicinity of TLRN corridors has the potential to help accommodate new housing development to help meet some of London’s need

A joined-up approach to planning and infrastructure investment by the GLA, TfL and Boroughs will help to unlock development in areas with high regeneration and growth potential

- I 47. Investment to enhance the attractiveness of locations both for businesses and also local residents and potential workers will stimulate regeneration of under-utilised land.
- I 48. There is a clear role for public intervention in the form of targeted investment, enabling sites to maximise their development potential in areas of opportunity, such as in Tolworth. There are co-ordination market failures that act as constraints on urban sites coming forward for development even in areas where the development gains are potentially quite high.
- I 49. A package of measures at various scales and geographies will be required to ensure that land and potential sites for development within all parts of London are used efficiently to support sustainable growth.

The road tunnel schemes being considered are aimed at releasing the potential of specific areas for housing and wider development, while maintaining the vital movement function of strategic roads, thereby helping underpin London’s growth more widely

- I 50. Road tunnels and decking schemes will do this in the following ways:



- They will ensure companies maintain access to a larger and higher quality workforce, customers and suppliers, supporting the agglomeration impacts arising from faster or more reliable journey times by road;
- They enable development of housing and employment on under-utilised land along the road corridor which might have otherwise been constrained to a lower density; and
- They will provide a focus for regeneration and improvements in quality of life, including urban realm improvements, which can help drive investment and jobs in otherwise struggling local economies through increased footfall or attracting new employers and residents.

151. Each tunnel or decking scheme will have a different mix or focus.
152. This is part of a major shift to needing to support greater growth in London and the changing role of town centres and the increasing importance of the quality of place in our city's success.
153. Figure 9 illustrates a number of visualisations of proposed public realm improvements for selected roads and streets associated with the decking-over, flyunder and tunnelling schemes. The top right image shows the linear park that could be constructed above the A3 at Tolworth, enabling new high-density residential development to come forward within a parcel of land that lies between the A3 and the future Crossrail 2 station.

Key Finding:

Investment in decking-over, tunnelling and flyunder schemes on London's road network will help to enable regeneration and support economic growth

Figure 9 – Urban realm improvements: Chalkers Corner (top left), Tolworth (top right), Hammersmith (bottom left), New Southgate (bottom right)



To retain London's competitiveness, further investments in transport links and the public realm are required to facilitate delivery of more successful places and new housing in areas adversely impacted by traffic.

- I 54. Some of the most successful cities around the world have invested in improvements to the quality of the urban realm alongside investment in public transport capacity. Providing cover over ring roads and building tunnels helps to maintain road network functioning while reducing traffic impacts, creating new spaces for city life and delivering high quality cycle and walking infrastructure.
- I 55. London's streets account for 80 per cent of public space in London and therefore schemes which are able to unlock spaces for living and working whilst not impeding network functioning are 'win-wins'.
- I 56. An improved public realm delivered through reallocation of road space or capacity (as shown in Figure 8) can also reduce severance for pedestrians and cyclists. This is particularly the case for heavily congested core road corridors, where provision of public realm along the existing alignments can enable people to gain quicker and easier access to key amenities and rail/underground stations.
- I 57. Three important dimensions to helping ensure London's continued growth and competitiveness are: expanding the capacity of its transport network, releasing more land for housing and protecting and enhancing quality of place.
- Insufficient transport capacity to access jobs and enable reliable servicing or freight access across the city would hinder employment growth and agglomeration impacts. **Decking-over, tunnelling and flyunder schemes would address congestion pinchpoints on and around strategic corridors into London.**
 - Housing within or close to London is becoming increasingly unaffordable for many workers. The failure to supply new volumes of housing to meet increasing demand has resulted in rapid house price and rental inflation, reducing disposable income. **Decking-over, tunnelling and flyunder schemes would release land and enable higher density developments to be brought forward.**
 - A deteriorating quality of place and quality of life for Londoners and workers could make the city comparatively a less attractive place for footloose companies to be based. **Decking-over, tunnelling and flyunder schemes would reallocate road space on the surface to pedestrians and cyclists, reduce severance and noise impacts.**

Key Finding:

Solutions which continue to support the functioning of the road network whilst reducing traffic impacts on communities around London's ring roads, gyratories and town centres and enhance conditions for pedestrians and cyclists must be found.

Delivery of 'win-win' solutions is increasingly important to London's continued success.

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Part B: The Problems Affecting TLRN Corridors Identified

Section Summary:

- A key challenge is identifying sites suitable for housing and commercial development to support London's growth
- TLRN roads have a movement function and a place function – the relative importance of each function varies
- A growing city population will travel more using different modes, resulting in more congestion and crowding, and poorer air quality, reducing the overall quality of life
- Areas of outer London are currently more dependent on car-based travel for commuting to work
- Road corridors with a strong “movement” emphasis cause severance impacts that inhibit walking and cycling connectivity
- Doing nothing to improve London's road network is not an option

A key challenge is identifying sites suitable for housing and commercial development to support London's growth

158. As outlined earlier, London is seeing strong employment growth, and a rapidly growing population, trends that are projected to continue into the future. However, there are several challenges that could hinder London's ability to attract new talented workers, create jobs and sustain this high level of competitiveness.
159. Within London the number of homes being built has fallen short of the level of need.
160. However much of London's land is already developed, and the city's Opportunity Areas (OAs), shown in Figure 6, are its largest remaining brownfield sites for potential development.

Key Finding:

An innovative approach to unlocking more sites within and outside of OAs suitable for denser development to support the city's future growth is required. This should include imaginative ways of freeing up new land, densifying town centres, and investment to help make areas with untapped potential more attractive locations for residential and commercial development.

161. The scope to regenerate and develop land along busier TLRN corridors is currently severely reduced by the adverse impacts of traffic. High traffic volumes and severance, air quality and noise impacts limit the viability of development and the success of neighbourhoods.
162. If nothing is done to reduce the impact of the road corridor, then it is unlikely that development will come forward, or it will come forward only at a significantly lower

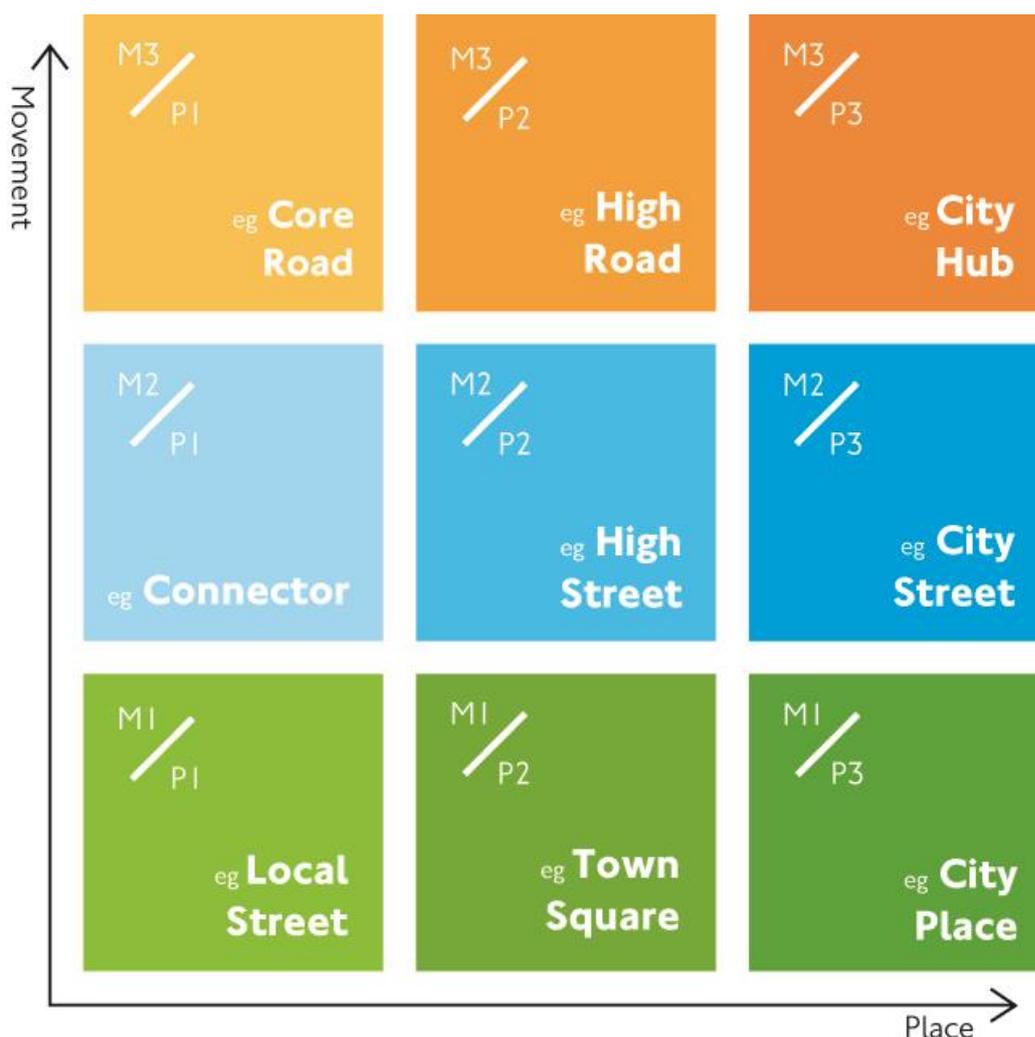
density, as new properties will be harder to sell or less profitable than alternative sites.

- I 63. If these negative impacts can be reduced through improvements to 'place' and local connectivity, then redevelopment is likely to become a more attractive and viable commercial investment proposition. However, this needs to be done without undermining the movement function or there will be wider adverse economic impacts. Therefore investment in improving quality of place that addresses these issues can enable significant quantities of new housing to be unlocked without unduly constraining the ongoing operation of the strategic road network.

TLRN roads have a movement function and a place function – the relative importance of each function varies

- I 64. The road network in London serves a wide range of functions. At one end of the scale, core roads and main corridors form the TLRN function as the principal routes for movement of vehicular traffic.
- I 65. At the other end of the scale, streets with lower traffic flows often have a primary 'place' function. TfL and boroughs need to work together to find the appropriate balance between the movement and place demands on roads and streets.
- I 66. The Roads Task Force report identifies nine typologies of road corridors or streets that reflect whether they play a strategic or local movement or place function. These nine street types are shown in the matrix in Figure 10. Traffic levels can affect the vitality of town centres and quality of place and life through creating severance, noise and air pollution.

Figure 10 – The RTF street types matrix



167. Roads such as the A13, the A40 Westway and A406 North Circular have a strategic movement function, which takes priority over place functions, so have a “core road” typology. These core roads are a vitally important part of London’s road network and congestion on these routes presents challenges in terms of the cost to businesses of variable and unpredictable journey times in different directions at different times of day.
168. Other roads such as Kensington High Street have to balance a clear movement function with an equally important place function.
169. The higher traffic volumes become, the more the quality of the public realm can be adversely affected, and the less willing people would be to use the street to meet, interact with others, to shop, enjoy food or drink or take a break.
170. In some cases, the current typology of a road or street may not reflect a borough’s place-making aspirations or be conducive to achieving proposed land use changes in an area. Heavy traffic volumes in those typologies towards the top left of Figure 10 have the effect of discouraging new residential development and lowering property prices.

171. With good planning, careful design and investment, more emphasis can be given to the place function of a particular TLRN road corridor without unduly compromising its strategic movement role. Such win-wins are increasingly important in a growing world city where the competing demands and challenges on these corridors are increasing.

Key Finding:

Tunnels, over-decking or flyunders in locations such as Tolworth, whilst not addressing the issue of congestion, would maintain the strategic movement role of the A3 while tackling other issues which require commensurate investment (such as enabling development opportunities to be maximised and improving quality of place).

A growing city population will travel more using different modes, resulting in more congestion and crowding, and poorer air quality, reducing the overall quality of life

172. A higher employment base and higher population in London will result in increased demand for travel and for freight and servicing. This will generate a need for investment to accommodate the increasingly diverse demands being placed on strategic roads - such as more bus passengers, cyclists, pedestrians and growth in freight movements to service more people.
173. To enable the city to grow London will require investment to increase the capacity and efficiency of its road-based and rail, underground, DLR and tram systems.
174. If this investment is not forthcoming, congestion will worsen and levels of crowding on public transport systems will increase. This will lead to longer and less predictable journey times for London residents and in-commuters from the rest of the South East.
175. These increases in travel times will result in longer commutes and increased risk of employees arriving late for work. A less efficient transport system will result in a more stressful and frustrating travel experience for its users. This will have an impact on the productivity of workers. Londoners and employees' quality of life will deteriorate.
176. This will result in some choosing to relocate to areas that offer a better quality of life or skilled workers choosing to work elsewhere, which would be detrimental to overall UK productivity given the agglomeration gains of dense cities.

Key Finding:

Under-investment in transport infrastructure improvements is likely to result in a worsening quality of life and place for residents and workers in London

Areas of outer London are currently more dependent on car-based travel for commuting to work

177. The TLRN corridors play an important role in facilitating radial movements of buses, cars, coaches and HGVs from areas of outer London towards central London, and

inter-Borough movements within outer London. 80% of trips overall within London make use of the road network, which is also heavily relied on for freight movements.

178. In 2011, 69% of households in outer London owned a car, compared to 43% of households living in central London. In 2011, 36% of outer London residents drive to work by car, compared to 13% in central London. Despite the prevalence of road-based travel, buses are not widely used in outer London: only around 20% of road-based travel to work journeys in Outer London are by bus, compared to 50% of road-based journeys in inner London.
179. As the population of London grows, congestion on the TLRN will increase.

Road corridors with a strong “movement” emphasis cause severance impacts that inhibit walking and cycling connectivity

180. Road corridors with a strong ‘movement’ function present barriers that inhibit crossing movements by cyclists and pedestrians. If there is not provision in the form of at-grade crossings or over-bridges or subways at sufficient intervals, this can act as a significant deterrent to movement by these modes.
181. These severance impacts can also reduce the willingness of nearby residents to use public transport if the walking trip to access a station or bus stop is too circuitous or unpleasant.
182. If streets on either side of a busy road are impermeable and not pedestrian and cycle friendly, and the busy road is difficult to cross, this can reduce the propensity to walk or cycle to access services or facilities by these modes.
183. If people find it more convenient to drive to access shops or services, then this can also adversely affect the vitality of district or neighbourhood shopping areas and lead to their decline.

Key Finding:

In many cases, severance effects result in households living nearby making less sustainable travel choices and having greater reliance on the private car.

Doing nothing to improve London’s road network is not an option

184. London’s strategic road network is relied upon by businesses, provides workers with access to employment across the city, to services and hospitals. It forms the backbone for freight and servicing movements and the bus network. It is also used extensively for business travel. To compete as a world city, London also needs to invest to improve quality of public spaces and encourage more use of sustainable travel modes, but if road space is reallocated, then this would increase the costs of congestion.

185. If insufficient investment comes forward to manage London's road capacity to cope with increased levels of, and more diverse travel demand, then levels of highway congestion will rise and bus services will become less reliable.
186. This will result in longer travel times and higher travel costs for commuters, residents and visitors. Increased congestion, delays and longer travel times have a significant cost on London's economy.
187. The more congested and crowded the transport network becomes, the less resilient it will be in the face of planned or unplanned disruption. Longer, less comfortable and less reliable travel systems will adversely affect people's quality of life.
188. Furthermore, if the Mayor, TfL, the boroughs and other partners do not implement measures that will help to tackle the problems of poor air quality and noise from transport sources, then this will result in worsening health for Londoners. The costs of treatment of people will increase and these costs would have to be met from the public purse. Increased numbers of vehicular journeys, more buses and lorries to serve a growing city is likely to result in greater air pollution and noise, affecting the health of people who live and work next to busy road corridors.
189. If people living near these busy roads perceive a worsening in their quality of life, from congestion, longer travel times, noise, pollution and severance then some may relocate out of London, resulting in a reduced pool of skilled labour available to businesses.

Key Finding:

In an urbanised London context, there are competing demands placed on the strategic road network. There is a need to both protect the vital 'movement' role of London's strategic road network, whilst at the same time improving provision for pedestrian and cycle movements and enhancing quality of place. The delivery of tunnel and decking schemes, whilst requiring significant investment, can achieve both of these goals, providing 'win-win' outcomes.

Part C: Objectives for Action for TLRN Corridors

190. Any proposal seeking to strike a better balance between the movement and place function of a road must also comply with and seek to meet wider public policy objectives for the area.

191. These arise from two key sources, the Mayor's Transport Strategy and the 2013 Roads Task Force "Vision for London's Roads and Streets".

192. The Mayor's Transport Strategy (MTS) sets out six goals for transport in London:

- Support economic development and population growth;
- Enhance the quality of life for all Londoners;
- Improve the safety and security of all Londoners;
- Improve transport opportunities for all Londoners;
- Reduce transport's contribution to climate change, and improve its resilience; and
- Support delivery of the London 2012 Olympic Games and its legacy.

193. The Roads Task Force Vision sets out the following core objectives:

- To enable people and vehicles to move more effectively on London's streets and roads;
- To transform the environment for cycling, walking and public transport; and
- To improve the public realm and provide better and safer places for all the activities that take place on the city's streets, provide an enhanced quality of life and help to unlock development and deliver new homes.

194. The RTF vision identified that measures including flyunders, decking and tunnels had the potential to address these three objectives and help balance them. They can help to achieve particular priorities without undermining the other objectives.

Part D: Approach Taken by the Roads Task Force to Address TLRN Challenges

Section Summary:

- In 2013, the Mayor of London's independent Roads Task Force (RTF) published a report recommending the delivery of major highway interventions on the TLRN, including tunnels, flyunders and over-decking
- Since the recommendations of the Roads Task Force were published, TfL has conducted a number of strategic studies to understand opportunities for roofing over or tunnelling under existing infrastructure
- A process of prioritisation has been adopted, with a long list of 70 locations assessed using Multi-Criteria Analysis to identify at which locations tunnel, flyunder and decking solutions would deliver the greatest benefits
- From a short list of 15 schemes, five have been taken forward as a first tranche of projects for further feasibility work. The A3 Tolworth decking scheme is one of these five.

In 2013, the Mayor of London's independent Roads Task Force (RTF) published a report recommending the delivery of major highway interventions on the TLRN, including tunnels, flyunders and over-decking

- I95. The Roads Task Force (RTF), comprises a diverse group of road users, developers, local authorities and other statutory highway authorities. The RTF vision is designed to tackle congestion and improve quality of life in London.
- I96. A key recommendation of the RTF report, published in July 2013, was that the potential of major highway interventions on the TLRN such as tunnels and 'flyunders' should be investigated to determine the role they could play in achieving the vision for London's roads and streets across the strategic highway network.
- I97. In particular, whether major interventions at key locations could 'relocate or provide substitute capacity for motorised traffic to unlock surface space for 'living', more sustainable modes and development – enabling different use of space above and reducing impacts such as severance and noise, while maintaining network functioning'.
- I98. This view built on experience from other cities around the world such as Paris, Oslo and Boston, which have undertaken these kinds of ambitious projects and have seen dramatic results.

Since the recommendations of the Roads Task Force were published, TfL has conducted a number of strategic studies to understand opportunities for roofing over or tunnelling under existing infrastructure

199. Three main types of infrastructure were considered:

- Tunnels to release land at the surface for either development, green space, improved public realm or better facilities for pedestrians, cyclists and public transport users but also relieve congestion and improve journey time reliability (where relevant)
- Flyunders to release land at the surface for either development, green space, improved public realm or better facilities for pedestrians, cyclists and public transport users but also relieve congestion and improve journey time reliability (where relevant)
- Decking of roads to provide public parks, reduce severance and the negative impacts of roads including noise and poor air quality and helping to bring forward development on neighbouring land especially where there is good existing or future public transport connectivity which can support high-density development

200. To identify locations where tunnels, flyunders or decking solutions would deliver strong potential benefits, a prioritisation process has been followed.

A process of prioritisation has been adopted, with a long list of 70 locations assessed using Multi-Criteria Analysis to identify at which locations tunnel, flyunder and decking solutions would deliver the greatest benefits.

201. From an initial list of approximately 70 locations, through a Multi-Criteria Analysis (MCA) a shortlist of fifteen sites was identified. These sites were identified as having sufficient potential for initial feasibility studies. A combined score was developed from SAF²¹ and RTF appraisals. For each identified site, the following was also investigated:

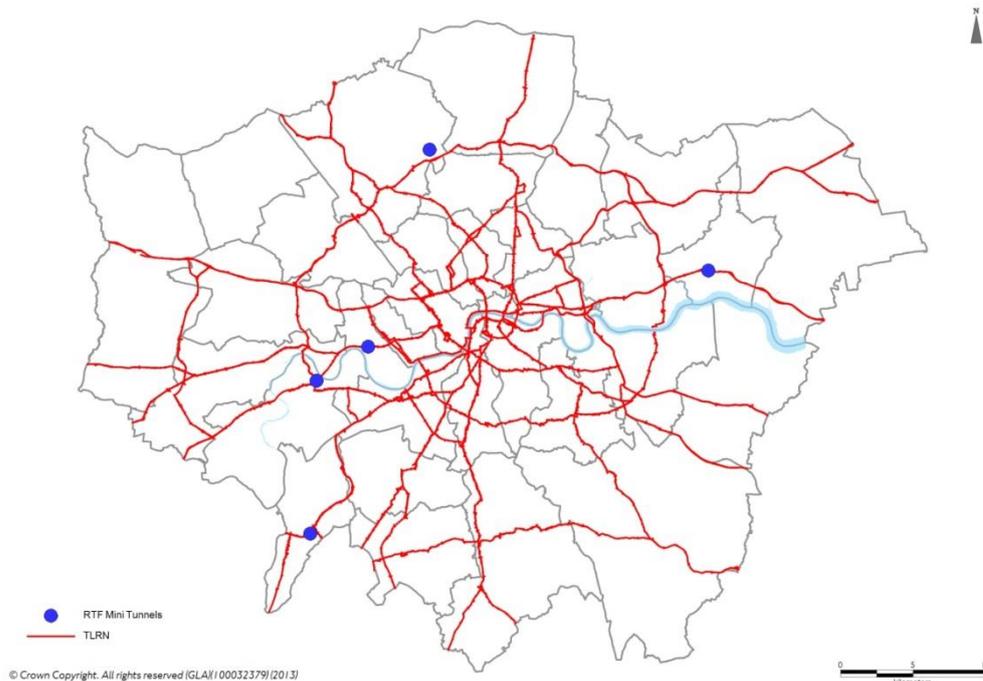
- Potential intervention types;
- Engineering feasibility;
- Transport impact for all users including those travelling by car, foot, cycle and public transport;
- Local and strategic environmental impacts including on visual amenity, noise and air quality;
- Level and quality of enabled development;
- Likely programme;

²¹ TfL Strategic Assessment Framework (SAF) is a tool that allows planners, managers and sponsors across Transport for London (TfL) to assess projects and programmes using a set of strategic criteria. SAF is used as part of the process of developing projects and programmes within TfL.

- Route to consent; and
- Cost of delivery

From a short list of 15 schemes, five have been taken forward as a first tranche of projects for further feasibility work. The A3 Tolworth decking scheme is one of these five.

Figure 11 – The TLRN with the five RTF tunnel schemes marked



202. As part of a rolling feasibility assessment programme, the following five locations are therefore being taken forward for further assessment
- A3, Tolworth
 - A13, Barking Riverside
 - A4, Hammersmith
 - A406 North Circular Road, New Southgate
 - A316, Chalkers Corner
203. TfL are now beginning to look at the options for the next tranche of schemes in further detail.

Part E: The Problems Identified on the A3 at Tolworth

Section Summary:

Tolworth is a poorly performing town centre, but has the potential to deliver many more houses and jobs to meet the need for growth in its local area and across London.

- Tolworth is underperforming relative to other nearby town centres, with the A3 forming a key barrier to its improvement
- Projected population growth in RB Kingston Upon Thames is outstripping delivery of new homes
- Low-quality public realm and poor connectivity reduce the viability of new residential development
- The potential for Tolworth to capitalise on significant future employment opportunities is constrained by the A3
- Crossrail 2 will stimulate new housing in Tolworth – but the benefits of this need to be maximised

The A3 causes severance, visual blight, noise and air pollution, which together inhibit walking and cycling movements along with access to public transport.

- The A3 at its junction with the A240 exerts a significantly negative impact on local connectivity with Tolworth town centre
- Severance caused by the A3 restricts access to public transport
- Air and noise pollution around the A3 are extremely high

The capacity and function of the A3 strategic road corridor need to be maintained.

- The A3 serves a key strategic movement function, which delivers substantial economic benefits to London and the UK

Context

204. The A3, also known as London Road, is a heavily used 67 mile key southwest-northeast route which connects London and Portsmouth passing close to Kingston upon Thames, Guildford, Haslemere and Petersfield. It forms part of London's strategic road network, connecting south west London with other major urban centres on the south coast.

205. In the late 1920s the Kingston bypass was built, taking the route to the south of Tolworth town centre and diverting traffic away from larger metropolitan areas such as Kingston upon Thames. The improved access provided by the bypass resulted in significant development activity along its route, particularly around the vicinity of key junctions. Tolworth was no exception, with significant residential and commercial

development brought forward within the vicinity of the A3 during the 1930s and beyond.

206. Whilst improving connectivity and journey experience for users of the A3, the bypass created new barriers for local communities along this route and increased severance, which over time has had significant influence in relation to the ongoing growth and overall character of Tolworth and its surrounding area. As demand on the A3 has increased, issues of congestion, severance and environmental quality have become more severe, leading to the A3 acting as a major barrier between key town services (such as the town centre and railway station) as well as in relation to future development opportunities. On the other hand, those areas which were afforded significant relief and benefits as a result of the bypass (particularly Kingston) have flourished as major metropolitan centres.
207. These impacts continue to be seen today, and are becoming ever more significant. Kingston upon Thames continues to strengthen its position as a significant metropolitan centre in south London whilst Tolworth continues to demonstrate poor performance as a District Centre²².
208. The Tolworth Regeneration Strategy²³ identifies the key issues facing Tolworth. Whilst not all are transport related, a significant number can be directly attributed to the congestion, severance and poor environmental quality associated with the A3 and the surrounding network. Some of these issues are shown in Figure 12 below. Issues identified within the strategy include:
- Dominance and adverse impact of the A3, A240 and Tolworth roundabout – traffic, congestion, noise, air pollution and severance;
 - Poor quality environment and public realm along the A240 (Ewell Road, Tolworth Broadway, Kingston Road) corridor;
 - Poor connections and crossings for pedestrians and cyclists across the A3/Tolworth roundabout and Tolworth Broadway (due to subways/central barrier);
 - Lack of continuous, segregated cycle routes on main roads.

²² Evidence set out in 'Retail study of District Centre catchment areas and shopping patterns' Shows that Tolworth performs poorly compared to other nearby District Centres [Experian; 2009]

²³ Tolworth Regeneration Strategy (2010)

Figure 12 – Existing conditions around A3 at Tolworth



Tolworth is a poorly performing town centre, but has the potential to deliver many more houses and jobs to meet the need for growth in its local area and across London

Tolworth is underperforming relative to other nearby town centres, with the A3 forming a key barrier to its improvement

209. The London Plan designates London's town centres as the key foci for commercial and residential development outside the CAZ. Town centres can support much denser development than other areas, as they tend to have high public transport and highway accessibility, allowing businesses located in these areas to have access to a wider pool of workers.
210. Tolworth is designated as a District Town Centre in the London Plan and as such has an important role in meeting local convenience needs and providing good accessibility to public transport, walking and cycling. The London Plan assumes a 'Medium' potential for growth, indicating a moderate demand for retail, leisure and office development, but indicating that Tolworth could perform more strongly, particularly in the context of Crossrail 2.
211. Despite the significant population growth which has been experienced in the south London sub-region and London overall, the population increase for Tolworth itself (2001 – 2011) was only 3.5%, compared to 9% within the whole RB Kingston. Tolworth has also seen a significantly lower demand for employment compared to other parts of the sub-region and London as a whole. Whilst the level of deprivation in Tolworth is relatively consistent with that in the rest of the Borough (and lower

than other parts of London), there are clearly issues that need to be resolved if it is to be able to compete with other nearby town centres, and if it is to be able to help meet the wider future growth challenges facing London as a whole.

212. In part, Tolworth's poor performance relative to its surrounding area can be attributed to separation between the town centre and railway caused by the A3, with the associated accessibility constraints leading to a high percentage of trade leaking to out-of-town shopping options²⁴.
213. As recognised in the Tolworth Regeneration Strategy²⁵, there are significant opportunities for social, economic and physical regeneration to enhance the quality and attractiveness of Tolworth. In particular there are significant regeneration and redevelopment opportunities to the south of the A3 – for both residential and employment uses. However, these sites face delivery challenges as a result of severance from the town centre, congestion and other environmental issues caused by the A3.

Projected population growth in RB Kingston Upon Thames is outstripping delivery of new homes

214. In recent years, population and employment growth in south west London and the Royal Borough of Kingston itself have been significant. In 2011, the south London sub-region²⁶ had a total population of 1.7m, and the population of RB Kingston upon Thames increased by 9% between 2001 and 2011, and today has an estimated population of 168,000²⁷.
215. Importantly, the projected population growth in RB Kingston is not matched by a similar rate of growth in home building, with projected completion of 4,204 homes within the Borough over the next ten year period²⁸ (a shortfall of over 2,200 homes against the Borough's annual requirement of 643 homes set out in the Further Alterations to the London Plan (FALP).
216. GLA population projections²⁹ show that by 2041, the population within the Borough will increase by around a further 22,000 (13%) whilst the wider south London sub-

²⁴ Royal Borough of Kingston Town Centre Study 2013

²⁵ Tolworth Regeneration Strategy 2010

[https://www.kingston.gov.uk/downloads/file/779/tolworth_regeneration_strategy]

²⁶ London Boroughs in the south London sub-region include LB Bromley; LB Croydon; RB Kingston-upon-Thames; LB Merton; LB Richmond-upon-Thames; LB Wandsworth

²⁷ ONS 2013 mid year population estimates

²⁸ Based on projected levels of delivery from 2010/11-2020/21, as set out in the RBK Annual Monitoring Report 2012.

²⁹ GLA 2014 rounded population projections 2015 – 2041 [<http://data.london.gov.uk/dataset/2014-rounded-population-projections/resource/89a8a483-745a-4879-9246-7b47142d3e90>]

region as a whole is forecast to grow by up to 19%. Figure 13 shows that Kingston contains many areas predicted to see significant population growth, particularly along the A3 corridor.

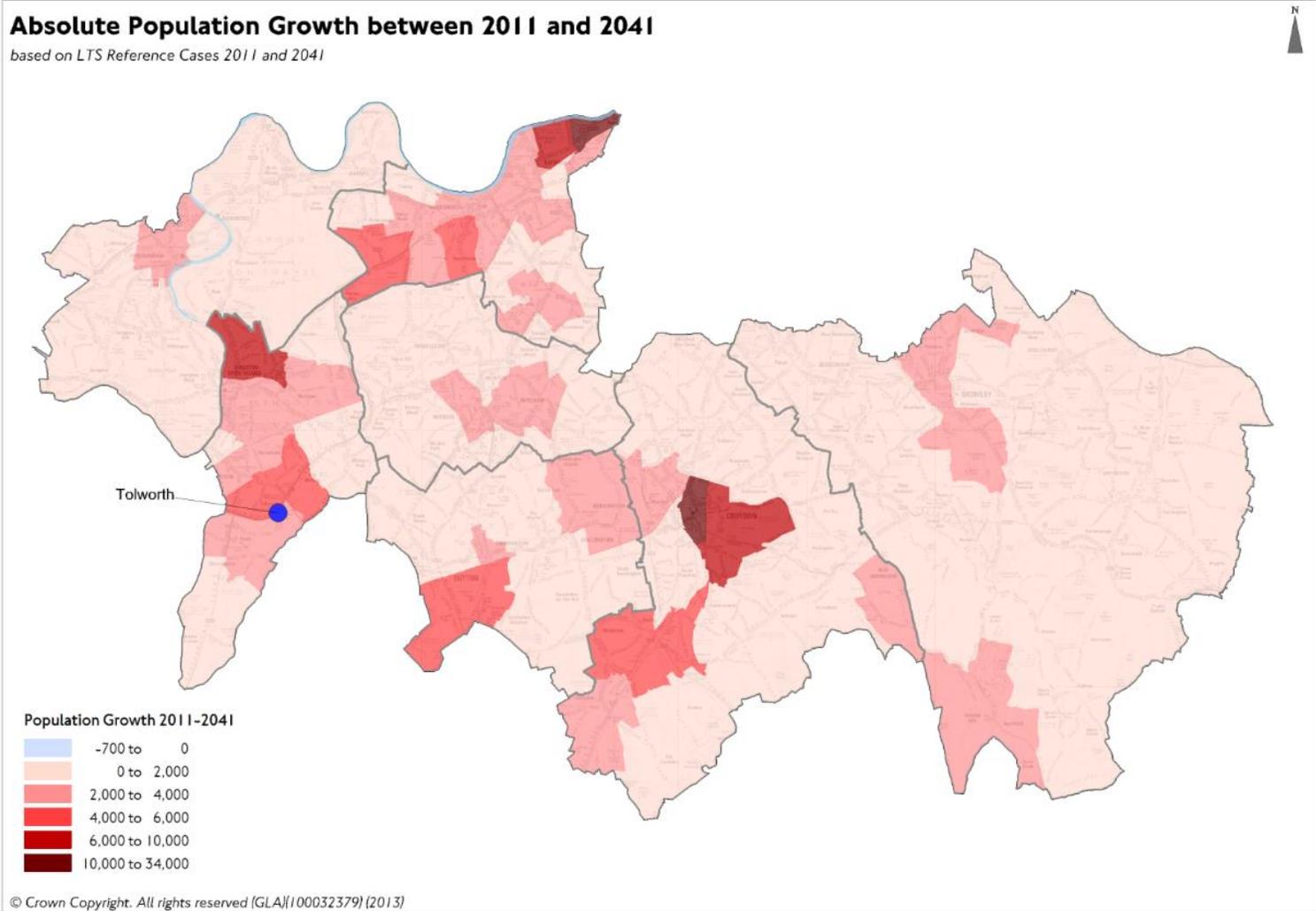
217. Given the shortfall in homes compared to the projected increase in population, significant increases in house prices can be expected as a result of demand outstripping supply, leading to increasing unaffordability and potentially wider social polarisation in the area.

Key finding:

RB Kingston requires a substantial increase in homes. Based on future population projections, there will be a specific demand along the A3 Corridor.

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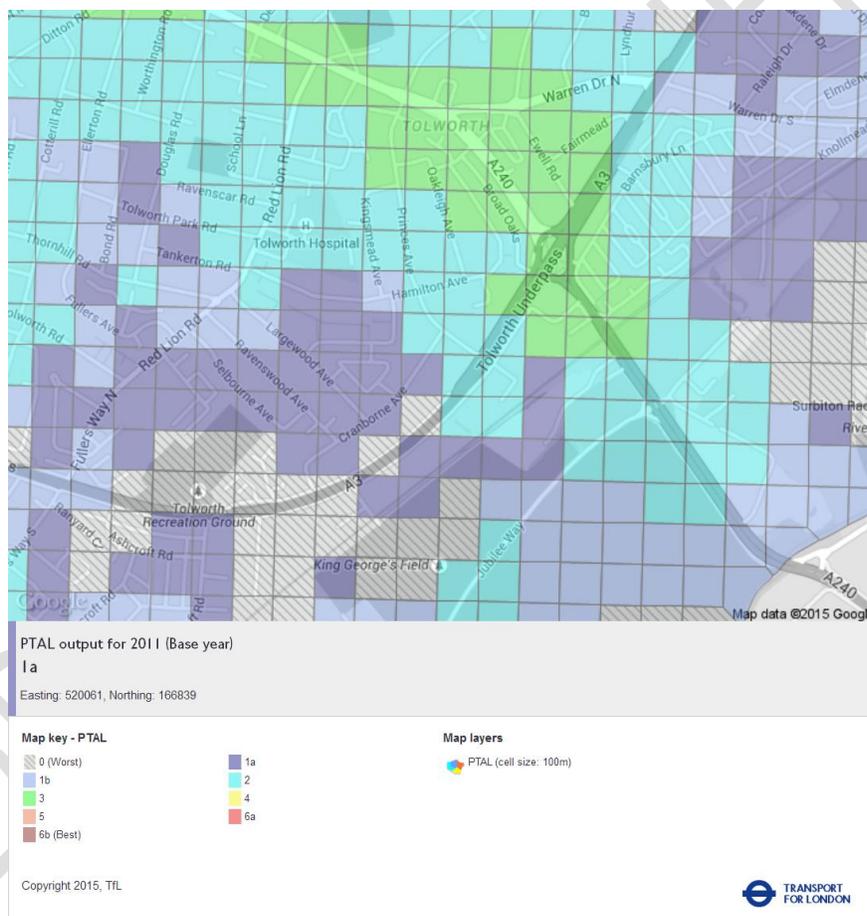
Figure 13 – Population change in the south London sub-region (2011 – 2041)



Low-quality public realm and poor connectivity reduce the viability of new residential development

218. Tolworth as a whole is a desirable area in which to live, with long-established residential neighbourhoods, an established town centre and some good transport connectivity, both via the A3 and public transport. However, opportunities for development within the town centre are largely constrained and the greatest opportunities for development exist south of the A3.
219. Whilst the area to the south of the A3 is located closest to Tolworth station, it experiences relatively low PTAL levels (Figure 14) as a result of poor local connectivity – particularly for non-motorised users, such as cyclists and pedestrians. Low PTAL levels limit the scale of development that could be accommodated within these sites, which in turn impacts on viability and in many instances is likely to have been a contributing factor for the sites not coming forward for development. Therefore the severance caused by the A3 significantly reduces the development potential on these sites.

Figure 14 – PTAL (2011) levels at Tolworth



220. Furthermore, barriers to the delivery of these sites can also be attributed to the negative environmental effects of the A3, as recognised by the Tolworth Regeneration Strategy.

The potential for Tolworth to capitalise on significant future employment opportunities is constrained by the A3

221. There is significant unrealised potential for Tolworth to capitalise on the projected employment demand over the next 25 years. The opportunity and potential appetite for significant investment has recently been demonstrated by the decision of Lidl to relocate its headquarters to the town. However, Tolworth still continues to experience relatively low levels of growth. The Kingston Employment Land Review³⁰ identifies a number of factors behind this lower level of growth such as the availability of appropriate employment space.
222. Supporting the delivery of attractive employment sites will therefore be increasingly important. As with residential opportunities, the most significant opportunities for securing additional employment space within Tolworth are located south of the A3, but their potential is currently limited by the constraints of that busy road.
223. If these constraints are not addressed it is likely that the potential of Tolworth as a key employment destination will be constrained further. The projected growth in employment within RB Kingston and the south London sub-region, alongside the relatively high car mode share seen within Outer London will result in an increased reliance on the road network in this area of south London – particularly the key corridors connecting major employment areas.

Key finding:

The A3 acts as a constraint on local residential development opportunities to the south of Tolworth town centre by creating significant severance for non-motorised transport modes and by exerting substantial negative impacts on public realm and environment.

Crossrail 2 will stimulate new housing in Tolworth – but the benefits of this need to be maximised

224. It should be noted that the anticipated growth set out above does not take into account the planned delivery of Crossrail 2. The absorption of Tolworth station into Crossrail 2 has the potential to transform this area. The number of trains serving the station will

³⁰ Kingston Employment Land Review 2008
[https://www.kingston.gov.uk/downloads/file/778/employment_land_review]

double from at least two to four per hour in each direction, and passengers will be able to travel directly through central London to new destinations including Victoria, Tottenham Court Road and Euston St. Pancras, reducing journey times and increasing the number of jobs local residents will be able to access within a 45-minute journey time. The station will be likely to receive an upgrade including step-free access from platform to street.

225. A major objective of Crossrail 2 is to stimulate new housing and commercial development along its route, to help combat London's housing shortfall and meet future economic needs. As a station on the route with considerable brownfield land nearby, Tolworth is a prime candidate to contribute to Crossrail 2's goal to stimulate construction of around 200,000 new homes and 200,000 new jobs.
226. Research by Crossrail 2 suggests there is the potential for up to 8,000 of these homes to be built on the south side of the A3 near Tolworth station. However, the viability and feasibility of dense, well-connected development south of the A3 is limited by the severance, environmental problems and poor public realm caused by that road. This constraint can be demonstrated by a number of sites having already been identified as suitable for redevelopment as part of the Tolworth Regeneration Strategy, but as yet not being delivered.

Key finding:

Tolworth town centre requires significant new investment to support its regeneration, enabling it to perform a greater role in enabling and accommodating London's future growth. However this is currently limited by the A3. The delivery of Crossrail 2 in 2030 will play a major role in driving change in Tolworth, but for the benefits of this to be maximised, local connectivity needs to be improved.

The A3 causes severance, visual blight, noise and air pollution, which together inhibit walking and cycling movements along with access to public transport

The A3 at its junction with the A240 exerts a significantly negative impact on local connectivity with Tolworth town centre

227. The physical presence of the A3 and its complex interchange with the A240; the associated noise and visual intrusion, coupled with the presence of up to 110,000 fast-moving vehicles daily, causes both physical and perceptual severance, limiting north-south connectivity and creating a barrier between the town centre and other key destinations – in particular the train station and other recreation areas south of the A3.

228. To the immediate south of the town centre, north-south connectivity across the A3 is limited to a series of underpasses and surface crossings, all of which restrict access points and in part cause conflicts between pedestrians and other non-motorised users. Whilst recent investment in the Tolworth Greenway has sought to improve the experience of non-motorised users, the A3 is still a dominant feature and the current arrangements still require a minimum of four separate crossings in order to move north to south.
229. Furthermore, the experience is blighted by a combination of high noise and air pollution, as well as the A3's negative visual impact. In places, access for non-motorised users can only be achieved by utilising the central area of the A240, creating a hostile environment for these users and reinforcing the dominance of the car. Taken together, this results in a perceptual barrier for people attempting to use these routes, and may deter pedestrians and cyclists from making this journey entirely.

Figure 15 – Negative visual intrusion and perceptual severance caused by the A3 at its junction with the A240



Severance caused by the A3 restricts access to public transport

230. As detailed above, in order to access the only station within Tolworth, cyclists and pedestrians currently have to contend with severance caused by the A3 and its junction with the A240, high levels of noise and air pollution, and a busy, fast-moving traffic flow with priority given to vehicles at the junction.
231. The current PTAL level, which gauges connectivity to public transport services (bus and rail), for the area of Tolworth is shown in Figure 14. In the vicinity of the town centre, the A3/ A240 roundabout and the railway station the PTAL level is 3 – shown in green. Just to the south and west of the roundabout it reduces to 2 (shown as light blue) and roughly where the decking is proposed to start the PTAL is 0 (shown by the grey shading). Zero is

the lowest possible rating in a nine point system. It can be seen that the further ones moves from Tolworth junction, the worse the PTAL rating becomes. Therefore the current severance impact of the A3 at Tolworth can be described as severe, as the road limits access to the railway station and the bus services in Tolworth town centre.

232. The busy nature of the A3 also prevents bus routes from serving this corridor. This limits the nature of public transport that can be provided in the area and means that residential areas alongside the A3 further from the A3/A240 interchange receive particularly poor public transport provision, as reflected in their very low PTAL scores.

Air and noise pollution around the A3 are extremely high

233. The physical and perceptual severance caused by the A3, coupled with the noise, air quality associated with the daily 110,000 vehicles using the A3 and 6,000 using its junction with the A240, means that quality of life for those living close to the A3 is negatively impacted.
234. The A3 reaches the highest measured daily noise level for roads of 75+ decibels, with the A240 experiencing noise levels of between 70 and 74.9 decibels (Figure 16), whilst air pollution levels along the A3 are also high (Figure 17).
235. This poor quality environment creates an unpleasant environment along the road and wider corridor, reducing the likelihood of further residential and business development coming forward, or restricting the proximity of new development to the A3, as few want to live or work in such an environment.

Key finding:

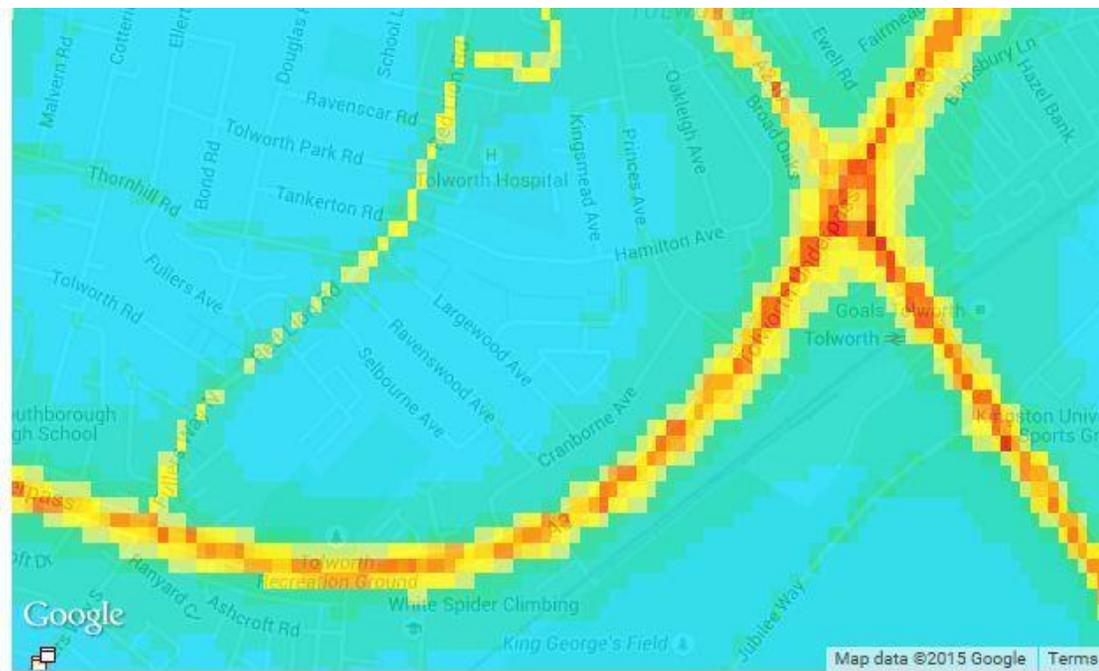
Pedestrians and cyclists are negatively affected every day by the severance, visual blight, noise and air pollution caused by the A3 and its interchange with the A240. The severance caused by the A3 also restricts access to the station and public transport services more generally. A solution is required which better balances the demand for private vehicle travel with the needs of pedestrians and cyclists.

Figure 16 – Noise levels at Tolworth³¹



³¹ DEFRA – Noise Mapping England. <http://services.defra.gov.uk/wps/portal/noise/>

Figure 17 – NO2 levels at Tolworth³²



³² <http://www.cleanerairforlondon.org.uk/londons-air/air-quality-data/london-emissions-laei/laei-personalised-view>

The capacity and function of the A3 strategic road corridor need to be maintained

236. The A3 along this section is part of the Transport for London Road Network (TLRN), the strategic London road network that is the responsibility of TfL. The TLRN comprises only 4 per cent of London's road length but carries 30 per cent of London's traffic.
237. The A3 is a key link in this network, providing a strategic route linking central London, Surrey, and the south of England. Traffic data indicates the road consistently carries flows of 110,000 annual average daily traffic (AADT), of which 3 per cent are heavy vehicles. Traffic counts for the interchange with the A240, undertaken in 2013 reveal weekday morning and afternoon peak hour demands of just under 6,000 vehicles and morning and afternoon peak period heavy vehicle proportions of 2.5% and 1.5% respectively.

The A3 serves a key strategic movement function, which delivers substantial economic benefits to London and the UK

238. The strategic traffic flow supported by the A3 is economically important to London and the wider UK. This has been demonstrated by the Government's commitment to investment in other parts of the A3 as part of its Road Investment Strategy in order to support sustainable economic growth.
239. Given the high number of vehicles using the road, any reduction in its capacity would have a significant effect both on congestion on this road and potentially on other nearby roads to which drivers may divert. This would have negative economic impacts as time is wasted in congestion, while also continuing to cause severance, noise and air quality issues beside the road. Thus, any solution to the negative effects of the A3 on Tolworth must avoid harming the traffic flow of the A3.

Key finding:

Any proposal to address the negative impacts of the A3 must maintain the important movement function of the A3 and wider TLRN.

Part F: Objectives for the A3 at Tolworth and Options Identified

Section Summary:

- Objectives and measures of success for the A3/A240 junction at Tolworth have been defined.
- Options for achieving these objectives have been identified.
- A level deck constructed on the south west side of the junction, with realignment of existing slip roads emerged as the best option to investigate further.

Objectives and measures for success for the A3 at Tolworth

240. The objectives for any enhancements to the A3 at Tolworth are listed in Table 1 below. To ensure the project objectives are achieved, measures of success have been identified, and these are also included in Table 1. More specific measures and the associated monitoring strategy will be developed at a later stage.

Table 1 – Objectives and measures of success for the A3 at Tolworth

Strategic challenges	Objectives for the A3 at Tolworth	Measures of success
Tolworth is a poorly performing town centre, but has the potential to deliver many more houses and jobs to meet the need for growth in its local area and across London.	Facilitate regeneration and development at Tolworth particularly in the context of the delivery of Crossrail 2.	Directly enabling delivery of an additional 74 homes on the MoD/Charrington Bowl site adjacent to the A3 Contributing alongside Crossrail 2 to the delivery of up to 8,000 new homes in a wider area south of the A3
The A3 causes severance, visual blight, noise and air pollution, which together inhibit walking and cycling movements along with access to public transport.	Improve the connectivity between Tolworth's main residential areas, retail centre, station and other key destinations, helping to enhance the quality of the urban realm and local environment	Creation of new surface links between Tolworth town centre, Tolworth station and redevelopment sites Provision of attractive cycling and walking routes Increased usage of Tolworth station, with a

		<p>higher percentage of passengers accessing the station by non-car modes of transport</p> <p>Reduced noise and air pollution around the deck above the A3</p>
The capacity and function of the A3 strategic road corridor need to be maintained.	Maintain and improve the vital strategic movement function of the A3 at Tolworth while accomplishing the above objectives	Traffic counts and measures of delay on the A3 at Tolworth

Options for the A3 at Tolworth

The options appraisal process described in Part D concluded that further feasibility investigation into decking the A3 at Tolworth should be undertaken

241. Having identified Tolworth as a priority location for investigating the feasibility of providing a decking-over solution on a congested part of the A3, a number of options were considered.

Early feasibility work identified two possibilities for decking the A3:

- Simple level decking – requiring the lowering of an extended length of the A3
- Gradually raised development podium – gradually rising from north east to south west to maintain minimum head height over A3

242. Whilst both options shared a number of advantages and disadvantage, it was concluded that a level decking option should be taken forward as it did not require the same level of complex engineering associated with a raised level deck and was considered most deliverable.

243. Once it had been determined that a level, surface deck would be most appropriate at this location, further options testing was undertaken to determine the best layout and configuration of the existing A3 and associated access roads, so that the identified issues of severance and environmental quality could be addressed, whilst ensuring that a scheme would be deliverable and would not affect the operation of the strategic road network.

244. This feasibility work firstly considered the extent of the deck. Following this assessment, the extent of the previously identified deck was reduced to reflect constructability issues and potential benefits. Consideration was also given to extending the deck to the north of the A3. Though this gave similar benefits in terms of A3 access, severance and environmental improvements, there were no major development opportunities in this area and therefore little justification for pursuing it further.
245. Once the extent of the deck was established a number of options were explored further to assess their ability to maintain access to/from the A3, secure opportunities for improved pedestrian circulation at the A3/A240 roundabout and subdivide the adjacent development site to accommodate new development and local vehicle circulation.
246. The following options were considered:
- Study 1 – maintained existing road layout and extended slip roads to the west
 - Study 2, 3,4 – identified strategy to close the southern segment of roundabout and extend public realm improvements
 - Study 5 – identified options to remove existing Tolworth roundabout
247. It was concluded that a variation of Study 1 (Study 6) was to be taken forward which retained the roundabout and extended the slip roads to the west. Whilst there would be significant merit in removing or improving the roundabout layout, it was agreed that this was beyond the scope of the deck scheme itself and would require further investigation. It should be noted that the decking scheme proposed would not preclude any future alterations to the operation of the roundabout. An illustration of Study 6 can be seen in Figure 18.

Figure 18 – Developed solution



248. Lowering the road and decking-over of the A3 main carriageway at Tolworth would meet the RTF's core objectives, enabling people to move more effectively between the railway station and Tolworth District Centre. It would enable a higher density level of development to be accommodated on land south of the A3, while also creating open space to be provided in the form of a linear park over the A3. The reduced severance would improve the environment for sustainable modes, allow improvements to the public realm for local residents and provide a link to identified development sites. This option has been taken forward for further assessment.
249. With the delivery of Crossrail 2, the A3 decking scheme will play an even more important role in connecting the existing community with the areas south of the A3 where there is considerable opportunity for large scale, dense and sustainable new development.

Key finding:

The proposed level-decking scheme was identified as the most suitable option following high level feasibility work undertaken in 2014. A number of scheme variants were considered as part of more detailed feasibility, and the preferred option has been selected as it addresses the major issues of severance whilst maintaining the operation of both the A3 and A240.

Part G: How the Decking Option Addresses the Objectives

Section Summary:

This section sets out how the proposed decking scheme addresses the objectives for the A3 at Tolworth identified in Part F.

Objective 1: Increase the potential of Tolworth as a regeneration area to help achieve the goal of 49,000 new homes a year to be built in Greater London to cope with population growth

- The decking scheme has a significant role to play in maximising the development potential from Crossrail 2.
- In addition to its wider influence on development related to Crossrail 2, the decking scheme has a direct impact on the development potential of sites located closest to the A3.

Objective 2: Improve the urban realm and connectivity between Tolworth's main residential areas, retail centre, station and other key destinations

- Decking over the A3 will provide the opportunity to reconnect the town centre with the southern part of Tolworth.
- Decking over the A3 would improve local environmental conditions and quality of life for Tolworth residents.

Objective 3: Maintain the performance of the A3 corridor as a strategic road, while accomplishing the above objectives

- The capacity of the A3 would be maintained by this scheme. Some small road user benefits would be delivered.

250. Decking of the A3 at Tolworth would transform Tolworth as a key District Centre within RB Kingston and the wider south London sub-region. The scheme would address the widely recognised issues of severance caused by the A3 and A240 interchange, providing safe and welcoming connectivity for cyclists and pedestrians between Tolworth Broadway, existing residential areas and the station as well as providing a new, high quality publically accessible open space. Addressing these barriers and other issues identified in the Tolworth Regeneration Strategy, the scheme will help bring forward, and make the most efficient use of, identified development opportunities to the south of the A3.

Objective 1: Increase the potential of Tolworth as a regeneration area to help achieve the goal of 49,000 new homes a year to be built in Greater London to cope with population growth

251. Addressing existing issues of congestion, severance and environmental quality on the A3 is key to maximising the development potential of Tolworth and contributing to the successful delivery of the approved Tolworth Regeneration Strategy.
252. The proposed decking of the A3 would have both a direct and indirect impact on development potential. Looking at a wide area south of the A3, the proposed decking combined with the delivery of Crossrail 2 can potentially stimulate the development of up to 8,000 new homes. Looking just at the area where the effects of the scheme can be predicted with greatest confidence, i.e. the sites immediately adjacent to the A3 and alongside the proposed deck, the scheme has the ability to directly increase the housing capacity of identified development sites.

The decking scheme has a significant role to play in maximising the development potential from Crossrail 2

253. If Crossrail 2 is delivered without the A3 decking scheme, it is still possible that a number of new homes will be built on the south side of the A3. However, the poor urban realm and local connections in this area could limit the scale and density of these developments, and some of the less attractive sites may not be brought forward for development at all. As such, it is likely that new developments will come forward at a lower density than would be possible with the decking scheme, failing to fully capitalise on the potential development opportunities from Crossrail 2 in this area.
254. Further work is ongoing to determine the nature of the interaction between Crossrail 2 and the A3 decking scheme in terms of enabling new development around Tolworth, but it is clear that the two schemes together provide the best impetus and most favourable conditions for the full development potential of Tolworth to be realised.
255. It should be noted that as the number of new homes delivered in Tolworth as a result of Crossrail 2 increases, so do the benefits of the A3 decking scheme. More people living on the south side of the A3 will mean more people crossing the busy A3/A240 interchange as well as being exposed to the noise, pollution and poor urban realm of the road network. Improving these conditions both for current residents and the future residents brought to the area by Crossrail 2 will deliver significant benefits.
256. New pedestrian and cycling routes from Tolworth town centre to the Crossrail 2 station would also encourage passengers to access the new service via active means of travel, helping to reduce car traffic in the area and encourage as many people as possible to take advantage of the new Crossrail 2 services. Without this scheme, many passengers would have to access the station via the existing, hostile route through the A3/A240

interchange or by private car, which would reduce the attractiveness and perceived improvements to the area resulting from Crossrail 2, and additional traffic movements could limit the development potential overall.

257. Improved connections between Tolworth town centre, the Crossrail 2 station and any new extension to the urban area south of the A3 will encourage more people to access the facilities in the town centre, increasing its vibrancy and viability and reversing its current performance as an underperforming town centre.
258. The initial analysis into development opportunities in Tolworth by Crossrail 2 suggests that Tolworth could represent a development opportunity comparable in size to the Opportunity and Intensification Areas currently identified in the London Plan. Therefore, whilst the increase in development directly attributable to the A3 decking proposal could be considered modest, the facilitative role that the decking proposals would have within the wider development context of Tolworth is potentially far more significant at both a local and city level.

Key finding:

The proposed scheme has a potentially very significant role in helping to unlock significant development opportunities south of the A3 linked with the future arrival of Crossrail 2.

Further analysis will be required as part of future iterations of the Business Case to determine the scale of such benefits.

In addition to its wider influence on development related to Crossrail 2, the decking scheme has a direct impact on the development potential of sites located closest to the A3.

259. In addition to the influence of the decking scheme on a wide area around the A3 and Crossrail 2 station, the scheme has a more direct and quantifiable impact on the development sites located immediately adjacent to the A3/A240 junction.
260. There is a collection of brownfield sites between the A3 and the railway station. These sites have been subject to a number of withdrawn planning applications in recent years. Figure 20 shows the sites as they could eventually be developed.
261. Masterplanning work undertaken in relation to the design of the A3 decking scheme has shown that there is a significant opportunity to increase the development capacity of the sites if the decking scheme is delivered.
262. The masterplanning work shows that the site would be capable of accommodating an additional 74 dwellings as a result of the decking, meaning that the identified development sites would be capable of accommodating a total of 848 dwellings overall (Table 2).

263. The additional capacity would be allowed for by using the deck as a new public open space, thus lowering the amount of land on the existing site that would need to be allocated to open space. The additional dwellings would create 20 additional jobs as a result of new community and service facilities required to support the additional population.
264. When the delivery of Crossrail 2 is incorporated into this assessment, the enhanced public transport provision allows for a higher density on the site overall. This demonstrates that a total of 1,436 dwellings (as a result of higher density linked to increased PTALs) could be accommodated, 130 of which would be directly attributable to the A3 decking for the reasons set out above. Figure 19 indicates the block form that this development could take with height and massing increasing with proximity to the A240.

Figure 19 – Indicative development directly associated with A3 decking



Key finding:

The proposed decking scheme has the potential to increase the development capacity of a key development site immediately adjacent to the A3.

This opportunity would be more significant if coupled with the delivery of Crossrail 2.

Table 2 – Overview of development capacity

Scenario	Gross	Net additional associated with A3 decking	Net additional associated with CR2	Net additional associated with A3 decking + CR2	Growth in wider area that would be supported by both A3 decking and CR2	Comments
Do-min	774	-	-	-	-	Allows for current planned development only on MoD / Charrington Bowl Site
A3 decking	848	74	-	-	-	Allows for net additional development associated with decking on MoD / Charrington Bowl Site This is the value which currently informs A3 decking Economic Case, with Crossrail 2 not considered
Crossrail 2	1,306	-	532	-	-	Allows for net additional development associated with CR2 on MoD / Charrington Bowl Site This net additional development is currently attributed to Crossrail 2 Business Case
A3 decking and Crossrail 2	1,436	130	532	662	up to 8,000 in total across all development sites	Allows for net additional development associated with decking and CR2 on MoD / Charrington Bowl Site Wider growth would be facilitated by opening of CR2, an opportunity that would be maximised by the A3 decking

Objective 2: Improve the urban realm and connectivity between Tolworth's main residential areas, retail centre, station and other key destinations

Decking over the A3 will provide the opportunity to reconnect the town centre with the southern part of Tolworth.

265. The scheme looks to deck over the flyunder on the south side of the Tolworth junction, providing a safe crossing for non motorised users across the A3, increasing connectivity in the surrounding area. This is of particular importance in connecting Tolworth station to the town centre and other key destinations such as Tolworth hospital north of the A3. The deck may also provide the opportunity at a later date to re-design the gyratory, providing further improvements to the walking experience when accessing Tolworth Broadway from the station.
266. The scheme will help address the poor quality environment and public realm along the A3/A240 and poor pedestrian/cyclist connections across the A3/Tolworth Roundabout and Broadway. The reduction in severance furthers the objectives of the Tolworth Regeneration Strategy to enhance the environment and safety in order to secure new development and create new jobs, and compliments the Tolworth Greenway scheme³³ to improve public space and connections between Tolworth Broadway and the station³⁴.
267. The decking of the A3 will improve direct connections between the station and development sites south of the A3 via new pedestrian connections along Princes Avenue and opening up of new publically accessible open space. These improvements will not only reduce the walking / cycling distance to and from the station for existing and future residents but also improve the safety and wider qualitative experience of those using these routes. This will help address a number of the existing development constraints, most importantly supporting those moving between the station, new development sites and Tolworth town centre.

³³ Kingston Council Tolworth Regeneration Strategy (March 2010)
https://www.kingston.gov.uk/downloads/file/779/tolworth_regeneration_strategy

³⁴ TfL/Kingston Council Tolworth Greenway scheme
http://www.kingston.gov.uk/info/200172/south_of_the_borough_neighbourhood/368/tolworth_greenway/2

Decking over the A3 would improve local environmental conditions and quality of life for Tolworth residents.

- 268. Lowering and decking over the A3 at Tolworth will reduce the exposure of properties in the immediate vicinity of the A3 to high noise levels. Similarly, the longer slip roads may result in a small improvement in local air quality. Both of these improvements would contribute to an improvement in quality of life for those living nearby the road.
- 269. It will be necessary to further explore the impact of the scheme on noise and air pollution levels in future versions of this business case.

Key finding:

Decking the A3 would result in significant connectivity benefits for Tolworth, providing improved connectivity between the town centre and key destinations and growth opportunities south of the A3. It would also reduce the existing negative environmental and visual impacts of the A3, resulting in an overall positive impact on the public realm and quality of life of those living in and visiting Tolworth.

Objective 3: Maintain the performance of the A3 corridor as a strategic road, while accomplishing the above objectives

The capacity of the A3 would be maintained by this scheme. Some small road user benefits would be delivered.

- 270. The layout of the A3 would remain mostly unchanged as a result of this decking scheme, with three lanes of traffic continuing to be available in both directions on the A3.
- 271. Whilst the scheme is mainly intended to maintain existing road capacity while improving the environment and connections around the A3, the improved junction alignments around the deck would provide some benefit to road vehicles. Initial high level HAM model outputs³⁵ show that, even when taking account of the additional development facilitated by the proposal, there may be some reduction in delays in the area.
- 272. In the AM peak, it is forecast that with the decking scheme delivered, there will be modest increases in traffic on all approaches to the A3 Tolworth roundabout – with the

³⁵ It should be noted that the modelling undertaken to date only accounts for the scale of growth already planned for alongside any additional growth that would be allowed for by the tunnel itself. At this stage, the modelling has assumed the decking as a standalone project and has not taken account of any future development related to the delivery of Crossrail 2. It also assumes that no changes have been made to the A3 Tolworth roundabout.

exception of the A240 (S) approach to the Tolworth roundabout as a result of traffic reassigning through the proposed development. There are also modest increases in traffic on Jubilee Way (56 PCUs) and Worcester Park Road (25 PCUs). In terms of delay, a reduction of 28 seconds is forecast on the A240 (S) approach into the A3 Tolworth Roundabout, with relatively little change on other approaches. The model also forecasts a 20 second increase in delay on Jubilee Way approaching the A240, and 16 seconds on the A240 itself at its junction with Worcester Park Road.

273. In the PM peak, there are more pronounced changes, but these largely follow the same pattern as set out in the AM peak. However, flows on Worcester Park Road decrease by 67 PCUs and the increase on Jubilee Way is more marked, being at 73 PCUs. The model also forecasts a reduction in traffic northbound (a loss of 27 PCUs) and an increase southbound (of up to 31 PCUs) on Hook Road, which forms the next junction on the A3 to the west of Tolworth. In terms of delay, the model forecasts a reduction of 25 seconds on the A3 western off-slip at Tolworth and a 22 second reduction on Jubilee Road westbound on its approach to the A240, indicating that in this period the scheme offers some small benefits in reducing delays to road users.
274. By reducing the severance between the town centre, residential areas and Tolworth station, there may also be significant opportunities to help increase the mode shares of rail, walking and cycling locally, thereby contributing to a reduction in the overall demand on the local road network in future years. This is particularly true should Crossrail 2 be delivered and thereby make rail services from Tolworth station much more frequent and attractive.

Key finding:

Capacity of the A3 road would be maintained after the implementation of this scheme. Changes in delay associated with the scheme are not significant but are expected to offer some benefit for road users. There may be additional benefits with the scheme by encouraging an increased uptake of non-motorised transport modes.

Impact of Not Changing

275. The principal reasons for decking the A3 at Tolworth can be summarised as:
- To help to unlock development potential in this area, contributing to the long-term economic competitiveness of London (as identified by the RTF);
 - To improve non-car based connectivity across the A3, to reduce severance and improve connections between the main residential areas of Tolworth, the railway station and other key destinations;
 - To improve the urban realm and local environment around the A3/A240 junction;
 - To maintain road network functioning while accomplishing these other objectives.

Non-implementation of the decking scheme would continue to limit the growth potential of Tolworth.

276. Tolworth is located in an area of south London which is expected to experience some of the city's largest increases in population up to 2041, and it is located along a strategic transport corridor which will also see a significant increase in employment opportunities. However, whilst a number of key development opportunities have been identified, these are yet to be delivered and the town itself is home to an underperforming District Centre, relative to its neighbours in the Royal Borough of Kingston and wider south west London.
277. Constraints on the growth and sustainable development of Tolworth and its performance as a District Centre can be directly attributed to the severance and poor environmental quality resulting from the A3, as recognised in the Tolworth Regeneration Strategy.
278. The impact of a decision not to progress with the decking of the A3 at Tolworth would mean:
- the wider regeneration objectives for Tolworth are unlikely to be realised;
 - the current poor environmental conditions would worsen as a result of future traffic growth on the A3;
 - significant severance issues will not be addressed;
 - the delivery of much needed housing and employment within the identified development sites south of the A3 will continue to be restricted, or at worse not realised at all;
 - reduced ability to meet the housing need in the borough;
279. These impacts would be exacerbated further with the delivery of Crossrail 2, which would provide an opportunity to deliver significant new development in the area. This opportunity could only be maximised as a result of delivering this decking scheme, ideally in advance of the completion of Crossrail 2, to maximise development opportunities and user benefits from both schemes.
280. Were large developments associated with Crossrail 2 to be delivered without this decking scheme, the number of people affected by the noise, air pollution and severance caused by the A3 would be dramatically increased, providing further impetus to progress this scheme.

Key finding:

Not building the proposed decking would have a number of negative impacts on Tolworth. The A3 would continue to be a significant barrier to realising the wider regeneration objectives for Tolworth, restricting the development potential of the area.

Part H: Strategic Context

Section Summary:

National policy context

- Decking the A3 would contribute towards DfT priorities 4, 5, and 6 for the transport network
- The decking scheme would contribute towards the overarching objectives of the NPPF in its promotion of sustainable economic growth
- The decking scheme would address a number of the nationally important challenges identified in the Networks NPS

Regional and sub-regional policy context

- The Mayor's Transport Strategy (MTS) seeks to better integrate land-use and transport planning in London, and this would be supported by the A3 decking scheme
- The London Plan emphasises the importance of town centres such as Tolworth in accommodating London's future growth
- The aims set out by the Roads Task Force (RTF) would all be supported by the A3 decking scheme
- The scheme contributes to many of the outcomes of TfL's Surface Transport Plan 2015/16
- The scheme would address a number of challenges identified in the London 2050 Infrastructure Plan
- The scheme would support a number of objectives of the south London SRTP and build upon investment already made in the A3/A240 interchange at Tolworth

Local policy context

- Whilst there is no specific reference to the decking of the A3 within either the RB Kingston Core Strategy or Tolworth Regeneration Strategy, both documents set out a number of strategic objectives which are relevant to the scheme

Stakeholders, constraints and inter-dependencies

- There are a number of key stakeholders, constraints and inter-dependencies with other work streams that will need to be considered in developing the project

National policy context

Decking the A3 would contribute towards DfT priorities 4, 5, and 6 for the transport network.

281. The Department for Transport's nine priorities for the transport network are:

- continuing to develop and lead the preparations for a high speed rail network
- improving the existing rail network and creating new capacity to improve services for passengers
- tackling congestion on our roads
- continuing to improve road safety
- encouraging sustainable local travel
- promoting lower carbon transport, such as walking and cycling as well as introducing more environmentally-friendly buses and trains
- supporting the development of the market for electric and other ultra-low emission vehicles
- supporting the development of aviation, improving passenger experience at airports
- maintaining high standards of safety and security for passengers and freight

282. The scheme would improve the safety for pedestrians and cyclists by reducing severance and improving the crossing of the A3 at its junction with the A240. The scheme would encourage the increase of sustainable travel and promote low carbon travel both directly through the provision of better walking and cycling environments and indirectly by improving connectivity between the town centre, main residential areas and Tolworth rail station.

The decking scheme would contribute towards the overarching objectives of the NPPF in its promotion of sustainable economic growth

283. The National Planning Policy Framework (NPPF) published in 2010 sets out a policy framework for how the land-use planning system should function.

284. The NPPF seeks to secure sustainable economic growth to create jobs and prosperity. The Government is committed to ensuring that the planning system does everything it can to support sustainable economic growth and a competitive economy and so significant weight should be placed on the need to support economic growth through the planning system. The NPPF positively promotes competitive town centre environments and contains a 'town centre first' policy.

285. The NPPF states that the transport system needs to be balanced in favour of sustainable transport modes, giving people a real choice about how they travel. Encouragement should be given to solutions which support reductions in greenhouse gas emissions and reduce congestion.

286. The NPPF states that planning plays a key role in helping shape places to secure radical reductions in greenhouse gas emissions, minimising vulnerability and providing resilience to the impacts of climate change, and supporting the delivery of renewable and low carbon energy and associated infrastructure; whilst requiring the planning system to contribute to and enhance the natural, local and historic environment.
287. The proposed scheme would contribute towards the overarching objectives of the NPPF, notably its contribution to sustainable economic growth at Tolworth as well as supporting the wider economic growth and global competitiveness of London as a whole.

The decking scheme would address a number of the nationally important challenges identified in the Networks NPS

288. The **National Policy Statement (NPS) for the National Road and Rail Networks** published in December 2014 states “The national road and rail networks that connect our cities, regions and international gateways play a significant part in supporting economic growth, as well as existing economic activity and productivity and in facilitating passenger, business and leisure journeys across the country. Well-connected and high-performing networks with sufficient capacity are vital to meet the country’s long-term needs and support a prosperous economy.”
289. The NPS states that: “Improved and new transport links can facilitate economic growth by bringing businesses closer to their workers, their markets and each other”. By inference there is a risk that insufficient investment in these transport connections and impacting on the capacity of road networks could act as a major barrier to and brake on economic growth.
290. The pressure on the road network is forecast to increase with economic growth, substantial increases in population and a fall in the cost of car travel from fuel efficiency improvements. The NPS states that 2014 DfT traffic forecasts predict that by 2040, a quarter of travel time will be spent delayed in traffic.
291. It suggests that without improving national road networks, including its performance, it will be difficult to support further economic development, employment and housing and this will impede economic growth and reduce people's quality of life. It is reasonable to argue that the same rationale applies to the TfL Road Network.
292. The proposed scheme will positively address a number of challenges set out in the NPS, particularly in relation to the impacts from increased pressure on the road networks and the effect of these impacts on accommodating additional housing and the impact on people’s quality of life.

Key finding:

The decking scheme for the A3 demonstrates a close fit with national policy goals, including the DfT's nine transport priorities, the NPPD, and the NPS for the National Road and Rail Networks. It allows urban challenges to be addressed while protecting the strategic role of the A3 road corridor.

Regional and Sub-Regional policy context

The Mayor's Transport Strategy (MTS) seeks to better integrate land-use and transport planning in London, and this would be supported by the A3 decking scheme

293. The **Mayor's Transport Strategy (MTS)**, published in 2010 by the Greater London Authority, seeks to better integrate land-use and transport planning within London. The MTS sets out the following vision for travel and transport in London:

'London's transport system should excel among those of world cities, providing access to opportunities for all its people and enterprises, achieving the highest environmental standards and leading the world in its approach to tackling urban transport challenges of the 21st century.'

294. Alongside this vision, the MTS identifies six strategic objectives for London. Those of direct relevance to this business case are:

- Supporting economic development and population growth
- Enhancing the quality of life of all Londoners
- Improving the safety and security of all Londoners
- Improving transport opportunities for all Londoners
- Reducing transport's contribution to climate change and improving its resilience

295. London's road network acts as arteries for the movement of people and goods to help Londoners and those from surrounding areas to access employment, education, retail and other leisure opportunities. A well-functioning and efficient highway network is essential for the proper functioning of the London economy and to maintain the quality of life of the residents of the city. Improvements to streetscapes and the public realm will help to create safer, more walkable neighbourhoods, support place-shaping and regeneration and attract investment. Improvements to traffic management will help to make the TfL and Borough road network more resilient.

296. The proposed scheme will significantly improve the public realm and environmental quality within the vicinity of the scheme, making Tolworth a more walkable area, improving the connectivity for non-motorised transport users as well as supporting the wider regeneration and development opportunities in the Tolworth area. It would therefore contribute to objectives 1-4 of the MTS and would support the MTS policies set out in Table 3.

Key finding:

The A3 decking scheme contributes towards MTS objectives 1-4.

Table 3 – Project contribution to MTS policies

Policy no.	Policy description	How the proposed scheme will support MTS Policy
1	The Mayor, through TfL, will seek to develop London's transport system in order to accommodate sustainable population and employment growth.	Proposed decking will help unlock housing and new employment by enabling higher density of development.
3	The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other stakeholders, will seek to improve public transport accessibility and conditions for cycling and walking in areas of lower PTAL, where there is an identified need for improving accessibility; and to improve access to economic and social opportunities and services for all Londoners.	PTAL levels will be improved in areas around the decking in response to improved walking and cycling as well as access to Tolworth station. This will help improve access to employment and services for residents.
4	The Mayor, through TfL, will seek to improve people's access to jobs, business' access to employment markets, business to business access, and freight access by seeking to ensure appropriate transport capacity and connectivity is provided on radial corridors into central London.	Proposed decking will improve access to employment – particularly in relation to Tolworth as a District Centre – and will increase public transport connectivity.
8	The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other transport stakeholders, will support a range of transport improvements within metropolitan town centres for people and freight that help improve connectivity and promote the vitality and viability of town centres, and that provide enhanced travel facilities for pedestrians and cyclists.	The improved connectivity for non-motorised users will help enable residents and visitors to more easily access Tolworth Town Centre and Tolworth station, supporting their vitality and viability.

Policy no.	Policy description	How the proposed scheme will support MTS Policy
9	<p>The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other transport stakeholders, will use the local and strategic development control processes to seek to ensure that:</p> <ul style="list-style-type: none"> • All high trip generating developments are located in areas of high public transport accessibility, connectivity and capacity (either currently or where new transport schemes are committed) • The design and layout of development sites maximise access on foot, cycle and to public transport facilities, for example, via safe walking and cycling routes and provision of secure cycle parking • Access for deliveries and servicing, maximise the opportunities for sustainable freight distribution where possible • Land for transport use is safeguarded in line with London Plan policy and Supplementary Planning Guidance • Planning contributions are sought for transport improvements where appropriate 	<p>The level of development achievable to the south of Tolworth Town Centre will be shaped by the improvement in connectivity and accessibility enabled by the proposed decking. Masterplanning exercise has ensured access on foot, cycle and public transport where possible, is enabled by the proposed decking.</p>
11	<p>The Mayor, through TfL, will seek to reduce the need to travel, encourage the use of more sustainable, less congesting modes of transport (public transport, cycling, walking and the Blue Ribbon Network), set appropriate parking standards, and through investment in infrastructure, service improvements, promotion of smarter travel initiatives and further demand management measures as appropriate, aim to increase public transport, walking and cycling mode share.</p>	<p>The proposed decking will encourage modal shift from the private car by providing additional cycle/pedestrian facilities.</p>
16	<p>The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, freight operators, London boroughs and other stakeholders, will seek to reduce noise impacts from transport.</p>	<p>The proposed decking will reduce noise impacts from transport for residents located along the decked section by diverting A3 traffic into a covered section.</p>
17	<p>The Mayor, through TfL, and working with the DfT and other government agencies, the London boroughs, health authorities and other stakeholders, will promote healthy travel options such as walking and cycling.</p>	<p>The proposed decking will reduce severance, encourage pedestrians and cyclists to access the town centre, station and existing and future residential areas.</p>
22	<p>The Mayor, through TfL, and working with the LDA, DfT, Network Rail, train operating companies, London boroughs and other stakeholders, will seek to enhance connectivity, reduce community severance, promote community safety, enhance the urban realm and improve access to jobs and services in deprived areas.</p>	<p>The proposed decking will reduce community severance by reducing severance arising as a result of the A3. The urban and public realm will be enhanced, whilst better connections in the area will improve access to jobs and services for residents.</p>

Policy no.	Policy description	How the proposed scheme will support MTS Policy
30	The Mayor, and TfL, will make the case to Government for long-term investment in the transport network to secure the outcomes set out in this strategy.	This business case sets out the case for investment in improving part of the strategic road network.
36	The Mayor, and TfL, will work with the London boroughs and other stakeholders, to seek to secure further investment from a variety of sources that help improve the quality and range of transport services available to Londoners.	The Financial Case for this project has considered a range of sources of funding that could be utilised to enable the delivery of the scheme.

The London Plan emphasises the importance of town centres such as Tolworth in accommodating London’s future growth

297. The London Plan (updated in March 2015) sets out the strategic spatial planning framework for London as a whole. It articulates the following vision for London:
- ‘Over the years to 2036 – and beyond, 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.’*
298. This high level, over-arching vision is supported by six detailed objectives that will inform place-making and land-use planning for new development, all of which are in some way relevant to this business case:

- A city that meets the challenges of economic and population growth;
- An internationally competitive and successful city;
- A city of diverse, strong, secure and accessible neighbourhoods;
- A city that delights the senses;
- A city that becomes a world leader in improving the environment;
- A city where it is easy, safe and convenient for everyone to access jobs, opportunities and facilities.

Key finding:
The A3 decking scheme contributes towards London Plan objectives 1-6.

299. The London Plan states that town centres should provide a major focus for commercial and residential development outside the Central Activities Zone (CAZ). Tolworth Town Centre is designated as a District Centre in the London Plan, with a medium potential for growth based on current levels of demand and transport capacity. However it is important to note that this projection is based on the assumption that the A3 remains as

at present – its modification will create the potential for additional growth in jobs and homes, meaning that growth above these levels may be possible.

300. This project will help to support the wider London economy by acting as a catalyst for investment in improving the public realm, thereby opening up redevelopment opportunities for denser development. By enabling new housing and office development, this will help London to retain its status as a competitive global city. A better, more walkable public realm with reduced severance will improve safety for Londoners of all ages and backgrounds and enhance the setting of landmark buildings. The project will result in environmental improvements through supporting modal shift from the private car towards public transport, cycling and walking, with positive impacts on air quality, noise and townscape. As a result, the neighbourhood around the project will be more permeable and easier to navigate around for pedestrians and by bicycle.

The aims set out by the Roads Task Force (RTF) would all be supported by the A3 decking scheme

301. The Roads Task Force (RTF), which was set up by the Mayor of London in 2012, brings together a wide range of interests and expertise, united in the belief that the Capital needs a long-term strategy for roads and a commitment to major investment in street management and urban design.
302. The RTF report, published in July 2013, focuses on three core aims:

- To enable people and vehicles to move more efficiently on London's streets and roads
- To transform the environment for cycling, walking and public transport
- To improve the public realm and provide better and safer places for all the activities that take place on the city's streets, and provide an enhanced quality of life

303. The RTF's highlights 'breathing life back into town centres across London' and 'unlocking major growth and regeneration' as key parts of its vision for the city. The report notes that the potential of many areas to deliver growth is constrained because of a lack of connectivity, and/or the impact of roads on 'place value', and cites mitigation of noise and severance as key to unlocking this potential growth.

Key finding:

The A3 decking scheme contributes to all 3 core aims of the RTF, and is a key area identified in the report

The scheme contributes to many of the outcomes of TfL's Surface Transport Plan 2015/16

304. The TfL Surface Transport Plan 2015/16, published in June 2015, sets out the approach towards managing the bus, taxi, coach and river networks; freight deliveries; the Santander cycle hire scheme; Congestion Charge and Low Emission Zone schemes; and the TfL Road Network (TLRN).
305. The Plan sets out a goal: 'to keep London working, growing and to make life in London better'. Alongside this goal, the Plan has an ambition: 'to provide, manage and improve the services, streets and places, that connect London for all, sustaining its position as a world leading city'.
306. The Plan has identified ten outcomes for surface transport in London. Table 4 below summarises how this project supports several of these outcomes.

Table 4 – Project contribution to TfL Surface Transport Plan outcomes

Surface Outcome	How this project contributes towards the outcome
Quality bus network: Maintaining and enhancing a reliable, safe, accessible bus network and supporting coach operations, across all of London.	Having a higher frequency Crossrail 2 service from Tolworth provides an opportunity to reconfigure local bus services to act as feeder routes or improve interchange facilities. The decking over would improve access to any new interchange from existing residential areas.
Reliable roads: Ensuring a reliable and resilient road network for all of London by managing congestion and improving connectivity.	Decking over the A3 will deliver surface level improvements which maintain the current operation of the TLRN.
Improving the environment: Continuing to deliver environmental improvements, by reducing pollutants from ground based transport and enhancing the natural environment.	Decking over the A3 will improve the local environment for those living adjacent to the A3 and non-motorised transport users travelling between the station and town centre.
More and safer cycling: Enabling more people to cycle, more safely, more often.	Decking over the A3 will reduce severance, helping to improve conditions for cyclists, generating more cycling trips.
Better places to walk: Creating and supporting safe attractive, accessible streets and places that people can use, enjoy and choose to walk more.	Decking over the A3 will reduce severance and provide a significantly improved quality public realm, helping to improve the pedestrian environment, generating more walking trips.
Reduced casualties: Continuing the downward trend in casualties on London's roads and public transport	Decking over the A3 will improve safety for pedestrians and cyclists by reducing the reliance on pedestrian crossings to access the

Surface Outcome	How this project contributes towards the outcome
networks	town centre and/or the railway station.
Sustainable freight: Enabling safer, cleaner and more efficient delivery and servicing activity to support London's economy.	The scheme will reduce noise levels generated by HGVs. The strategic function of the A3 as a freight corridor will also be protected.
Quality door-to-door transport: Supporting provision of safe, reliable, accessible door-to-door services, including regulating London taxi and private hire services and operating Dial-a-Ride services.	Not applicable
Reduced crime: Continuing the downward trend in crime, antisocial behaviour and fear of crime on London's transport networks.	A more attractive public realm and higher pedestrian flows will help reduce the fear of crime.
Realising rivers' potential: Harnessing the potential of London's rivers and waterways to carry people and goods.	Not applicable.

Key finding:

The A3 decking scheme contributes to Surface Outcomes 1-7 and 9.

The scheme would address a number of challenges identified in the London 2050 Infrastructure Plan

307. The London 2050 Infrastructure Plan sets out the Mayor's long-term aspirations for the infrastructure to support London's future growth. This plan recognises the importance of the transport system in supporting London's employment and population growth up to 2050. The key transport challenges identified within the Plan can be summarised as:
- ensuring the foundations for London's continued global city success;
 - helping to house a growing London;
 - supporting a better, not just bigger London.
308. In meeting these challenges, the plan identifies the need for a better and more efficient road system across London – particularly in Outer London, and recognises the importance of the strategic road network in achieving this. It also recognises the importance of transport schemes in supporting a step change in the proportion of journeys made by sustainable modes, maintaining a well functioning road network for

efficient journeys as well as the role of transport schemes in helping to unlock and deliver the necessary housing.

Key finding:

The scheme would address a number of challenges identified in the 2050 Infrastructure Plan, particularly in relation to increasing the proportion of journeys made by sustainable modes, while also supporting the vital role of the strategic road network.

The scheme would support a number of objectives of the south London SRTP and build upon investment already made in the A3/A240 interchange at Tolworth

309. The **South London Sub-regional Transport Plan (SRTP)** identifies the transport challenges, opportunities and constraints within those boroughs represented by the south London partnership³⁶; and help TfL to develop the priorities for business planning in order to address the medium to longer-term challenges for London and the sub-regions.
310. Mode share for cars and motorcycles within the south London sub-region has remained constant at 46 per cent in recent years – which is the highest in London. This high private vehicle mode share impacts upon the strategic road network and a number of challenges have been identified in the sub-region, including :
- Improve access to, from and within key places where access is made difficult by congested links
 - Reduce highway congestion
 - Improving air quality and meeting CO2 targets - South sub-region has relatively poor air quality compared to other parts of London. Poorest around major roads and urban centres
311. Relevant priority work areas identified in the south London sub-region include:
- investment in the area, corridor and junction studies to address challenges on the road network;
 - Making south London safer – vulnerable road users (VRUs)

³⁶ London Boroughs in the south London sub-region include LB Bromley; LB Croydon; RB Kingston upon Thames; LB Merton; LB Richmond upon Thames; LB Wandsworth

312. Within this context, investment has already been made in the improvement of the strategic road network and TLRN at Tolworth. In 2013 £3.1m was invested in Tolworth Broadway, creating a new shared pedestrian /cycle central reservation (the greenway), fully accessible access between Tolworth Broadway and the station, and an improved, safe pedestrian environment. Notwithstanding this, access still requires users to experience poor environmental quality and also a number of road crossings to successfully reach the station from Tolworth Broadway. Consequently there are still issues of severance and many identified development sites remain relatively isolated, so are currently unable to maximise opportunities for high-density development to help address the acute need for new housing in London.
313. The sub-regional transport plan recognises the importance of Crossrail 2 and the need for the scheme to fully maximise the benefits for London that meets its future needs.

Key finding

The scheme would support a number of objectives of the south London SRTP by providing new pedestrian connectivity across the A3 for non-motorised users, reducing issues of conflict with road vehicles at the junction with the A240. It can also play a pivotal role in helping to realise wider development opportunities arising from Crossrail 2, ensuring that the benefits of that scheme in the Tolworth area are maximised.

Local policy context

Whilst there is no specific reference to the decking of the A3 within either the RB Kingston Core Strategy or Tolworth Regeneration Strategy, both documents set out a number of strategic objectives which are relevant to the scheme.

314. Table 5 below sets out those aspects of strategic local policy framework for which the proposed project would make a positive and direct contribution.

Table 5 – Local policy context summary

RB Kingston Core Strategy	
Strategic Objectives	<p>The Core Strategy sets out a number of key objectives which seek to deliver sustainable development by addressing social, economic and environmental objectives. Those objectives most relevant to the scheme include:</p> <ul style="list-style-type: none"> • Objective 2 – Promotes the use of sustainable transport modes • Objective 3 – seeks to protect and improve the quality of the local environment. • Objective 6 – seeks to increase the supply of housing and its affordability. • Objective 7 – seeks to make communities safer

	In applying the objectives, the strategy identifies Tolworth's role in providing local services, with 'options' for potential growth, development and improvement to enhance their vitality and viability.
Vision	The overarching vision for the Borough identifies Tolworth as having its own distinct character and function with new investment in food shopping, public realm and local community facilities.
Policy SBI	Policy SBI identifies the need to promote sustainable methods of travel and public transport services to improve movement through the Neighbourhood, while reducing traffic congestion and associated air pollution. Specifically in relation to the A3, it is clear that the Borough will work <i>"with TfL to manage congestion whilst improving road safety and crossing opportunities on the A3 and A243"</i>
Policy SBI	Policy SBI seeks to provide a range of new homes, including affordable homes, on Brownfield sites in and around Tolworth District Centre, including on the former Government offices, Toby Jug and Marshall House site
Policy TI	Policy TI identifies Tolworth as a key area of change. It identifies a range of measures to promote its role of a District Centre including <ul style="list-style-type: none"> • the provision of a range of transport interventions along the A240 corridor – including addressing existing barriers across the A3 and Tolworth roundabout. • improve connections between leisure facilities/green spaces and housing • work with developers and landowners to provide a range of new homes
Tolworth Regeneration Strategy	
Key Issues	The strategy identifies the following challenges which are relevant to the scheme: <ul style="list-style-type: none"> • Dominance and adverse impact of the A3, A240 and Tolworth roundabout – traffic, congestion, noise, air pollution and severance • Poor quality environment and public realm along the A240 (Ewell Road, Tolworth Broadway, Kingston Road) corridor • Poor connections and crossings for pedestrians and cyclists across the A3/Tolworth roundabout and Tolworth Broadway (due to subways/central barrier)
Key Opportunities	The strategy identifies the following opportunities which are relevant to the scheme: <ul style="list-style-type: none"> • Promote and manage development and improvement opportunities (9 sites identified south of the A3) to secure high quality new development to enrich the mix of attractions, provide new homes and enhance the environment
RB Kingston Local Implementation Plan 2 (2011 – 2031)	
Theme B	Seeks to promote and enhance public transport, walking, and cycling as transport modes; particularly for people accessing employment, education, and shopping activities within RBK
Theme C	Seeks to create safer communities and a safer transport network by: <ul style="list-style-type: none"> • Reducing serious injuries and deaths on RBK's transport network

Theme D	Seeks to Improve transport opportunities and enhance the quality of life for all RBK residents by: <ul style="list-style-type: none"> • improving pedestrian and cycling permeability and connectivity throughout RBK; • improving air quality and reduce impacts of noise and vibration from transport; • improving transports contribution to health and wellbeing
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Key Finding

The scheme would make a positive contribution to a number of local objectives. In particular it would help promote and enhance the walking and cycling as transport nodes as well as address specific challenges to the wider development and regeneration of Tolworth as identified within the local policy framework.

Stakeholders

There are a number of key stakeholders who have an interest in the project

315. Table 6 outlines the main stakeholder groups that will be involved with or interested in the project.

Table 6 – Summary of main stakeholder groups

Stakeholder	Description
Affected boroughs: RB Kingston	<ul style="list-style-type: none"> • Local authority, protecting interests of residents and local businesses • Responsible for design review/approvals, and reviewing the impact on local residents • Responsible for wider development activities.
Borough councillors and MPs	<ul style="list-style-type: none"> • Protecting policy and constituent interests
Greater London Authority (GLA)	<ul style="list-style-type: none"> • Statutory planning authority, protecting interests of Londoners and policy interest
Deputy Mayor for Transport	<ul style="list-style-type: none"> • Providing policy advice and direction, setting priorities and taking decisions relating to transport issues on behalf of the Mayor
HM Treasury	<ul style="list-style-type: none"> • Maintaining control over public spending, setting the direction of economic policy
Department for Transport (DfT)	<ul style="list-style-type: none"> • Setting national policy for transport
Other TfL Projects	<ul style="list-style-type: none"> • Interests with other TfL projects in the local area, ensuring that interdependencies are managed effectively and project delivery is not compromised.
Local Communities	<ul style="list-style-type: none"> • Local interest in scheme benefits and impacts

316. To date, TfL has engaged the local Borough and other TfL project teams in the development of the scheme. There will be ongoing liaison with these stakeholders and others identified in the above table as the project progresses. As the programme advances, the stakeholders engaged are likely to expand considerably, including the public. Accordingly, the Stakeholder Management Plan is subject to ongoing review. Affected boroughs will continue to be updated regularly by the project team.

Constraints

There are a number of constraints which may have a bearing on the scheme

317. There are a number of constraints which may have a bearing on the scheme under consideration. These are summarised in Table 7. Suitable mitigation measures have been identified for each constraint and in some cases have been resolved. None of the constraints identified at this stage represent an insurmountable challenge. TfL is confident that they could be sufficiently addressed through suitable design and ongoing engagement with key stakeholders.

Table 7 – Summary of constraints identified

Constraint	Type of constraint	Description / issue	Potential mitigation
Required headroom under deck	Cost	Other utilities may require a greater head height for the deck than is currently planned. This could impact on scheme design, length and cost of construction.	Develop better understanding of all operational requirements during next development phase.
Acquisition of properties	Land take	Scheme will involve temporary and permanent acquisition of residential properties	Working closely with RB Kingston and local residents to minimise impact on residents and those affected by the scheme.
Impact on A3 traffic during construction	Construction	Risk that disruption to traffic on SRN is unmanageable during construction.	Use best practice to understand innovative construction techniques. Careful traffic management and diversions will be required to ensure delays and disruption are minimised.
Proposed masterplan	Planning	No formal consent for number of dwellings/construction as outlined in	Working closely with RB Kingston, GLA and other

layout		masterplan. Known development interest in identified sites whom may bring forward applications before scheme implementation.	stakeholders to agree way forward and safeguard opportunities where possible.
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Inter-dependencies

There are a number of dependencies with other work streams that will need to be integrated with the timely delivery of a decking solution at Tolworth.

318. Interdependencies identified include:

- Investment has already been made in providing a Greenway along the A240 corridor between Tolworth station and Tolworth Broadway. It is necessary to ensure that the risk for abortive work is minimised and that the decking scheme complements existing measures as much as possible.
- There are a number of identified development sites within the vicinity of the proposed decking and within the masterplanned area expected to come forward in the near future. It is necessary to ensure that, where possible, these developments would not impact upon the deliverability of the decking scheme and where possible would safeguard wider benefits of the scheme – including increased development capacities.
- Crossrail 2 is planned to be delivered by 2030. It is essential that the decking scheme fully supports the wider objectives of the Crossrail 2 project, including the need to stimulate residential and commercial development, by helping to increasing the density of the development opportunities that exist on the south side of the A3, and to remove cars from the road network, by providing high-quality routes to Tolworth station by public transport, bicycle and on foot.

STRATEGIC CASE SUMMARY

The key points arising from the Strategic Case can be summarised as:

- London is a key driver of the UK’s economic growth. Its success benefits the UK as a whole, but this cannot be taken for granted
- Central London’s future employment growth depends on having an increased labour supply, but the city faces significant housing and space pressures, exacerbated by a growing population,

- London must unlock more development opportunities to support delivery of new housing and jobs
- There has been extensive recent investment in rail public transport, but similar levels of investment have not been made to the road network in London
- The A3 decking scheme can support the delivery of additional homes by supporting the regeneration of Tolworth and helping to unlock key development opportunities south of the A3. The scale of development benefits is much greater if considered within the context of the delivery of Crossrail 2.
- The scheme would unlock growth by tackling the problems of poor connectivity, urban realm and environment which currently negatively affect quality of life
- There is support for the A3 decking scheme, and the scheme conforms to policy at all levels, helping to secure London and the UK's continued prosperity.

3. The Economic Case

Section summary:

This section outlines the economic analysis regarding the proposed scheme. As stated in the Strategic Case, although the traditional WebTAG transport benefits have been quantified, decking over the A3 is not primarily a transport scheme but an urban regeneration scheme. Therefore it is against these wider regeneration criteria that the scheme should be judged rather than on the narrow benefit-cost ratio (BCR).

In regeneration terms the A3 decking scheme performs well, unlocking significant economic benefits locally and for London, including new jobs and much needed housing, particularly in the context of Crossrail 2.

Options Appraised

319. The option appraised for this scheme is the level decking over the existing underpass to the south side of the A3 Tolworth junction with the A240. The A3 itself will have to be lowered slightly to conform to industry standards of a minimum headroom. The decking itself could accommodate a variety of uses in terms of local roads or a linear park. The scheme has been assessed compared to a base case (“do nothing”) and the benefits and costs are calculated in terms of changes from this base case.
320. For this economic case, development related to the scheme has been assumed to apply only to the development opportunities immediately adjacent to the southern side of the A3 (the Toby Jug/MoD site). As discussed in the Strategic Case, this scheme will play a vital role in enabling the delivery of up to 8,000 homes and 60,000sqm of commercial floorspace that would be stimulated in a wider area by the construction of Crossrail 2. At present, given the various synergies between Crossrail 2 and the decking over of the A3, caution should be taken in assessing how many of these homes and additional jobs would be attributable to Crossrail 2 and how many to this scheme. To avoid double-counting development for both this scheme and Crossrail 2, a conservative approach has been adopted in this case to consider just the site immediately adjacent to the deck and not consider the wider opportunities south of the A3. This leads to much more modest forecasts of development attributable to this scheme than may in fact be the case.
321. In a without Crossrail 2 scenario, the decking scheme is forecast to enable the delivery of 848 new dwellings(gross). In a with Crossrail 2 scenario, taking a conservative approach, the proportion of the 8,000 homes that could be attributable to the decking rather than Crossrail 2 is of the order of 1,400 homes (gross).

322. Further work will seek to identify the level of development directly attributable to this decking scheme, and this will be incorporated into future versions of this Economic Case.

Modelling Approach & Assumptions

DfT transport appraisal guidance (WebTAG) has been followed

323. A cost-benefit analysis has been undertaken to assess the scheme's value for money in transport terms. That is, the monetised benefits are weighed against the costs of the scheme to form a Benefit Cost Ratio (BCR) which quantifies the benefit for each £1 of cost. Therefore a ratio that is greater than one suggests the scheme would represent value for money.
324. TUBA is a DfT modelling appraisal tool used to compute an appraisal of road transport schemes. Comparing the base (or do nothing scenario) to the scheme, TUBA assesses the difference in costs and travel time by journey purpose as well as change in fuel costs and CO2 emissions.. The demand matrices used for this analysis are consistent with the LTS forecasts of transport growth, which assumes zero percentage growth in traffic.
325. WebTAG also outlines approaches to social and environmental aspects of an appraisal. This includes aspects such as severance and journey quality, as well as noise and air quality. This economic analysis focuses on severance and noise reduction associated with the intervention as these impacts are deemed to be the most important.

TUBA Analysis

Purpose of this section:

This section explores both transport road user and non-road user benefits in terms of travel time savings. TUBA is the software that should be used to appraise the transport benefits and costs of transport schemes. It is compliant with DfT's WebTAG by implementing a willingness-to-pay approach to economic appraisal for multi-modal schemes with a fixed or variable demand. It does not include appraisal of the significant non-transport benefits that the decking scheme (with Crossrail 2 would deliver such as enabling growth and regeneration.

326. General Assumptions for the proposed scheme are as follows:
- Scheme opening year: 2030
 - Appraisal period, 60 years
 - Periods appraised: AM and PM peaks
 - Model years: 2031 and 2041
 - Price base and base year for discounting , 2010

- Discount rate 3.5% for 30 years from current year then 3% thereafter
- 2031 demand matrix held constant in 2041
- Road demand growth, 0% in line with the low LTS scenario
- Development scenario: housing development of 848 homes is included in the model
- Construction start date: 2026

327. The costs used for the PVC below relate only to the construction cost but do not include costs of any travel disruption during the construction period.

Table 8 demonstrates the proposed scheme is poor value for money if judged solely on the basis of transport user benefits

328. Results of the TUBA analysis are shown in Table 8. The present value of benefits (PVB) is estimated to be just less than £18m (£22m with TfL Values of Time) and the present value cost (PVC) is expected to be nearly £120m (2010 discounted prices). The results give a negative NPV suggesting the costs outweigh any potential benefits. All consumers (commuting, other and business) are expected to receive a positive benefit in terms of time saving. Business users are expected to see the highest benefit over the scheme's lifetime.

329. The negative NPV arises largely because it includes trips generated by the 848 (gross) new homes unlocked by the scheme on the Toby Jub/MoD site adjacent to the A3 (and is based on a 'without Crossrail 2' scenario), which would include additional highway trips, which would increase journey times using the A3/ A240 roundabout. The do-nothing case in this model assumes no development on this site. However, in practice without the decking scheme, it is probable that this land would come forward for development, although at lower densities. This site could potentially accommodate 774 housing units without the decking or Crossrail 2 (see Table 2), which would generate additional highway trips and lengthen journey times.

330. The costs of the schemes include land acquisition costs for the decking which are assumed to occur in the year before start of construction. This includes CPO land take requirement in respect of land required to the east of Hook Rise South where it is assumed that a planning application for a high rise residential development scheduled for early 2016 would be completed by the time of construction.

Table 8 – TUBA headline results

	2010 prices and values (£'000s)	
	DfT Value of Time	TfL Value of Time
Economic efficiency: Consumer users (commuting)	6,183	8,531
Economic efficiency: Consumer users (other)	2,784	3,623
Economic efficiency: Business users & providers	9,980	11,422
Wider public finances	-1,378	-1,378
Present Value Benefits (PVB) ³⁷	17,569	22,198
Present Value Costs (PVC)	119,645	119,645
Net Present Value (NPV)	-102,076	-97,447
Benefit Cost Ratio (BCR)	0.15	0.19

331. A BCR of 1.0 shows a project 'break-even' point where for every £1 invested in the scheme, there is £1 of benefits received. The BCR shown in Table 8 shows a positive BCR, indicating the scheme delivers benefits, but that, in these terms, the benefits are obtained at a poor value relative to the cost spent to obtain them. However the purpose of the decking scheme is to help enable growth rather than deliver benefits for transport users.

Table 9 demonstrates that the scheme does not significantly impact upon journey times

332. TUBA results can be analysed in terms of the distribution of time saved. The distribution of time savings by time saved per trip is displayed in Table 8. Of the positive values (time saving benefits) 89% are within the zero to two minute time frame. Of those saving time, car business users are seen to receive the highest benefit. Of those increasing travel time (negative benefits) 95% are within the 0 to -2 minute time frame, suggesting that the Tolworth scheme does not impact travel time significantly. This result makes sense given the road alignment is not changed greatly.

³⁷ Greenhouse gas emission benefits and costs have been excluded from the PVB as WEBTAG Unit A3. Environmental Impact Appraisal requires that all 8760 hours of the year are represented in the analysis. The traffic modelling undertaken models a one hour time slice in each of the AM, IP and PM weekday peak periods.

Table 9 – Distribution of time savings by user class

	Time benefits £'000s					
	<-5 mins	-5 to -2 mins	-2 to 0 mins	0 to 2 mins	2 to 5 mins	>5 mins
Car- business	-1,786	-5,540	-117,296	110,674	8,511	3,768
Car – commuting	-687	-2,037	-44,536	46,548	4,984	1,732
Car – other	-1,633	-3,057	-85,072	81,725	7,390	3,511
LGV	-665	-1,098	-58,568	59,113	3,378	2,116
OGV	-198	-582	-13,481	13,727	1,244	372
Total	-4,969	-12,314	-318,953	311,787	25,507	11,499
Percentage of total	1%	4%	95%	89%	7%	3%

Table 10 shows that journey time saving benefits for both those undertaking short journeys and for strategic traffic undertaking longer journeys

333. Table 10 shows the distribution of time savings by distance travelled and user class. Local traffic not travelling very far (less than 5km) show negative benefits while the strategic traffic (those within the 10-50km range) show positive benefits.

Table 10 – Distribution of time savings by distance travelled and user class

	Time benefits £'000s							
	<1km	1-5km	5-10km	10-15km	15-20km	20-50km	50-100km	>100km
Car – business	-928	-5,308	-1,017	2,547	1,388	428	766	454
Car – commuting	107	1,405	1,341	1,836	803	-29	391	150
Car – other	-92	-2,036	-669	2,255	1,381	559	954	511
LGV	-2,956	-1,011	1,864	1,678	1,278	2,110	1,010	304
OGV	-128	-382	213	494	481	717	18	-334
Total	-3,997	-7,332	1,732	8,810	5,331	3,785	3,139	1,085
Proportion	35%	65%	7%	37%	22%	16%	13%	5%

Summary of TUBA benefit analyses

334. The Present Value of Benefits relating to the provision of over-decking at Tolworth with a development scenario bringing forward 848 homes is £18m (£22m with TfL VoT). The journey time savings illustrated in Table 9 show marginal time savings mostly between 0 to 2 minutes (89% of positive benefits). This is as expected given that the scheme is primarily designed to maintain, rather than improve, existing conditions for road vehicles.
335. This benefit is due to the accompanying highway infrastructure for the development which includes a two-way site 'through' road connecting the A240 to the A3 at a signalised junction at the southwestern end of the deck. This has the effect of reducing travel times and distances travelled for westbound traffic from the development and for existing traffic on the southeastern approach to the A3/A240 roundabout intending to head westbound on the A3.
336. However, these time savings are eroded by new signalised site access with both the A3 and A240 which increases delays for westbound traffic from the A3/A240 roundabout (with an origin from Tolworth Broadway) and increases delay for southbound A240 traffic compared to the existing situation. The additional trips generated to/from the development therefore results in a net effect of increasing delays on the network.
337. Table 11 is the Appraisal Summary Table for the Tolworth decking scheme.

The low scheme BCR does not include wider regeneration impacts brought forward by the scheme

338. The resulting BCR is 0.15 (0.19 with TfL VoT) which is "poor" value for money according to DfT VfM Assessment criteria. However, this BCR does not include the impacts of changes in land use and housing development brought forward by the scheme.

Key finding:

If traditional transport user benefits were considered in isolation, the A3 decking scheme would offer 'poor' value for money. However, given that the scheme's focus is on unlocking regeneration, the BCR is not an appropriate metric by which to judge the scheme.

Table 11 – Appraisal Summary Table – A3 Tolworth decking

Appraisal Summary Table		Date produced:	6	11	2015	Contact:		
Name of scheme:	Tolworth decking					Name		
Description of scheme:	Decking over the A3 at Tolworth to allow pedestrians to cross safely and to improve urban realm.					Organisation	TfL	
						Role	Promoter/Official	
Impacts	Summary of key impacts	Assessment						
		Quantitative			Qualitative	Monetary £(NPV)	Distributional 7-pt scale/ vulnerable grp	
Economy	Business users & transport providers	The Tolworth scheme shows more people experience a time benefit than a time saving. Most effects are within the -2 to 2 bracket, however suggesting that travel time does not alter significantly from the scheme.	Value of journey time changes(£)		£3,689,000	slight positive benefit	£9,980,000	
			Net journey time changes (£)					
			0 to 2min	2 to 5min	> 5min			
			-£5,831,000	£5,913,000	£3,607,000			
	Reliability impact on Business users	The scheme is not likely to impact reliability given the flow of traffic is not changed by the scheme				neutral	N/A	
	Regeneration	The scheme is unlikely to have significant regeneration impacts	20 net additional jobs and 130 homes at London-level; £24m GVA			positive	N/A	
	Wider Impacts	The scheme will unlock development south of the A3. The scheme will allow for a more dense development, however these effects are not included here				neutral	N/A	
Environmental	Noise	The scheme will have a beneficial impact on the noise levels for residents around the Tolworth Junction. By decking over the current fly-under noise pollution will be reduced for those residing near the A3. The impact of the noise level has been estimated using a basic noise level calculation. The reduction in noise provided by the tunnel is considered to be 10dB for dwellings close to the A3 and 5dB for dwellings further away. For the BCR, the base case is assumed the planned development work to the south of the A3 is completed	The scheme will lead to a reduction in noise from traffic (including HGVs) current development as base: £1,780,819 planned development as base: £10,509,878			slight beneficial	£10,509,878	
	Air Quality	An environmental assessment has not been carried out, however, the scheme is not expected to impact air quality levels.				neutral	N/A	
	Greenhouse gases	Not able to estimate as TUBA is only run for peak periods and not for all 8760 hours of the year. The scheme is not likely to affect greenhouse gas emissions	Change in non-traded carbon over 60y			neutral	N/A	
			Change in traded carbon over 60y (CO2e)					
	Landscape	The scheme will complement the current pattern of the landscape, being an urban strategic route. It incorporates measures to ensure the scheme is not visually intrusive and will bring slight positive benefits to the current level of tranquility				neutral	N/A	
	Townscape	The scheme fits well with the current layout and appearance of the townscape at Tolworth. The scheme incorporates environmental design measures on the decking to ensure an enhanced townscape character				slight beneficial	N/A	
	Historic Environment	The scheme does not impact on historic landscape				neutral	N/A	
	Biodiversity	The scheme does not really impact biodiversity - it may help slightly with the park planned on top of the decking but effects are likely to be minimal				neutral	N/A	
Water Environment	This scheme does not impact the water environment				neutral	N/A		
Social	Commuting and Other users	Overall commuter and other users will see a time saving benefit from the scheme. Most effects are within the 0 to 2 bracket suggesting that travel time does not alter significantly from the scheme.	Value of journey time changes(£)		£8,868,000	slight positive impact	£8,967,000	
			Net journey time changes (£)					
			0 to 2min	2 to 5min	> 5min			
			-£1,335,000	£7,280,000	£2,923,000			
		Reliability impact on Commuting and Other	The scheme is not likely to impact reliability given the flow of traffic is not changed by the scheme				neutral	N/A
		Physical activity	The scheme will not impact on physical activity to a large extent. It may encourage more walkers and cyclists as the journey will be more pleasant and safer				neutral	N/A
		Journey quality	The scheme is expected to bring either neutral/slightly beneficial benefits in terms of journey quality. Decking over the fly-under will improve the quality of journey for non-motorised transport				neutral/slight beneficial	N/A
		Accidents	The scheme is not likely to impact on accidents greatly. According to the latest LSOA data available, accidents are not significant in the Tolworth area				neutral	N/A
		Security	This scheme is not expected to have security impacts				neutral	N/A
		Access to services	The scheme is expected to bring slight positive impacts to access to services. With better connectivity between north and south of the A3, linking the hospital, residents and station at more frequent points along the A3 with safe crossing.				slight beneficial	N/A
	Affordability	This scheme is not expected to have affordability impacts				neutral	N/A	
	Severance	The scheme is expected to have moderately positive impacts on severance. Severance is a particular issue where the population affected are dependents: those being under the age of 16 or over the age of 65. The total population who live around Tolworth and who will see a reduction in severance is 1,833, of which 33% are of dependent age	1,833 residents located in and around Tolworth and are expected to experience reduced severance, of which 604 are of dependent age.			moderately beneficial	N/A	
	Option and non-use values	This scheme is not expected to have option & non-use value impacts				neutral	N/A	
Public Accounts	Cost to Broad Transport Budget						£119,645,000	
	Indirect Tax Revenues						-£1,378,000	

Supplementary Analysis - Net Additional Homes, Jobs and GVA unlocked

Purpose of this Section:

This section sets out the methodology and results of an approach which has been developed by TfL to assess the value of the additional jobs and houses unlocked by decking the A3 at Tolworth.

339. This section presents an overview of the additionality approach and its results. In order to maintain clarity, technical details are omitted. An additional **Technical Appendix** presents further information on various aspects: methodology, factors, assumptions, data sources, and detailed results.
340. As noted at the beginning of the Economic case, the development considered attributable to this scheme here is limited to those sites immediately adjacent to the southern side of the A3. The potential to influence development in a wider area south of the A3 is not considered in this Economic Case.

This approach has been developed to address a number of recommendations made in the TIEP report

341. This approach has been developed in light of emerging research, advice and discussion on the economic impacts of transport schemes, and in particular to fulfil some of the recommendations of the “Transport investment and economic performance” (TIEP)³⁸ report, commissioned by the Department for Transport (DfT) and published in October 2014.
342. The authors of the TIEP report sought to examine the “impacts of transport investments on economic performance with a view to informing the appraisal techniques that are used in project selection.”³⁹ Their final recommendations will inform future revisions of the DfT WebTAG appraisal guidelines.⁴⁰
343. TfL has developed this approach to specifically address 3 of the 7 recommendations of the TIEP report⁴¹:

³⁸ ‘Transport investment and economic performance’, Venables, Laird & Overman (2014). URL: <https://www.gov.uk/government/publications/transport-investment-and-economic-performance-tiep-report>

³⁹ Ibid, p. 9

⁴⁰ As outlined in ‘Understanding and valuing the impacts of transport investment: progress report (Dec 2014)’, Department for Transport (2014). URL: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/389960/understanding-and-valuing-the-impacts-of-transport-investment-progress-report-2014.pdf

⁴¹ Venables et al. (2014): pp. 62-63

- 1) Appraisal of larger projects should direct more attention to impacts on private sector investment decisions and associated changes in employment and economic activity.
- 2) Land-use change (and more general changes in the level and spatial distribution of private investment) should be estimated and reported in a wider range of projects.
- 3) In some circumstances it will be appropriate to produce estimates for a range of different scenarios concerning private sector responses and related government policies.

The approach to calculation of net additional homes and jobs and GVA impacts is in line with Government guidance

344. As a framework, this approach follows published guidance⁴² from the Homes and Communities Agency (HCA), and is consistent with both the HM Treasury 'Green Book'⁴³ and the '3Rs'⁴⁴ guidance published by the Department for Communities and Local Government (DCLG). In addition, Professor Peter Tyler, lead author of research into additionality for DCLG⁴⁵ and the Department of Business, Innovation and Skills (BIS)⁴⁶, has advised TfL throughout the development process.
345. Additionality is defined as "the net changes that are brought about over and above what would take place anyway."⁴⁷
346. This approach has been developed to estimate:
 - **Jobs** – the number of additional jobs unlocked by the scheme
 - **Homes** - the number of additional homes unlocked by the scheme
 - **GVA** - the value of the additional jobs unlocked by the scheme, in Gross Value Added (GVA) to London

⁴² 'Additionality Guide' 4th ed., Homes and Communities Agency (2014). URL:

https://cfa.homesandcommunities.co.uk/sites/default/files/aboutus/additionality_guide_2014_full.pdf

⁴³ 'The Green Book: appraisal and evaluation in central government', HM Treasury (2003, updated 2013). URL:

<https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>

⁴⁴ 'Assessing the impacts of spatial interventions: regeneration, renewal and regional development', Office of the Deputy Prime Minister (2004). URL:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/191509/Regeneration_renewal_and_regional_development.pdf

⁴⁵ 'Valuing the benefits of regeneration', Tyler et al. (2010). URL:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6382/1795633.pdf

⁴⁶ 'Research to improve the assessment of additionality', Tyler et al. (2009). URL:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/191512/Research_to_improve_the_assessment_of_additionality.pdf

⁴⁷ HCA (2014): p. 3

347. It is important to note that the estimates presented in this section are assessments of additional impact at the regional (London) level. They represent the additional impact of the scheme across London; although it is important to consider possible scheme impacts outside London, they have not been included in the additionality results.
348. The key components of the methodology include the following:

Direct effects – an estimate of the overall impact of implementing a scheme, including immediate, consequential, and induced effects

Leakage effects – an estimate of the effects on those outside of the target area. These should be deducted from the direct effects at the assumed proportion of leakage for each case.

Displacement effects – an estimate of those impacts that are transferred from elsewhere within the target area. These should be deducted from the direct effects at the assumed proportion of displacement for each case.

Multiplier effects – activity associated with additional local income, local supplier purchases and longer term development, such as through supply chains and expenditure on other activity. These need to be added to the direct effects.

349. For the Tolworth decking project, the following options were assessed for additional impact:
- Reference case (or ‘deadweight’) – without both decking and Crossrail 2
 - Intervention Case (Option 1) – With decking but without Crossrail 2
 - Intervention Case (Option 2) – With both decking and Crossrail 2
350. These intervention options assume a scheme opening year of 2030. The employment impacts of a scheme are the sum of direct and indirect effects. Indirect employment effects, a product of the additional housing unlocked by the scheme, can be identified through two separate effects:
- **Enhanced connectivity**
 - (a) In areas where there is a relatively high demand for housing – e.g. most of London – the lack of new housing constrains the ability to generate higher employment densities than currently available. Therefore additional housing unlocked by a transport scheme provides dynamic benefits by enabling households to relocate closer to employment centres, or to enhanced transport links to access jobs. In line with research undertaken for DCLG⁴⁸, it

⁴⁸ Tyler et al. (2010)

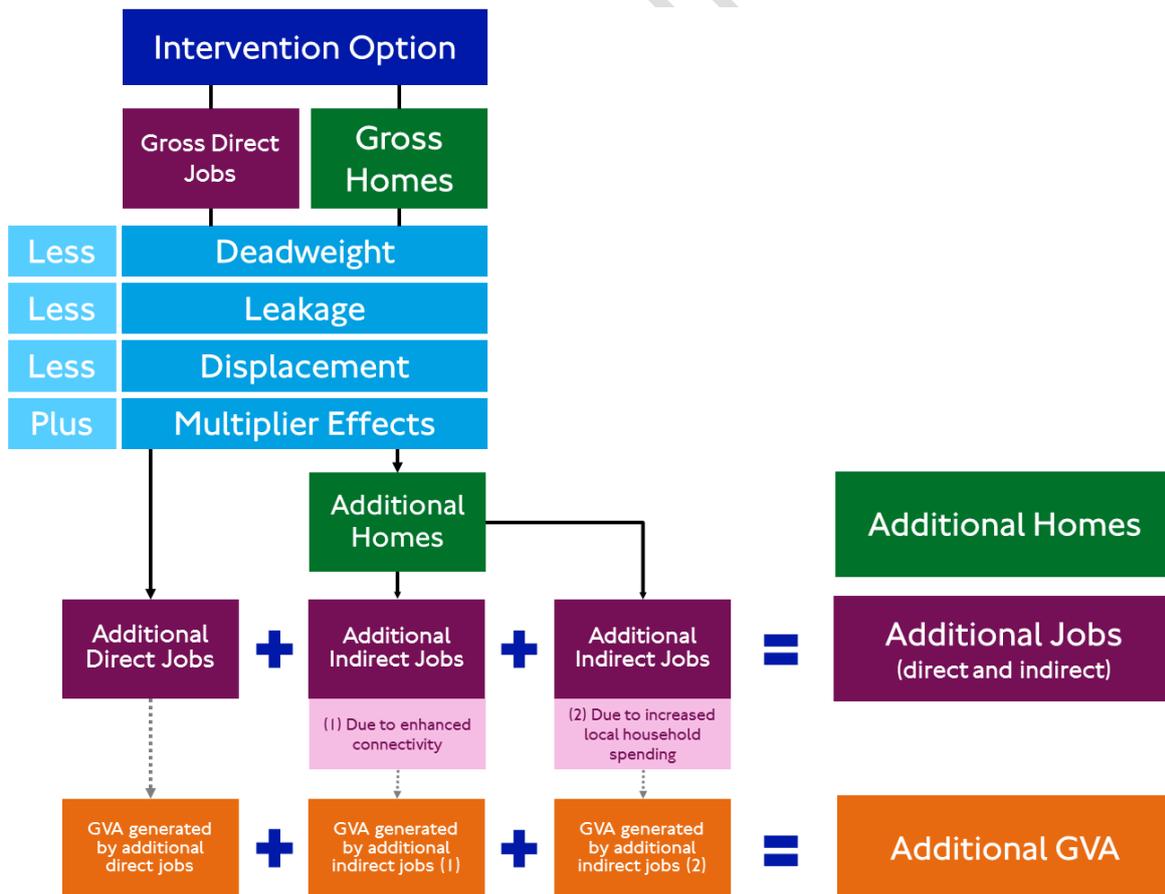
is assumed that 25% of additional housing generates additional indirect employment. For London, this is probably a conservative assumption.

- **Increased local household spending**
 - (a) Additional housing generates indirect jobs as a result of new households' spending on community, leisure and retail services in the local economy. Following a review of 2011 Census data for London, it is assumed that [250](#) [171](#) jobs are created for every 1,000 additional homes provided.

351. The value of the additional jobs unlocked by the scheme is assessed individually for each type of employment effect:
- GVA generated by additional direct jobs
 - GVA generated by additional indirect jobs sustained by additional housing (due to enhanced connectivity)
 - GVA generated by additional indirect jobs sustained by additional housing (due to increased local household spending)

352. The overall methodology of the approach is summarised in Figure 20.

Figure 20 – Summary of TfL additionality approach



Decking the A3 at Tolworth would deliver additional homes, jobs and GVA, and this effect would be greater if it is delivered alongside Crossrail 2

353. The results of the additionality approach, presented for each assessed intervention option, are summarised in Table 12, below:

Table 12 – Summary of additional impacts of decking the A3 at Tolworth (at London level)

<i>Development and Regeneration benefits of the decking scheme at Tolworth</i>	<i>Without Crossrail 2</i>	<i>With Crossrail 2</i>
Additional homes on MoD/Charrington Bowl site	35	62
Additional jobs (direct and indirect) resulting from MoD/Charrington Bowl site development	20	3635
GVA generated by additional jobs resulting from MoD/Charrington Bowl site development (direct and indirect) (£m PV)	£+813m	£32m21m
Additional potential Crossrail 2-related homes which decking scheme could help facilitate in a wider area*	N/A	Up to 8,000

* Not included in this Economic Case

354. As indicated in Table 12, decking the A3, alongside Crossrail 2, would unlock 62 additional homes. These would sustain 36-35 additional jobs, and would generate additional GVA for the London economy of £32m21m.

Public realm

Decking the A3 will deliver significant Public Realm benefits

355. The core aims of the Roads Task Force (RTF) seek to improve the quality of the city's public realm and transform the environment for cycling, walking and public transport. In recent years, exciting new places for city life have been created that deliver high quality cycling networks and re-imagined iconic streets with a safer, cleaner and greener walking environment. Public realm investments can enhance connectivity, attract more tourism and reduce severance amongst communities. Making cities more walkable reduces reliance on car, contributes to better health and stimulates more spending in district town centres.

TfL has applied a robust approach to quantifying the value of urban realm improvements

356. The monetary benefits of better open spaces for walking and cycling can be uncovered by analysing the traded prices of goods linked to public realm improvements (e.g. house prices, retail rents or Gross Value Added) or undertaking stated preference-based surveys which uncover the willingness to pay of non-traded goods (e.g. the value of better experiences on streets and in places). Table 13 illustrates some of the potential mechanisms through which better quality public realm is realised.

Table 13 – Mechanisms that capture benefits realisation of public realm improvements

Benefit	Valuation technique
Tourism, retail activity and inward investment	Higher tourism footfall, retail spending and inward investment in town centre
Walk/cycling time savings from improved local connectivity	Pedestrian time savings gained from reduced severance and increased permeability of surroundings
Health-related productivity benefits through reduced absenteeism	Valuation of net GVA gained through reduced absenteeism
Residential property prices and retail rents	Boost in prices observed in residential and commercial property markets
Reduced accidents and crime	Gain in welfare, economic output and decrease in medical, healthcare costs
Modal shift from car to public transport/cycling and walking	Reduction in fuel consumption, CO2 emissions and improved air quality from shift from private car to other modes
Noise reduction	Gain in social benefit modelled through revealed preferences techniques drawing on house price data
User experience	Gain in social benefit modelled through willingness-to-pay surveys for higher quality public realm

357. It is important to note that double-counting could arise if each of these benefits were added together. For example, a boost to house prices due to provision of quieter, safer open space will also partly capture the social benefits uncovered by a noise or accident assessment. A distinction can be made between aspects of better public space which result in a welfare gain as captured by time savings, higher house prices, enhanced user experience) and those which result in changes in economic output (higher investment and productivity).

Further work using the TfL Valuing Urban Realm Toolkit as a basis for quantifying public realm enhancements will be carried out as this business case is developed

358. For this study, it is proposed that future phases of work will quantify the benefits of greater quality public realm through use of the Valuing Urban Realm Toolkit (VURT) developed by TfL. This tool provides objective, evidence-based monetization techniques for less tangible benefits of better streets and spaces. The outputs of the VUR toolkit are as follows:
- User Benefits (the values people say they give to changes in urban realm quality)
 - Property benefits (increases in residential prices and retail rents)
359. The VURT derives monetised urban realm value of a scheme using the Pedestrian Environment Review System (PERS) which assesses the quality of the existing and proposed streetscape through a seven-point quality scale from -3 to +3. Research has been undertaken to derive robust 'Willingness-to-Pay' values for every minute spent in the urban environment for different levels of streetscape quality, as measured using PERS. Similar research has been undertaken to derive the impacts of a change in quality of streetscape on residential property prices and retail rents. However, the two measures should be reported separately as there would be 'double-counting' as enhanced experiences for local residents could also filter through into higher house prices and retail rents.
360. The VURT toolkit methodology follows a two-stage approach:
- **Pedestrian counts:** an initial day long count of pedestrian activity in the scheme area is undertaken to determine the peak period taken forward for analysis. Further PERS assessments and pedestrian activity counts are undertaken at a more local level to acknowledge the diverse character of streetscapes and footways within schemes. Counts are obtained for people walking and staying in public places (e.g. public seating, café tables etc.).
 - **Baseline and forecast PERS assessment:** the forecast scenario will have to be understood in sufficient level of detail to enable changes in certain dimensions to be accurately measured and for there to be clarity about, for example, the proposed location of street furniture, crossing points, light etc. Realistic scheme visualizations will also enable a rational assessment of some of the less tangible scheme attributes such as Personal Security and Quality of Environment.
361. The forecast scenario requires an assessment of the likely number of people using the urban environment under the scheme. TfL's London Walkability Model can be utilized as a tool to forecast changes in pedestrian density as a result of reduced severance.

TfL’s Better Junctions and Cycle Superhighways Study has shown there to be significant benefits of improving public realm

362. TfL’s Better Junctions and Cycle Superhighways Study has shown there to be significant benefits of improving public realm. For example, an East-West ‘Bike Crossrail’ for a sample section of Victoria Embankment between Northumberland Avenue and Savoy Street/Place was shown to generate £1.1m- £1.9m of user experience benefits over the lifetime of the scheme. Table 14 illustrates the magnitude of social benefits that can be achieved from schemes which have similar public realm improvements.

Table 14 – Better Junctions and Cycle Superhighways VUR modelled user experience benefits

Scheme	Present Value of User benefits (£m)
Victoria Embankment East-West ‘Bike Crossrail’	1.1-1.9
Old Street Superhighway City Hub	7.0-26.5
Ludgate Circus North-South ‘Bike Crossrail’	0.3-0.5

363. The above estimates illustrate the scale of user experience benefits as modelled by the VUR toolkit – the change in PERS attributes and the predicted volume of pedestrian activity over the lifetime of the scheme are the underlying drivers for the calculations.

A more detailed assessment of the urban realm benefits is expected to be undertaken should the scheme progress to the next stage of development.

364. Understanding the relative values of different PERS attributes can help direct design development in latter stages of the scheme. The Willingness-to-Pay values for different attributes are a reflection of the benefits that people appreciate, it is reasonable to focus on improving attributes that people value more highly than others.

365. The benefits of quality public realm can be monitored against policy objectives over the longer term, for example through performance indicators such as crime/accident statistics, London Travel Demand Survey (LTDS), town centre performance indicators, permanent pedestrian counter installations.

Severance

The A3 currently creates severance between Tolworth town centre and key destinations south of the A3

366. Severance is defined in WebTAG unit A4.1 section 5 as 'the separation of residents from facilities and services they use within their community, caused by substantial changes in transport infrastructure or by changes in traffic flows'. Severance is an issue where traffic flows impede pedestrian movement or when infrastructure presents a physical barrier to movement.
367. Currently it is very difficult for pedestrians to cross the A3 at any point between the Tolworth junction with the A240 and the previous junction to the south, with Hook Road. There is a subway level with Argent Court, a 10 minute walk south of Tolworth junction which gives rise to safety issues as pedestrians are unable to see both ends from any point in the underpass. On its approach to the junction with the A240, the A3 is a three-lane flyunder with a high central reservation and local traffic either side of the strategic route. Average annual daily traffic (AADT) figures suggest there are in excess of 112,000 flows in each direction on the A3 itself, 54,000 on Kingston Road and 29,000 on Tolworth Broadway. Heavy goods vehicles make up 3% of the AADT and there are six bus routes of which one is a night service. The Tolworth area is clearly a key artery for the road network of Greater London, however, with such heavy traffic flows it severs the community to north of the A3 from the future development planned to the south of the A3 (for example the Crossrail 2 station).
368. For pedestrians or cyclists to cross from one side of the A3 to the other, they are required to walk up to the Tolworth junction. The junction is a four-lane roundabout with signalised pedestrian crossings on the arms of the A240, approaching Tolworth roundabout. There is also a narrow footbridge which crosses over the middle of the roundabout joining the A240 north- and south-bound to accommodate pedestrians and cyclists.

Over 2,000 current and 8,000 future residents in the immediate area around the scheme would benefit from reduced severance

369. Severance is a particular issue where the population affected are dependents: those being under the age of 16 or over the age of 65 given their potential vulnerability. There is one lower super output area (LSOA) around the Tolworth Junction (the smallest geographical breakdown available) which sits in the Tolworth and Hook Rise ward. In 2012 in the LSOA a third of the population (33% or 604 out of 1,833 people) are dependent age which is a fairly high proportion.
370. In total nearly 2,000 current residents would be benefitting from reduced severance as a result of the scheme. In addition, all of the future residents of the development sites adjacent to the A3 (estimated to be 8,000 residents) would also benefit from the reduction in severance.

371. With entry points on to the decking along the A3, walking time to the new development planned for the south side of the A3 next to Tolworth station and Tolworth station itself, will fall substantially. The journey will also become possible to undertake in a safer environment. All severance will not be eradicated, however, as there will still be surface roads on the northern side of the deck for local traffic.
372. Based on this assessment, this suggests the decking scheme will bring moderate positive benefits in terms of reduction in severance for the local area.

Key finding:

Decking the A3 would reduce severance impacts for up to 2,000 current residents in the immediate area in and around the flyover as well as all of the 8,000 future residents of the proposed development sites identified alongside the A3.

Noise

The scheme will deliver a reduction in traffic noise, affecting up to 250 residents

373. A high level WebTAG compliant noise appraisal has been carried out to assess the benefits of the decking on local residents. The noise levels have been calculated from a Basic Noise Level (BNL) as described in the Calculation of Road Traffic Noise (CRTN) and the calculated noise levels have been corrected for distance, angle of view and screening. The angle of view correction has been based on the percentage of the route that has been covered by decking and not covered by decking (for the 'with scheme' scenario only).
374. The reduction in noise provided by the covered area is considered to be 10dB for dwellings close to the A3 and 5dB for dwellings farther from the A3. Only dwellings within 100m of the A3 are considered for this analysis. Only the traffic using the A3 was considered as the noise source and the same flow of traffic has been assumed for the opening and 15th year.
375. The noise analysis concluded that the covered area of the road network will cause a noticeable reduction in noise for those dwellings immediately alongside the A3 with the quantified results shown in Table 15.

Table 15 – Estimated noise appraisal results

Parameter	Value
Base case: Tolworth with current development	
Estimated population annoyed (base)	109
Estimate population annoyed (with-scheme)	77
Net noise annoyance change in 15 th year after opening (number of people)	-32
Net present value (60 year period)	£1,780,819
Base case: Tolworth with planned future development south of A3	
Estimated population annoyed (base)	852
Estimate population annoyed (with-scheme)	601
Net noise annoyance change in 15 th year after opening (number of people)	-251
Net present value (60 year period)	£10,509,878

Note: a positive NPV values and negative net noise annoyance figures denote a net benefit (i.e. noise reduction)

376. Overall the scheme, with the current development as base, is expected to reduce the number of people annoyed by 32, producing a net present value nearly £2 million (2010 discounted prices). Changing the base to include the current planned development to the south of the A3, the noise impacts increase significantly. The reduction of the number of people annoyed rises to 251 with an NPV of over £10m⁴⁹ (2010 discounted prices).
377. If these noise effects are incorporated into the BCR for the decking scheme as a whole, it rises to 0.27 (TfL value of time) or 0.23 (DfT value of time).
378. For dwellings further away and those near the decking portals, there will be some reduction in noise although not to the same degree as those residing near the decking. It is expected that night-time changes in noise would be similar to that of the daytime.

⁴⁹ Please note both the NPV from the noise appraisal WebTAG spreadsheet has been adjusted to incorporate income (GDHI) differences between the UK and LB Kingston, as outlined on page 11 of WebTAG Unit A3.

Key finding:

Removal of the flyover will deliver significant noise benefits, quantified at a net present value of £1.7m benefitting 32 residents in the immediate area in and around the scheme. If future development potential is taken account of, the NPV increases to £10.5m as a result of the scheme benefitting 250 residents.

ECONOMIC CASE SUMMARY

The key points arising from the Economic Case can therefore be summarised as:

- The A3 decking scheme delivers important benefits in terms of encouraging regeneration, jobs and much needed housing, unlocking economic benefits for London. This is potentially very significant in the context of maximising the benefits from Crossrail 2.
- WebTAG guidance requires the reporting of traditional transport BCRs. If traditional transport user benefits were to be considered in isolation, then this scheme would offer poor value for money.
- However, given that the focus of the scheme is on maximising wider development opportunities associated with Crossrail 2 and the regeneration of Tolworth, the BCR is not an appropriate metric by which to assess the scheme.

4. The Financial Case

Section summary:

The Financial Case sets out the project construction and ongoing operating costs, together with sources of possible financing and funding.

Due to the early stage of the project it is not possible to present an Estimated Final Cost (EFC) at this stage. Latest cost estimates suggest the scheme will cost approximately £170m to construct (2015 prices), including land acquisition costs at £33m.

Further study will be necessary to show the level of funding that could be raised from development-related sources. It is likely that government grant will need to make a contribution to the scheme's funding package.

Project costs

379. Indicative cost estimates (capital and operational) have been produced for the developed scheme. The cost estimates set out below were developed by CH2M Hill based on an engineering assessment.
380. Due to the early stage of the project, and the fact that some costs (such as for powers and procurement) remain unknown, it is not possible at this stage to present an Estimated Final Cost for the project.
381. Construction costs were based on costs derived in support of similar schemes and are factored to 2015 prices by applying an 'ALLCON - All Construction Tender Price Index' conversion. Operational costs are in 2015 prices.

Cost estimates suggest the project will cost around £170m.

382. The total construction cost for the decking scheme, including 66 percent optimism bias is approximately £170m, including CPO costs at approximately £33m (in 2015 prices), although further design work undertaken in future may see this figure revised. This figure includes design and supervision of works, concrete structures, excavation and utilities, and a risk allowance of 15% of total physical works. There may be up to an additional 20% in costs required for implementing wider traffic diversions and protecting existing residential properties / residents during the construction years.
383. The operational cost is estimated to be £0.8m per annum in 2015 prices, made up of routine and reactive maintenance and utility costs. It should be noted that this includes £0.3m to be spent on lifecycle costs only every 10 years.

Risk Allowance and Optimism Bias

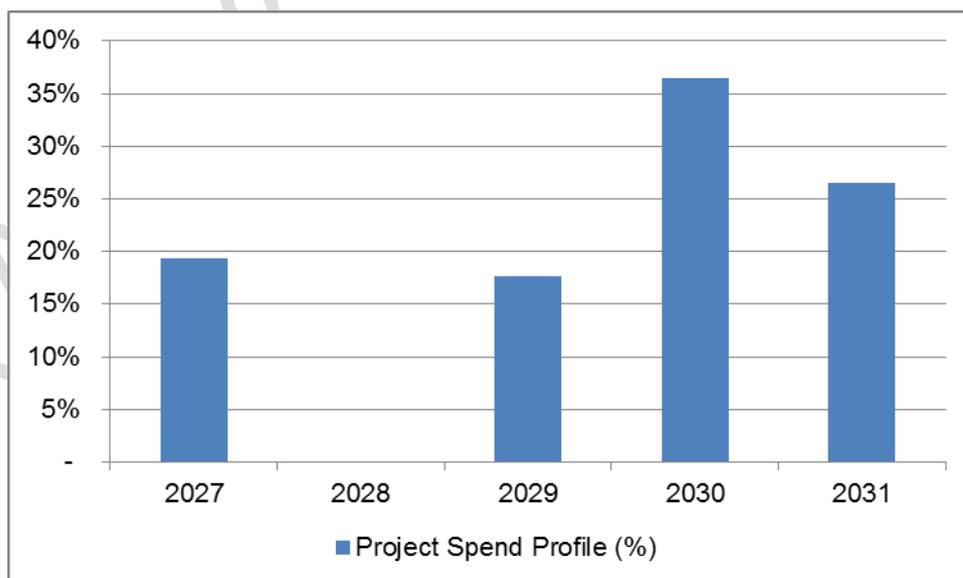
Engineering assessments have informed the development of the decking scheme

384. Engineering assessments have informed the development of the chosen option. The costs presented outline an estimate for construction including concrete structures, road works, excavation and utilities. 15% of total works and design and supervision costs is allocated as a risk contingency.
385. Optimism Bias has been applied to all constructions costs at a rate of 66% given the early stage of project development. This rate is expected to reduce as the schemes are taken forward and become better defined.
386. Detailed cost estimates will follow in future stages of the project once the final preferred option is decided and more detailed modelling and engineering work has been undertaken.

Spend Profile

387. The spend profile of the scheme is shown in Figure 21. As the project develops further, a more detailed estimate of construction programme and spend profile, to be used in future business case work, will be prepared.
388. At this stage of the project's planning, these costs are assumed to be borne directly by TfL, with funding to cover them having to come from a variety of sources. See Funding for more details.

Figure 21 – Tolworth decking construction spend profile



Funding

389. The following funding sources for this scheme have been considered:
- Funding from taxes on new development (incremental Borough Community Infrastructure Levy, business rates and stamp duty);
 - Funding from developing land directly on the schemes and additional land purchased around them;
 - Funding from taxes on existing residential development (council tax).
390. At this early stage of the scheme, sources of funding are only indicative. However, a funding package for the tunnel would need to come from a combination of sources.
391. Given the uncertainty over the number of new dwellings attributable to this scheme, it is difficult at this stage to give a reliable estimate of the amount of funding that could be raised from taxes on new development. As further work makes this issue clearer, so will the Financial Case be developed in greater detail.
392. It should be noted that potential funding sources such as borough CIL may be earmarked for funding Crossrail 2, and thus the amount of development-related funding available for this scheme in the context of Crossrail 2 may be consequently reduced.

Funding raised for the project from local sources is currently estimated to cover a small percentage of the construction cost.

393. Table 16 presents current estimates of the amount of funding as % of the project construction cost. It needs to be noted that this is based on the figures presented in the Economic Case that focused solely on the MoD/Charrington Bowl site, excluding the wider development opportunities that may come forward as a result of Crossrail 2. The amount of funding possible from this limited site is consequently small, but once wider development opportunities are better understood it is possible that more development-related funding may be identified.

Table 16 – Summary of funding sources explored

Availability	Option (based on 25% Affordable Housing)	£ m (NPV 2015/16)	% of Total Cost of £170m (2015/16 prices)
	Borough CIL	2.5	1.5%
	Voluntary Development Contributions	0	0%
	Stamp Duty from new development	3	2%
	Total Funding from Development	5.5	3.2%

 Funding option that could make contribution, subject to borough approval and relevant central Government policies carrying on

 Funding options that could make contribution, but require central Government support and/or face some implementation challenge

394. Other funding sources that TfL could consider are road user charging and council tax precept. At present however, these funding sources are not thought to be feasible, given the significant level of resistance that is likely to be shown by local residents and road users towards their implementation. It is possible however, that with time, feasibility of these funding options could alter.
395. Other means of covering tunnel costs, including partial government funding, will need to be considered. Given the unquantifiable benefits of the scheme in terms of improving urban realm and local connectivity while helping to provide desperately needed new housing, government contribution to the scheme may well be considered appropriate.

Key finding:

Further work to understand the amount of development stimulated by this scheme alongside Crossrail 2 will be necessary to identify the proportion of the scheme's costs that could be raised from development-related sources.

Financing

396. Depending on the level of development-related funding available for this scheme, there may be a mismatch between the timing of the project expenditure and when potential funding to pay for the project would come forward, given the majority of redevelopment would occur after the project is delivered. This would create a need to raise upfront finance, and there are a number of options available to TfL to do this. TfL could potentially use a privately financed solution to deliver the project. A privately financed solution would see the private sector take on the responsibilities for design, construction and other risks of the project, in return for a series of payments by TfL. The risk transfer to the private sector would however come at a higher financing cost. The level of the financing cost would be dependent on the appetite of the private sector for this type of project.
397. Alternatively, the public sector could borrow from a variety of sources. The public sector borrowing rate is usually lower than the private sector's. There is however some uncertainty associated with the funding sources that would be used to repay the borrowing and the amount of borrowing that the identified funding would support would need to be considered. This will be done in due course, as the project progresses.
398. Other financing options could include grant funding which is received from central and local government.

FINANCIAL CASE SUMMARY

The key points arising from the Financial Case can therefore be summarised as:

- Cost estimates suggest the Tolworth decking will cost around £170m to construct
- The project has significant interdependencies with the Crossrail 2 project, and a more thorough understanding of the relationship between the projects is necessary before a full funding package can be outlined.

DRAFT & CONFIDENTIAL

5. The Commercial Case

Section summary:

The Commercial Case provides details on the commercial structure, procurement approach, and accounting implications of the project.

TfL will apply its substantial experience of delivering complex highway projects to the procurement, funding and financing of the Tolworth decking scheme. TfL will also achieve efficiencies by delivering the Tolworth scheme within a wider programme of decking/tunnel projects. The project would support many jobs outside of London.

Procurement Strategy and Sourcing Options

399. The scheme is being promoted by TfL and will be developed through close working with RB Kingston who are closely engaged with the project.
400. TfL is responsible for the Transport for London Road Network (TLRN), which the A3 is part of. Changes to this key part of the road network could have an impact on the surrounding road network for which the local borough is the Highway Authority.
401. It is expected that the construction stage of the project would be led by TfL and, where involving infrastructure owned by other parties, such as the RB Kingston, will be delivered in partnership with these other organisations.

TfL has substantial experience of delivery of complex highway projects, which will be applied to the procurement, funding and financing of the Tolworth decking scheme

402. TfL is an experienced organisation, with a successful track record on procuring and managing highways improvement works (such as the recent completion of life extension works to the Hammersmith fly-over, the Cycle Superhighways programme, and the Chiswick Bridge refurbishment).
403. The procurement and construction of major infrastructure projects is also an area TfL has extensive experience in, with sub-surface construction works having been undertaken across a multitude of projects in constrained and heavily populated areas of London, such as Crossrail, DLR extensions, major station schemes such as King's Cross St Pancras and Green Park. All potential suppliers will be required to consider the Mayor of London's Responsible Procurement Policy in their bid as part of any Invitation to Tender (ITT) for the design and build contract.

TfL can achieve efficiencies by delivering the Tolworth scheme within a wider programme of decking/tunnel projects and linked into a wider highway capital investment programme

404. TfL is undertaking and proposing a range of large capital infrastructure projects that involve procurement of skills and services that will all be highly relevant to the A3 decking. For example, the Cycle Superhighways and Better Junctions programmes have led to an increase in skills associated with large-scale highway engineering and construction traffic management.
405. The A3 Tolworth decking is being proposed as part of a wider programme of Roads Task Force (RTF) tunnels and decking at a range of locations throughout London, arising from the 2013 recommendations published by the RTF. If these projects are progressed, some significant economies and efficiencies could be achieved through co-ordination of delivery with the decking at Tolworth.
406. TfL will also seek to incorporate best practice from Highways England's own highways works and approaches to procurement given the larger volume of capital infrastructure works the agency undertakes across the country.

In addition to internal staff, consultancy support will be required to support future scheme development and consents process

407. It is anticipated that consultancy support will be required in the following areas:
 - Legal
 - Environmental Impact Assessment
 - Engineering
 - Transport Planning
 - Planning and Socio Economics
 - Architecture and Urban Design
 - Cost Estimating
 - Property Surveyors/Land referencing

Construction and Operations

408. As the scheme progresses and further details concerning the design of the deck are determined, a procurement strategy will be developed which can incorporate the necessary design aspects, the operation and management approach, and the funding and financing approach to the scheme given the potential sources of funding as covered in the Financial Case. The risks associated with each element will be a consideration in the approach taken to procuring both construction and maintenance work on the deck.
409. Dependent on the form of contract, an assessment of the likely accounting treatment of any commercial structure under ESA95/10 would need to be undertaken to

determine whether the project is likely to be treated as “off budget” and therefore whether liabilities would score towards TfL’s borrowing.

Methods for the mitigation of construction impacts will be investigated

410. TfL has extensive experience of developing and delivering Traffic Management Plans. As part of the TLRN, the A3 will continue to ultimately be managed by TfL, acting as the client on any subsequent procurement of operations and maintenance contracts that could be let.
411. Further consideration will need to be given to the management of the new open space created by this scheme, the day to day management of which could be passed to RB Kingston, but with maintenance privileges for the underground section of the A3 to be retained.
412. An EU-compliant procurement route following the Competitive Dialogue procedure, under the Public Contracts Regulations 2006, can be adopted to enable TfL to obtain certainty that the Contractor is capable of developing a compliant design.
413. Throughout a procurement process for both construction and operations / maintenance, TfL would undertake bi-lateral discussions with selected Contractors to seek views on the proposed procurement route, contract form and risk allocation. In addition, legal resource would be procured to provide commercial advice and contract drafting support, whilst Insurance advice would enable determination of the most cost-effective means of insuring risk during construction and operations.
414. As a public body, TfL has to meet the requirements of the Mayor of London’s Responsible Procurement Policy consisting of the following themes:
 - Environmental Sustainability
 - Supplier Diversity
 - Community Benefits
 - Skills and Employment
 - Sustainable Freight
 - Fair Employment
 - Ethical Sourcing
415. In compliance with the Mayor’s responsible procurement policy, all potential suppliers will be asked to consider these elements in their bid as part of the Invitation to Tender (ITT) for any future project support or the design and build contract. Each appointed consultant or contractor will be subject to a supplier performance plan.

TfL utilises supply chains from across the UK – work on this scheme would support jobs outside of London

416. Although TfL undertakes procurement for projects implemented in the capital, the wider benefits to the UK are extensive, with over 60,000 jobs estimated to be supported by services TfL procures from outside of London. The construction of the

Tolworth deck would add to the pipeline of capital investment that supports jobs across the UK.

417. The procurement strategy for this stage of the project will be refined and improved as the scheme is further developed.

COMMERCIAL CASE SUMMARY

The key points arising from the Commercial Case can therefore be summarised as:

- TfL has substantial experience of delivery of complex highway projects, which will be applied to the procurement, funding and financing of the Tolworth deck
- TfL can achieve efficiencies by delivering this scheme within a wider programme of decking and tunnel projects and linked into a wider highway capital investment programme
- TfL utilises supply chains from across the UK – work for this scheme would support many jobs outside of London

6. The Management Case

Section summary:

The purpose of the Management Case is to assess whether a proposal is deliverable. It reviews evidence from similar projects, sets out the project planning, governance structure, risk management, communications and stakeholder management, benefits realisation and assurance.

Evidence of similar projects

TfL will make full use of best practice within the company and from industry

418. TfL has extensive experience in developing, promoting and implementing significant infrastructure projects and securing necessary consents required.
419. This ranges from modifications to existing infrastructure (such as repairs to the A4 Hammersmith flyover, modernisation of the London Underground, extensions to Tramlink and DLR) to major schemes such as Crossrail. TfL also has demonstrable experience in delivering major road junction improvements, pedestrian and cycle schemes, and wider public realm improvements. These projects share similarities to the A3 Tolworth decking scheme, involving processes and aspects of design and construction which would be faced by this scheme. TfL will continue to actively incorporate best practice and experience from these schemes into the development of this project.
420. With a range of highway and public realm improvements identified within the current Business Plan, this experience will have been furthered by the time consent stage for this project is reached and will be transferrable to this scheme. If necessary, additional support and advice from experienced promoters of major highway schemes and operators of similar projects can be sought. This could include for example Highways England and other urban transport agencies.
421. The Tolworth decking project is part of the wider Roads Task Force programme sponsored by the Managing Director of TfL Planning. There are a number of programme linkages with other schemes being taken forward as part of the RTF Key Corridor Interventions Programme, which will present opportunities to share best practice as these schemes progress.

Linkages

The A3 decking scheme has a link with the existing investment made in improving access for non-motorised users and is also integral to maximising the opportunities associated with Crossrail 2.

422. As set out in Section 2, investment has already taken place around the A3 and its junction with the A240 to encourage the uptake of cycle and pedestrian movements. Whilst successful, it has done little to encourage further investment into sites south of the A3 at Tolworth, and the proposed scheme presents a significant opportunity to build on this initial investment to further improve the environmental quality and attractiveness of Tolworth as a place to invest.
423. It has also been identified that decking the A3 at Tolworth has a close link and interrelationship with the delivery of Crossrail 2 on the south west branch lines. Though the projects would be taken forward separately and Crossrail 2 does not depend upon this scheme, the case for decking the A3 at Tolworth is much stronger if Crossrail 2 is built and serves Tolworth. Given the importance of the decking scheme in helping to unlock development and maximise the benefits from Crossrail 2, opportunities to bring forward the decking scheme ahead of Crossrail 2 should be considered so that early private sector investment around a future Crossrail 2 station at Tolworth can be captured.

Key project assumptions

424. It is currently assumed that sufficient funding is available to support the planning and development stages of the project up to securing the necessary powers. TfL does not have a budget for the main design and build costs, but as identified in Section 4, there are a number of potential funding sources. Further work is ongoing to identify the optimal funding solution for the scheme.
425. It is assumed that the land for the proposed route can be acquired through the Planning and Compulsory Purchase Act (2004).

Project risk

426. As the scheme is further developed, more detailed plans will be developed and will be subject to further assurance and project controls, including a Quantified Risk Assessment to further improve forecast costs and the economic appraisal.
427. At this early stage of design, some aspects carry a high risk and hence the optimism bias of 66% for a non-standard civil engineering project has been applied. A quantified risk assessment (QRA) will be undertaken should the scheme be progressed, in order

to provide more certainty on costs. Following submission of this business case, TfL will liaise with the Treasury / DfT to update the forecast costs following the completion of the QRA, and to agree a new working assumption on the level of optimism bias to continue to apply in future scheme appraisal.

In general, TfL considers the scheme relatively standard given the company's extensive experience

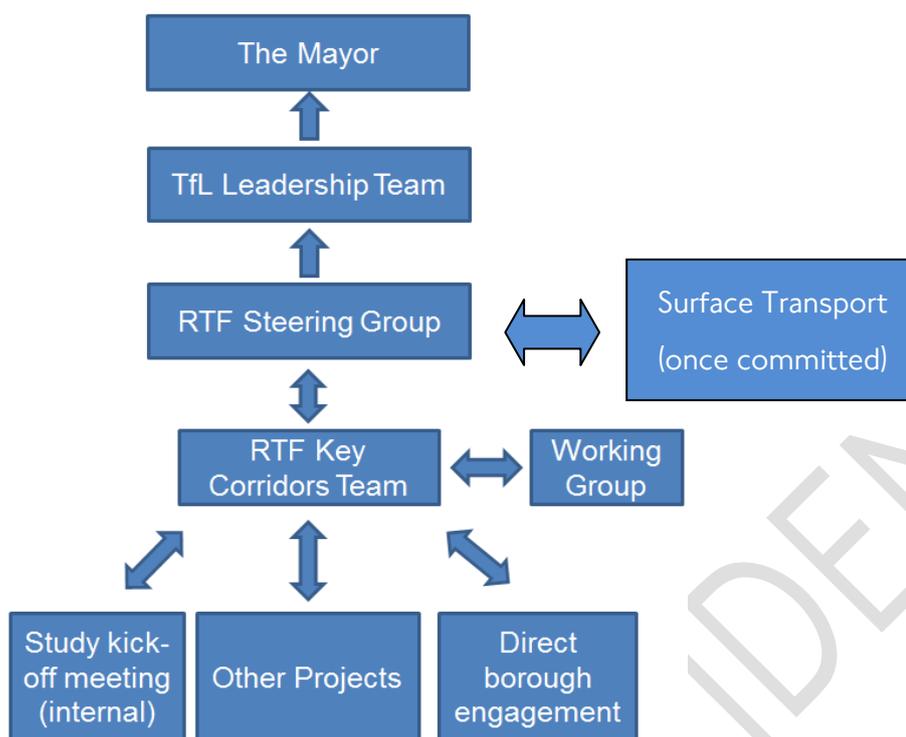
428. This experience includes planning, procuring and constructing large-scale infrastructure projects, such as the Cycle Superhighways, the Northern line extension and Crossrail. The design and construction of these schemes has provided a wealth of contemporary and relevant comparators against which to benchmark, helping to guide proposed construction approaches for this scheme.

Governance, organisational structure and roles

Internal governance

429. Decking of the A3 at Tolworth is part of the Roads Task Force Key Corridor Intervention Programme (Figure 22). The programme is overseen by the RTF Steering Group, which is made up of representatives from across the organisation and the TfL Leadership Team. Once the scheme is finalised and becomes committed, responsibility for its delivery will be overseen by TfL Surface Transport.
430. As part of future scheme development, an Independent Peer Review Group (IPRG) may be established to provide independent expert scrutiny of the Tolworth project. An IPRG would remain in place to undertake reviews on technical and engineering matters at key stages during the design, procurement and delivery of the project.

Figure 22 – RTF internal governance structure



Programme/Project Plan

431. Some key future milestones for the project are shown in Table 17 below.

Table 17 – Key project development milestones

Milestone Description	Date
Further feasibility – scheme development, modelling, construction methodology, finance and funding options	2015 -2016
Planning, Design, Approval and Procurement	2016 -2025
Construction and Testing	2025 – 2031
Operation	2031

Assurance and approvals plan

A comprehensive and robust project management framework will be applied, helping to ensure scope, cost and benefits are controlled

432. The assurance and approvals process will follow TfL’s established project assurance procedures which include assurance at three levels: internal, Programme Management Office (PMO) and external.

433. TfL uses a number of mechanisms to improve the management of its major projects in order to help ensure the objectives and benefits of a scheme at inception are realised following implementation. TfL's project management framework, known as 'Pathway', provides consistency in approach and the tools required for planning and delivery teams, whilst retaining flexibility in its application to manage and control a project. Embedded into Pathway is a delivery assurance process using stage gates, upon which TfL utilises industry-leading external expertise to review and challenge all aspects of the project.
434. The number and timing of the stage gates are established by the delivery organisation, based on guidance in Pathway, and informed by a characterisation tool that considers such things as scale, complexity, novelty, project team experience and the strategic importance of the project. A number of Products are required to be completed to provide evidence at the stage gate that the project is fit to proceed to the next stage.
435. Products are outputs that are signed off by authorised individuals, and include such documents as project execution plans, risk management plans, project estimates and design compliance certificates
436. Underlying these stage gates are a number of assurance activities conducted by both TfL and the suppliers and include activities such as design reviews, safety assessments, risk reviews, commercial assessments, estimate validation, material testing, site inspections and product testing.

Rigorous assurance processes will provide close scrutiny and challenge of risk management and decision-making throughout the project

437. The PMO is part of TfL but is not accountable for delivery. These reviews are typically Integrated Assurance Reviews (IAR), staffed by a combination of PMO staff, consultant external experts (EE) or peer groups from outside the delivery organisation.
438. The EEs are selected on the basis of their relevant experience and suitability to the project under review. Each review is covered by a Terms of Reference that sets the scope and the brief to the EE, who is procured from a TfL consultancy framework. The Terms of Reference is based on the Pathway IAR Lines of Enquiry, aimed at generating a comprehensive review. Each Line of Enquiry includes up to 20 detailed challenges, devised to match the maturity of the project at its particular point in its lifecycle.
439. The Lines of Enquiry were developed as part of the Corporate Gateway Approval Process (CGAP) in 2008, following a comprehensive benchmarking process that assessed the assurance regimes in other organisations and the Office of 3 Government Commerce who produced gateway processes and guidance (now part of the Cabinet Office). Some additions have been made since 2008, including more explicit challenges covering cost benchmarking following consultation with IIPAG.

440. The IAR report is considered by appropriate bodies prior to seeking authorisation. For projects over £50m the Finance and Policy Committee and Board are informed of the assurance reviews carried out.
441. IARs are conducted at key stages of the project:
- initiation;
 - option selection;
 - pre-tender;
 - contract award;
 - project close out;
 - benefits delivery; and
 - annual review (where no other IAR would happen within 12 months).
442. TfL also receives project review and assurance from the Independent Investment Programme Advisory Group (IIPAG), which report to the Mayor of London concerning TfL's Investment Programme. This includes all maintenance, renewal, upgrades and major projects (excluding Crossrail).
443. The involvement of the IIPAG is determined on both a risk based approach and a project value threshold. The IIPAG reviews are normally commissioned on projects with a value of £50m or more. The IAR process is as detailed above and the IIPAG then attends the Gate Review Meeting once the EE Interim Report has been produced. The IIPAG then produces its own reports, which are submitted at the relevant approval meetings alongside the PMO Report, based on its review of the IAR material and discussions at the final Gate Review Meeting.
444. TfL has the option of establishing an Independent Peer Review Group (IPRG). This approach has been followed for other major TfL projects, so given the scale of the Tolworth decking project, this could warrant a similar approach. If appropriate, an IPRG can be set up for the scheme if further development of the project is approved. Initially it could oversee the refinement of delivery sub-options and review engineering feasibility studies and scheme appraisal undertaken.

Communications and stakeholder management

445. The RTF Key Corridors Team is responsible for keeping internal and external stakeholders appropriately engaged and informed. In accordance, formal, minuted meetings with set agendas and actions have been arranged with all stakeholders. There are a number of internal working groups and external stakeholder meetings are held on a regular basis.

A Stakeholder Management Plan has been prepared for the project

446. This Stakeholder Management Plan provides a brief on the objectives of the stakeholder engagement, target audience and methodology. This plan is under ongoing review and will be updated/expanded as necessary.

447. Stakeholder engagement has already been undertaken and there is strong support for the scheme from the Royal Borough of Kingston Upon Thames. A future programme of stakeholder engagement as the scheme progresses has been developed.

448. The external stakeholders identified are summarised below:

- Boroughs
- Political Stakeholders
- Statutory Stakeholders
- Local Communities

Programme/Project Reporting

TfL will develop programme controls supported by robust reporting processes

449. These will align with the Project governance framework, integrating key stakeholder requirements, facilitating continuous monitoring, and incorporating accurate performance measurement. The purpose is to provide accurate project information in a timely way to ensure well informed decisions are made and appropriate action is taken.

450. The project management model will be designed to deliver a robust reporting regime, including:

- Governance meetings which form part of the reporting process as the forum where performance issues are raised, possible mitigation is discussed and key decisions required are made; and
- Project reporting requirements will be fully defined, together with content requirements, target audience and timing.

MANAGEMENT CASE SUMMARY

The key points arising from the Management Case can therefore be summarised as:

- TfL will make full use of best practice within the company and from industry
- A comprehensive and robust project management framework will be applied, helping to ensure scope, cost and benefits are controlled
- Rigorous assurance processes will provide close scrutiny and challenge of risk management and decision-making throughout the project

7. Conclusion

451. The proposed decking of the A3 at Tolworth will maximise the opportunities that a Crossrail 2 branch to Chessington via Tolworth would generate for new high-density redevelopment of brownfield land between the A3 and the railway line. It will create a new publically accessible open space, enhancing and improving the public realm and addressing existing issues of severance, poor environmental quality and isolated development opportunities caused by the A3 at its junction with the A240.
452. The largest recipients of benefits are expected to be local residents and pedestrians requiring access across the A3. The new pedestrian / cycle access from Princes Avenue will provide better access from the station and development sites to key destinations such as Tolworth Hospital and Tolworth Broadway, whilst local traffic accessing developments on either side of the decking will benefit from easier access from both directions. The decking will also allow for denser development to the south of the A3 close to the station and help facilitate the wider growth and regeneration of Tolworth.
453. The SOBC for the decking of the A3 at Tolworth demonstrates that across the Five Case Model:
- There is a clear robust case for change for a road intervention to address existing issues of poor environmental quality, severance and poor connectivity caused by the A3 at Tolworth, while ensuring the benefits of Crossrail 2 are maximised. This '**strategic case**' is closely related to national, London-wide and local policy objectives, with particular reference to the London Plan, the Mayor's Transport Strategy and the Roads Task Force Vision document.
 - The scheme assists in the economic regeneration of Tolworth and supports the delivery of additional housing and employment. If looked at only in terms of the transport benefits and traditional BCR measure, **the 'economic case'** suggests the scheme is poor value for money – with a BCR of 0.15 using DfT VoT and 0.19 if using TfL VoT. However, this is not the appropriate measure by which to judge the scheme given its focus is on regeneration and improving the urban realm.
 - The scheme is commercially viable – the '**commercial case**' demonstrates that although project development is at an early stage, the report sets out the procurement, commercial structure, and proposed allocation of risk and funding.
 - The scheme is financially affordable – the '**financial case**'; the analysis sets out the project cost, describes the funding mechanisms available to deliver the scheme and the proposed financing arrangements.

- The proposed decking is deliverable – the ‘**management case**’ sets out a clear governance, process and programme for the further development of the scheme by TfL, an authority with a very successful experience and record in major project delivery.

Next Steps: It is suggested that further feasibility and scheme development work takes place in relation to the proposed decking of the A3 and that this is linked to the ongoing development of Crossrail 2.

454. Given the strong case for decking the A3 within the context of Crossrail 2, TfL is proposing to continue developing the scheme beyond this Strategic Outline Business Case. This case has reported initially on the likely impacts of the scheme, and further work is now required on a number of areas to fully understand the benefits the scheme offers.
455. It will be necessary to explore further the air quality, noise and social/distributional impacts of this scheme in any future Outline and/ or Full Business Case. This further work will elaborate on the potential commercial case and various sensitivity tests.
456. It is of particular importance to better understand the interdependencies and potential synergies between the A3 decking scheme and Crossrail 2, and how the benefits to Tolworth of both schemes can be maximised. The interaction of these two schemes in enabling new high-density, mixed-use development to come forward on the south side of the A3 needs to be further studied. This work will seek to quantify the role and overall contribution of the decking scheme in relation to realising the wider opportunities associated with Crossrail 2 serving Tolworth, thus enabling standalone Economic and Financial cases to be prepared for this scheme alongside the case for Crossrail 2.