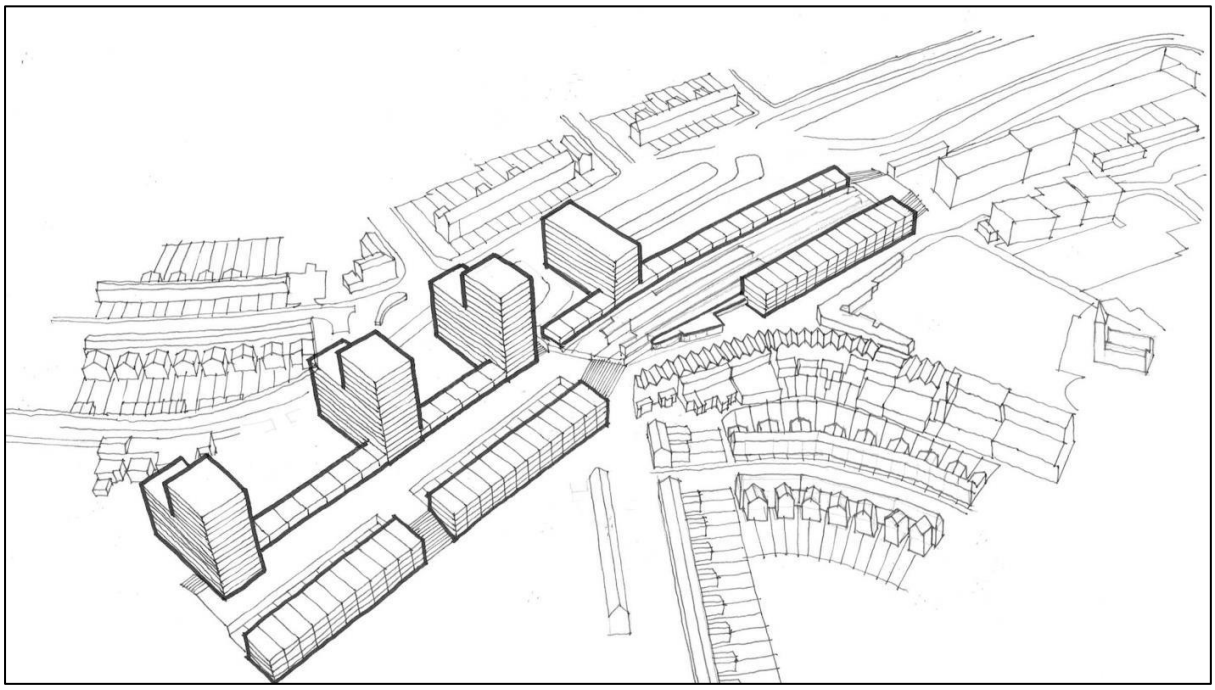
Transport for London

A12 Decking at Leytonstone

Strategic Outline Business Case



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CONTENTS

LIST OF TABLES

LIST OF FIGURES

Executive Summary

Purpose of this document

1. Transport for London (TfL) is proposing a major road-decking scheme on the A12 at Leytonstone. It is proposed to build a deck over the A12 for around 150m either side of Leytonstone Tube station. Figure 1 shows the location of the proposed scheme.

Introduction to the scheme

The A12 is a major road linking east and central London, carrying heavy and strategically important traffic flow. However, it exerts a strongly negative impact on the area around it.

2. The A12 forms part of the Transport for London Road Network (TLRN). The section through Leytonstone was built in the early 1990s to connect central London to the M11 (for onward connections to Stansted Airport and Cambridge) as well as Essex and Suffolk. It has become an important link in London's strategic road network, carrying Average Annual Daily Traffic (AADT) flows of 97,000, of which approximately 6% are Heavy Goods Vehicles.

3. The A12 runs through the heart of Leytonstone town centre. Leytonstone is a District Town Centre in the London Borough of Waltham Forest. It is a largely residential area, though with a successful town centre around Leytonstone station.

4. A section of the London Underground Central Line, constructed in the mid-19th century, runs alongside the road in Leytonstone, and Leytonstone station is located in the heart of the town centre. The subway running through the tube station provides the most convenient crossing of the A12/Central Line corridor.

5. The A12, along with the Central Line, creates a barrier running through the heart of Leytonstone, limiting movement between the east and west of the area. Street patterns are interrupted by the presence of the road and railway corridor, with the only crossings being the subway through Leytonstone station, two routes via the circuitous A106 road bridge and an unwelcoming pedestrian/cycle bridge to the south linking Grove Green Road and Harold Road.

6. In addition to providing a physical barrier between the two halves of Leytonstone, the A12 creates considerable noise and air pollution that makes the area around the road unpleasant for residents and passers-by.

7. As an area with good public transport provision, Leytonstone has the potential to accommodate higher-density development than it at present contains. However, the negative impact of the A12 limits the potential for high-density housing in its vicinity.

Figure 1: Proposed location of decking of the A12 at Leytonstone

A solution has been identified that addresses the issue of severance and poor local environment caused by the A12, while retaining its vital strategic movement function

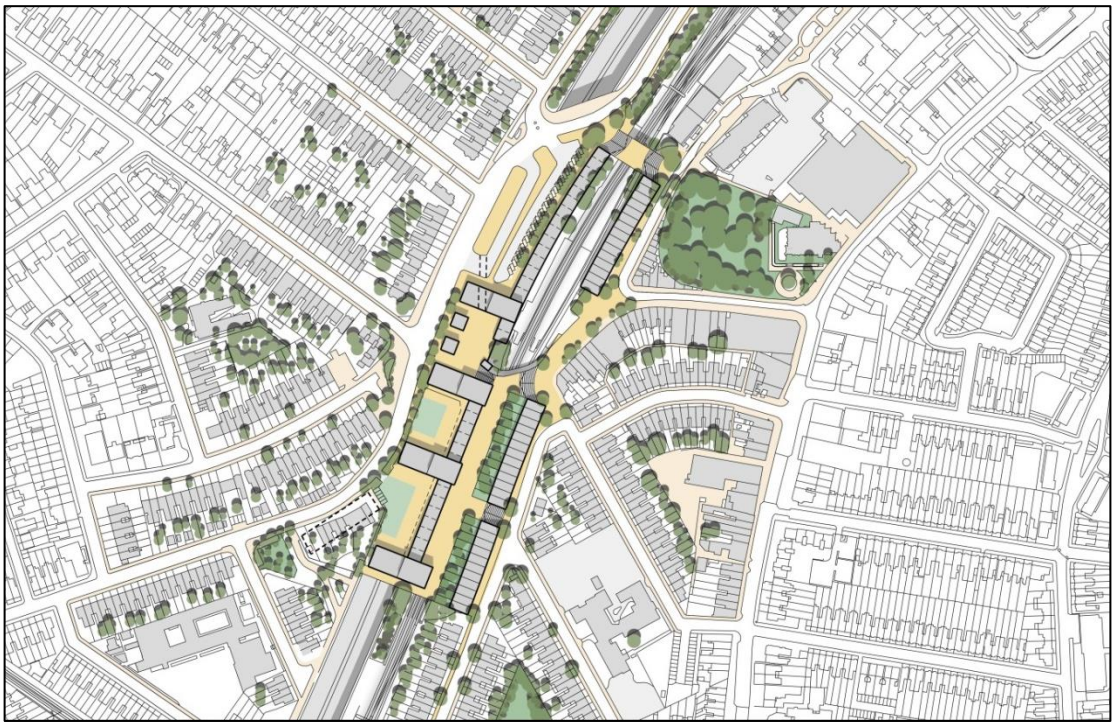
8. This scheme proposes to build a deck over the A12 and Central Line, confining the road and railway underground so as to limit their impact on the surrounding area. The deck would create new public open space in the vicinity of Leytonstone station, while stimulating redevelopment in the surrounding area.

9. The road layout of the A12 would not need to be altered in order to construct the deck, so the strategic movement function of the road would not be affected. The solution would thus enable the negative impacts of the road to be greatly reduced while retaining its transport benefits. Likewise the operations of the Central Line would not be affected by the construction of the deck.

10. The option to provide a deck across the road and railway at Leytonstone has been shortlisted because it meets overall policy goals in the London Plan and the Mayor's Transport Strategy (MTS) while being practical to construct, environmentally beneficial and financially viable.

11. The primary purpose of the scheme is to regenerate Leytonstone through enabling new development, an improved public realm and new local connections.

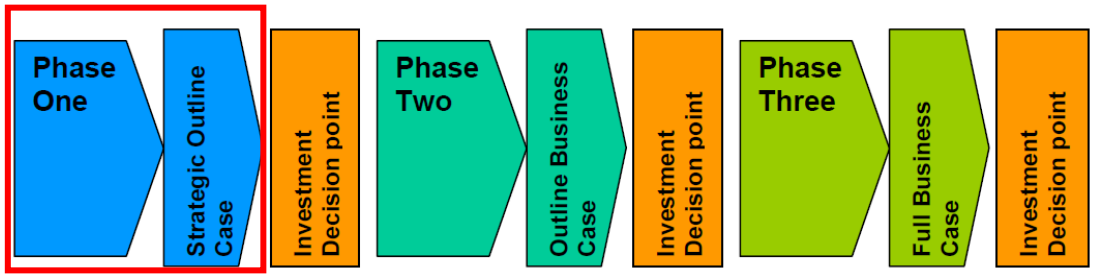
Figure 2: Proposed decking arrangements



12. The A12 Leytonstone decking would unlock a transformational change for the local area by tackling problems of severance, inhospitable local environment and poor prospects for redevelopment. The decking scheme has the potential to enable significant development of much-needed housing and commercial development to take place on development sites around Leytonstone.

About this document

13. 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.



14. 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'.

The Strategic Case

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

PART A: MAXIMISING THE ECONOMIC POTENTIAL OF LONDON THROUGH SUPPORTING SUSTAINABLE GROWTH

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

16. Cities drive the UK economy – they are home to 54% of the population, generating 60% of its GVA, containing 53% of all businesses and 72% of all highly skilled workers[1] within just 9% of the UK's land area. London contributes an estimated 21% of total UK tax revenues[2].

17. 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.

18. 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. This growth is expected to be largely concentrated within central London, as businesses take advantage of agglomeration and clustering benefits.

London is ranked alongside New York as the most competitive city in the world[3], but its success cannot be taken for granted

19. 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

20. 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.

21. 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

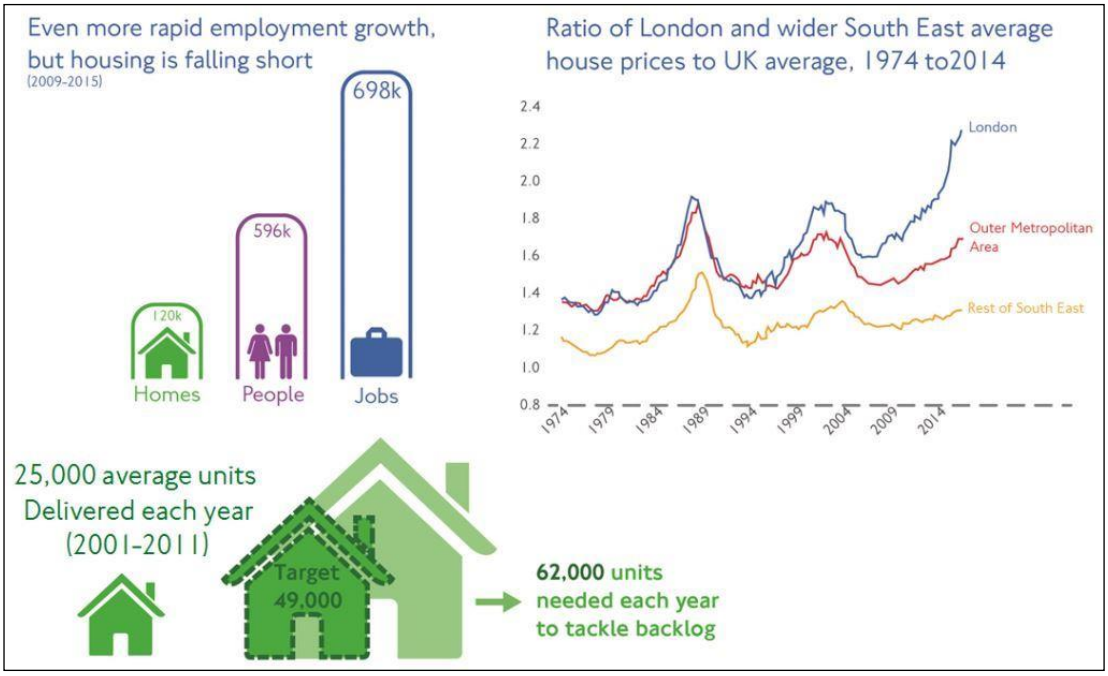
[1] Centre for Cities website, 'City by City', http://www.centreforcities.org/cities/
[2] Research Report: London's Finances and Revenues: City of London Corporation & CEBR (2014)
[3] based on the Global Financial Competitive Index assembled by Longman Finance and the Qatar Financial Centre Authority, 2015

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

22. As shown in Figure 3, 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 65,000 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 3: Summary of housing supply and affordability issues facing London



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

23. London's supply of new land to support housing and jobs growth is limited and the development potential of brownfield land must be maximised. An innovative approach to unlocking this land to support new development, higher density is therefore urgently required if the Capital's housing needs are to be met.

24. A number of key sites with potential to host high levels of housing growth, such as Leytonstone, 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 large numbers of jobs could be created.

PART B: THE PROBLEMS AFFECTING TLRN CORRIDORS IDENTIFIED

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

25. 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.

26. 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.

27. 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 4. Traffic levels can affect the vitality of town centres and quality of place and life through creating severance, noise and air pollution.

Figure 4: The RTF street types matrix

TLRN traffic levels will increase significantly in future: without infrastructure interventions, this will lead to both worsening congestion and impacts on quality of life

28. As shown in Figure 5, there will be increasing demand for vehicle travel. On many corridors, delays in vehicle traffic, including buses, are forecast to worsen, particularly at junctions. This will significantly affect quality of life for those living and working near these road corridors, leading to higher levels of noise and air pollution, worsening of existing severance, and having substantial negative impacts on health. In turn, these impacts will make locations along the TLRN, including Leytonstone, less attractive for development.

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

29. To enable the city to grow, and to continue to succeed economically, London will require investment to increase the capacity and efficiency of its road-based and rail, underground, DLR and tram systems. 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. These delays cause an economic cost and would reduce the attractiveness of London as a place to live and work.

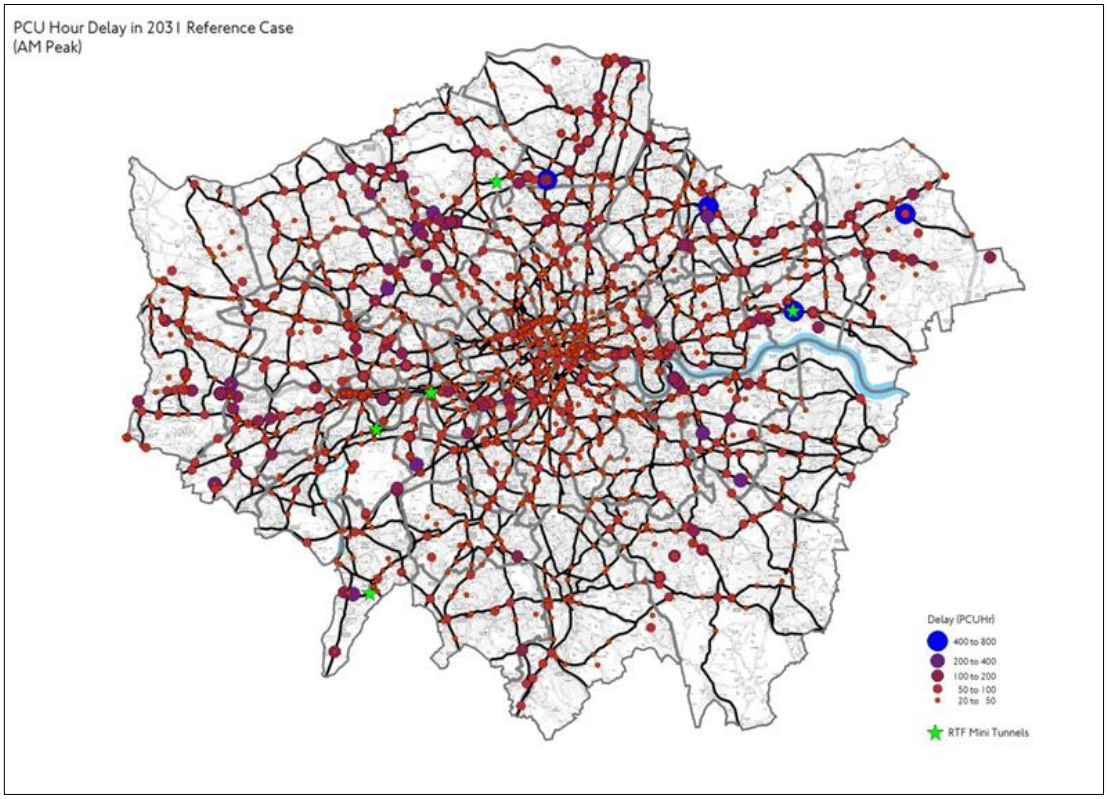
30. To address the challenges of growth, a planned 70 per cent increase in rail capacity through Tube upgrades, Crossrail and Thameslink programmes is underway. This is likely to aid modal shift from private vehicles to rail but is not sufficient by itself to address London's road congestion issues.

31. A project such as the A12 Decking scheme at Leytonstone requires substantial infrastructure investment. However, despite the fact that efficient travel by road is vital for the proper economic functioning of London, and despite vehicle traffic's 36 percent mode share in London (and 46% in south London), similar levels of investment to that seen for public transport have not been made to the Capital's road network.[4]

32. As the population of London grows, congestion on the TLRN will increase. So London's growing population will continue to 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 core roads into London, including the A316 which is forecast to experience some of the highest increases, and delay at junctions and other bottlenecks as illustrated in Figure 5.

[4] Compared to 8 percent for tube/DLR, and less than 5 percent for rail. Source: Three year average data for mode share of trips originating in all London boroughs, 2011-2014, London Travel Demand Survey.

Figure 5: PCU Hour delay in 2031 reference case



PART C: OBJECTIVES FOR ACTION FOR IMPROVEMENT ON TLRN CORRIDORS

Any proposal seeking to reduce congestion and 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

33. These arise from two key sources, the Mayor's Transport Strategy and the Roads Task Force report 'Vision for London's Roads and Streets.'[5]

34. 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.

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

- To enable people and vehicles to move more efficiently on London's streets and roads;

[5] Roads Task Force, July 2013

- 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.

36. The RTF vision identified that measures including fly unders, over-decking and tunnels had the potential to address the following objectives:

- Address congestion;
- Reduce severance;
- Enable improvements for sustainable modes and public realm on the surface; and
- Unlock development

PART D: THE APPROACH TAKEN BY THE ROADS TASK FORCE TO ADDRESS TLRN CHALLENGES

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

37. The RTF's report 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.

38. 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.

39. 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.

40. 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 nine 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 five of these locations during 2015, resulting in the production of a Strategic Outline Business Case for each scheme. A second phase of the remaining four schemes has

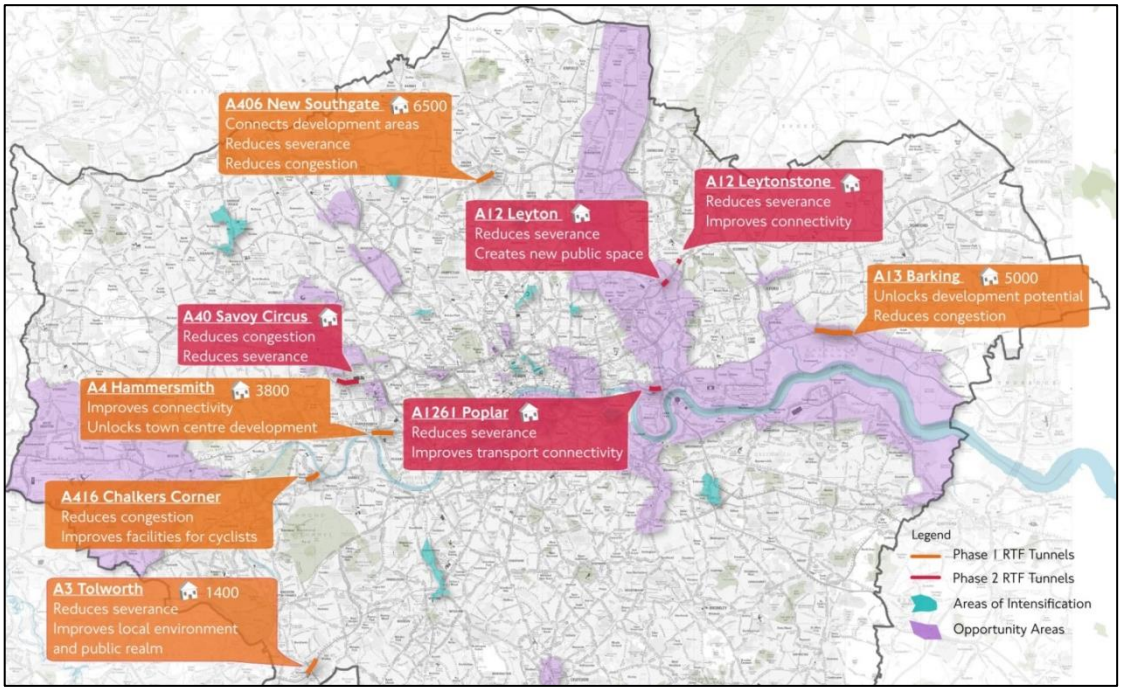
been developed over 2015 and early 2016, and Leytonstone is one of these second tranche of schemes.

41. A key recommendation of the RTF report was that the potential of major highway interventions on the TLRN such as tunnels and 'fly unders' 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.

42. From an initial list of approximately 70 locations, through a Multi-Criteria Analysis (MCA) a shortlist of fifteen sites was identified as having sufficient potential for initial feasibility studies

From a short list of 15 schemes, nine have been taken forward for further feasibility work

Figure 6: The locations of the nine RTF tunnel/decking schemes



43. As part of a rolling feasibility assessment programme, five initial locations were taken forward for further assessment in 2015. These five locations are:

- A13, Barking Riverside
- A3, Tolworth
- A316, Chalkers Corner
- A4, Hammersmith
- A406, New Southgate

44. A further four locations have been taken forward in 2015/16. These four locations are:

- **A12 Decking, Leytonstone**
- A12 Decking, Leyton

- A1261 Decking, Poplar
- A40.

45. All nine schemes are shown above at Figure 6.

PART E: THE PROBLEMS IDENTIFIED ON THE A12 AT LEYTONSTONE

There is a need to improve surface connectivity without impacting upon the capacity or functionality of the A12 corridor

46. The A12 is a strategic road carrying extremely high volumes of traffic between central London, the M11 and the east of England. 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 A12.

47. The importance of addressing issues on the A12 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 potential[6].

48. The construction of this decked section provides a good solution to address these issues by protecting the capacity of the A12 while also unlocking the potential of the Leytonstone area.

PART F: OBJECTIVES FOR THE A12 AT LEYTONSTONE AND OPTIONS IDENTIFIED

Objectives and measures for success for the A12 at Leytonstone

49. The objectives for any enhancements to the A12 at Leytonstone 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 6. More specific measures and the associated monitoring strategy will be developed at a later stage.

Table 1: Objectives and measures of success for the A12 at Leytonstone

Strategic challenges	Objectives for the A12 at Leytonstone	Measures of success
A growing population in northeast London and the London Borough of Waltham Forest requires higher density residential development in accessible locations	Facilitate regeneration and development at Leytonstone including a significant number of new homes	Creation of up to 500 new homes Stimulating development on sites in a wider area around Leytonstone

[6] As part of its Road Investment Strategy, the Government announced significant investment in the M25 / A12 interchange, road widening around Chelmsford and Colchester, and a whole-route technology upgrade.

The A12 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 the two halves of Leytonstone, enhancing the quality of the urban realm and local environment	Creation of new surface links between the two sides of Leytonstone Provision of attractive cycling and walking routes Provision of high-quality new open space Reduced noise and air pollution around the deck above the A12
The capacity and function of the A12 strategic road corridor need to be maintained	Maintain and improve the vital strategic movement function of the A12 at Leytonstone while accomplishing the above objectives	Traffic counts and measures of delay on the A12 at Leytonstone

Options for the A12 at Leytonstone

The options appraisal process described in Part D concluded that further feasibility investigation into decking the A12 at Leytonstone should be undertaken

50. Having identified Leytonstone as a priority location for investigating the feasibility of providing a decking intervention, a number of options were considered.

51. Early feasibility work identified two potential decks that could be constructed at Leytonstone: one to the north of the Tube station, and one to the south. Constructing both decks was seen as the preferred option as this would deliver the highest benefits in terms of connectivity, new public space and maximising development.

52. Further feasibility work refined these ideas and identified three main options for this scheme. The major points that vary between the options are the use of the northern deck for either a bus station or development, and whether or not the deck should hold car parking to replace that lost from the current car parks on the site. Option 3 was deemed the preferred option.

PART G: HOW THE DECKING OPTION ADDRESSES THE ISSUES AND CHALLENGES

The A12 decking scheme would unlock development of new housing

53. By creating new open space, improving connectivity and addressing problems with the local environment, decking over the A12 would greatly increase the viability of high-density residential development in Leytonstone.

54. Development on new land created by this scheme could accommodate around 500 new homes, making a significant contribution to the need for new homes in this area.

55. In addition to development directly enabled by this scheme, the improved connectivity and urban realm created by the deck would support wider objectives for growth and redevelopment around Leytonstone. The scheme could therefore increase the viability of redevelopment on other sites and help to facilitate even more substantial growth across a wider area.

56. In addition to the benefits this new development would give in terms of meeting the demand for new housing in London, contributions from these new developments could form a major element of the funding required to construct this scheme. This issue is discussed in depth in the Financial Case.

Building a deck over the A12 at Leytonstone would improve local connectivity, urban realm and environment

57. The A12 causes significant severance between Leytonstone's town centre and residential areas. The proposed scheme would help to create a safe, integrated link connecting the town centre, station and residential areas on both sides of the A12, encouraging the uptake of more sustainable modes of transport and improving accessibility within the area as a whole.

58. The scheme would also help address issues of air quality, noise and residential amenity, all of which would encourage new development and allow it to better integrate with the existing built environment and Leytonstone town centre.

PART H: SCHEME FIT AGAINST STRATEGIC AND LOCAL POLICY, STRATEGIES, FRAMEWORKS AND OBJECTIVES

Overall, the A12 decking scheme conforms to policy at all levels, helping to secure London and the UK's continued prosperity

59. Due to the role of the A12 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 London Borough of Waltham Forest Core Strategy and Local Implementation Plan in addition to the Northern Olympic Fringe Area Action Plan.

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

- **The preferred Option 3 based scheme would improve opportunities for development and the continued growth of Leytonstone, through enabling higher density development and providing better connectivity between areas around Leytonstone.**

- **The scheme would help reduce significant severance currently caused by the A12 and Central Line, 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.**
- **The scheme would combat the negative impacts of heavy traffic flows and congestion from the A12 at Leytonstone by enclosing the traffic flow beneath the deck. This would allow for a transformation in the quality of the public realm, plus benefits in terms of noise and air quality.**
- **The A12 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

61. 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.

62. Over the 60-year appraisal period, the decks (with development and DfT Values of Time) have a Net Present Value of £-1,363m (2010 prices), with a Benefit Cost Ratio of -19.04, representing 'poor' value for money.

63. However, these values do not take into account the regeneration benefits of the scheme at a local and a London-wide level.

64. Although WebTAG guidance requires the reporting of a Benefit to Cost Ratio (BCR) this is not an appropriate metric by which to solely judge the scheme. It is important to note that the scheme has an additional purpose: to address severance, and by doing this it will unlock development potential in Leytonstone, enabling regeneration and the delivery of housing and commercial space.

Decking over the site would help to deliver new housing, jobs and GVA in Leytonstone

65. The results of the additionality approach are summarised in Table 2 below.

66. In the 'do-nothing' reference case (without the decks) no homes would be delivered. The figures presented in Table 2 show the benefits to be delivered by the decks in addition to the 'do-nothing' scenario.

Table 2: Summary of additional impacts of Leytonstone decks (at London level)

Development and regeneration benefits of the decking option	Option 3
Net Additional homes – London level	180
Net Additional jobs (direct and indirect) – London level	205
GVA generated by additional jobs (direct and indirect) (£m PV)	110

* takes account of displacement effects

67. When deadweight, leakage and displacement effects are considered, the decks would enable delivery of 180 net additional dwellings at the London-level. When deadweight, displacement and multiplier effects are considered, the net additional employment that the decks would enable would be 205 jobs (direct and indirect). Alongside the indirect employment associated with this housing, this would generate a net additional GVA of £110m at the London level. These are economic benefits that would strengthen London's economy and boost tax receipts.

68. Realising this growth is dependent on more flexible planning policies being adopted by London Borough of Waltham Forest (LB Waltham Forest) that support higher densities. These benefits are contingent on a level of housing delivery that would require higher density development at sites in the vicinity of the existing A12. However, they demonstrate potentially significant economic benefits for the London economy.

Other benefits could be quantified, such as improved quality of life, reduction in severance and improvements to the public realm

69. The scheme would also improve quality of life through an improved public realm and reduced severance and noise impacts, with additional associated economic impacts. These benefits will be quantified as part of the next stage of the appraisal process. As part of further development of this business case, it is the intention to carry out a high level WebTAG compliant noise appraisal to assess the benefits of the decking scheme for local residents. There are no existing residential properties that would be affected by the decking.

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

- **The proposed scheme to deck over the A12 at Leytonstone Over the 60-year appraisal period, the decks (with development and DfT Values of Time) have a Net Present Value of £-1,363m (2010 prices), with a Benefit Cost Ratio of -19.04, representing 'poor' value for money.**
- **However, these values do not take into account the regeneration benefits of the scheme at a local and a London-wide level.**

The Financial Case

Some funding from associated new development could be secured for the decking scheme

71. TfL appointed a consortium of Mott MacDonald, Tony Meadows Associates (TMA) and Jones Lang LaSalle (JLL) to develop the decking options and estimate project capital costs and funding potential. As part of this work JLL carried a comprehensive review of possible funding sources, in consultation with TfL, and advised on their potential scale.

72. All three decking options are able to unlock new residential and commercial development. The potential scale of this development is presented in Table 3 below:

Table 3: Summary of Potential New Development

Decking Option	Housing (units)	Commercial (sqm)
1	447	6110
2	358	7950
3	377	7280

73. As part of their funding analysis JLL focused on examining both land ownership and redevelopment model and taxation mechanisms. The list of funding sources examined in detail was as follows:

- Residual land value (RLV) arising from TfL's partial ownership of development plots around the proposed scheme;
- Voluntary developer contributions;
- Borough Community Infrastructure Levy (BCIL);
- Incremental Business Rates (IBR);
- Stamp Duty Land Tax (SDLT).

74. Given the early stage of the scheme, sources of funding are still indicative as no consultations with the local authorities or the central Government has yet taken place to assess the scale of their potential contribution. Figures presented below represent a maximum value that could be secured from new development using the various sources. It is clear from the analysis that a workable funding package for the decking scheme would need to come from a combination of sources.

Between 12% to 18% of the construction cost of the decking scheme could be secured through new development-related sources, assuming maximum contribution from each funding source

75. The identified sources of funding could cover up to 18% of the decking construction costs, depending on which option is selected and assuming that a maximum contribution can be secured from each identified funding source. The summary table in Table 4 below presents the amount of funding as % of the project construction cost:

Table 4: Summary of funding sources explored

Availability	Funding Sources (£m, 2015/16)	Option 1	Option 2	Option 3
	Residual Land Value	8.7	6.6	3.8
	Voluntary Developer Contributions	-	-	-
	Borough CIL	1.2	1.1	0.9
	Incremental Business Rates	3.3	4.0	3.5
	Stamp Duty Land Tax	6.1	5.6	4.7
	Potential Maximum Funding Total	**19.3**	**17.3**	**13**
	Capital Project Cost	**105**	**105**	**105**
	Funding as % of Cost	**18%**	**16.5%**	**12.4%**

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

76. If the development does not progress or progresses at a slower rate, there will be a knock-on effect on whether/when the funding will become available and this presents a degree of risk. Other means of covering the decking costs such as government grant funding will also need to be considered.

77. Detailed assessment of financing options and their implications should be carried out when the scheme is close to covering its funding gap. In general however, TfL would face an up-front project expenditure which would be repaid from a mix of the funding sources identified above and other sources, for example central or local government grant funding.

78. TfL could potentially use a privately financed solution to deliver the decking project. This could take the form of the private sector taking 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 a road project.

79. Alternatively, the public sector could borrow. The rate of public sector borrowing is usually lower than the private sector's. Detailed assessment of the most appropriate financing structure should be carried out once the funding package is close to being assembled.

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

- **Between 12% to 18% of the construction cost of the decking scheme could be secured through new development-related sources, assuming maximum contribution from each funding source**
- **All three decking options are able to unlock new residential and commercial development.**

The Commercial Case

81. This case sets out the commercial structure, the accounting treatment and procurement approach for this scheme.

82. 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

83. 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.

84. 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 A12 decking scheme within a wider programme of tunnel/decking schemes and linked into a wider highway capital investment programme

85. 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.

86. 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

87. 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.

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

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

- **The proposed scheme to deck over the A12 at Leytonstone 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

90. 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

91. 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 Leytonstone decking project.

92. The proposed decking of the A12 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

93. 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

94. 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).

95. 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 Leytonstone 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.

96. Stakeholder engagement has already been undertaken and there is strong support for the scheme from the Borough of Waltham Forest. A future programme of stakeholder engagement as the scheme progresses has been developed.

97. The current anticipated key milestones for the project are shown in Table 5 below. Any changes to baseline scope, cost and schedule will be reviewed, impact assessed and approved following the change control process.

Table 5: 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 -2021
Construction and Testing	2021 – 2022
Operation	2022

98. 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 benefits of decking over the A12 at Leyton, and TfL should continue to consider this scheme

99. The proposed decking scheme based on preferred option 3 at Leytonstone would unlock development in an area of high housing need. It would improve connectivity within Leytonstone, encourage sustainable transport, improve the urban realm and better link communities. And it would protect the key transport infrastructure in this area, while reducing its dominance over the local landscape.

100. The SOBC for the decking of the A12 at Leytonstone demonstrates that across the Five Case Model:

- There is a clear robust case for change for an intervention to address existing issues of severance, poor connectivity and environmental problems caused by the A12 at Leytonstone. 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 Leytonstone, and supports the delivery of additional housing and employment. It would enable an increase in economic activity. 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. 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 not currently affordable. The total estimated cost of Option 3 is £104.6m. The **'financial case'** analysis sets out the project team will need to explore all 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 scheme

101. It is for decision makers to consider the case for decking over the A12 at Leytonstone given the current net benefit which is currently poor. However there are regeneration benefits that may not yet have been taken into account. It is recommended that a high priority be given to defining a funding and financing strategy for the scheme to ensure that funds can be raised and disbursed in a financially sustainable manner for TfL.

102. Other factors to be considered in greater depth include the air quality, noise and social/distributional impacts of this scheme.

1. The Approach to the Business Case

Introduction

1.1. Transport for London (TfL) is proposing to deck the A12 at Leytonstone. Figure 7 shows the location and extent of the scheme.

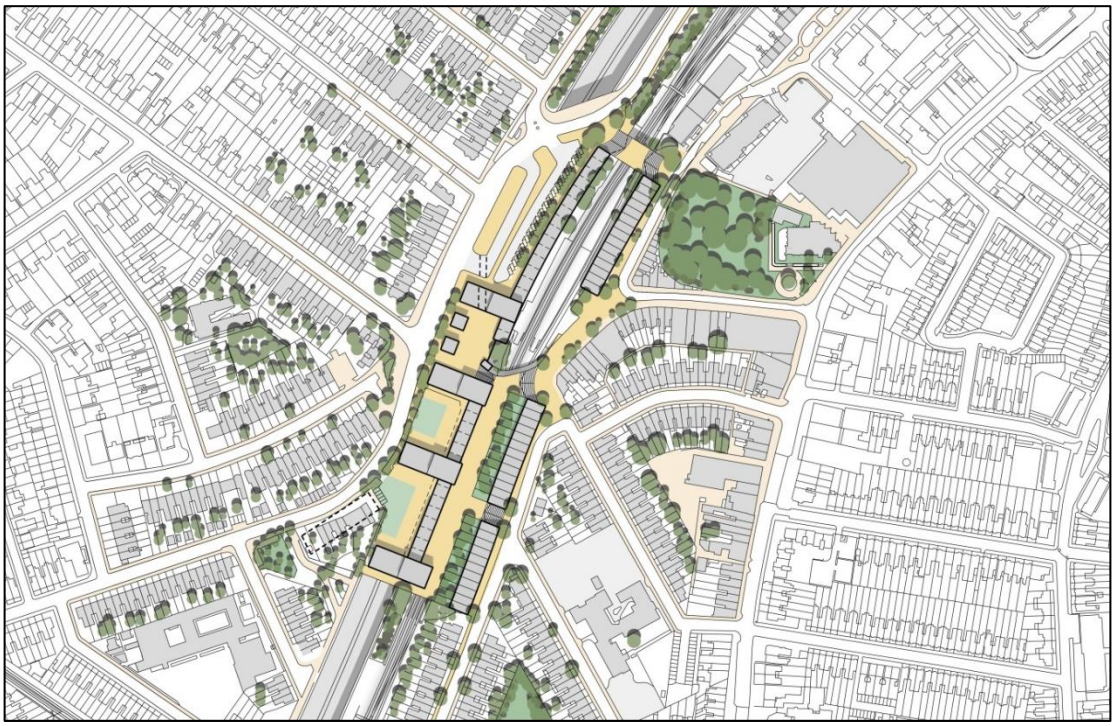
1.2. The scheme has been identified following the recommendations of the Roads Task Force (RTF) Report: 'Vision for London's Roads and Streets' published in 2013. The scheme is one of four schemes along key RTF corridors which form part of the second tranche of opportunities identified by the RTF to 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 in due course.

1.3. The proposed decked section would occur along an existing stretch of the A12 and is shown in Figure 7 below.

1.4. This document is the Strategic Outline Business Case (SOBC) for the project.

Figure 7: Proposed location of decking of the A12 at Leytonstone

Figure 8: Proposed decking arrangements



The Five Case Model for Transport Appraisal

1.5. 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 DfT[7]. This is based on HM Treasury's advice on evidence-based decision making as set out in the Green Book[8] and uses the best practice five case model approach.

1.6. 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**'.

1.7. The evidence gathered as part of the business case preparation has been prepared using the tools and guidance provided by the DfT, notably WebTAG[9]. 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

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

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

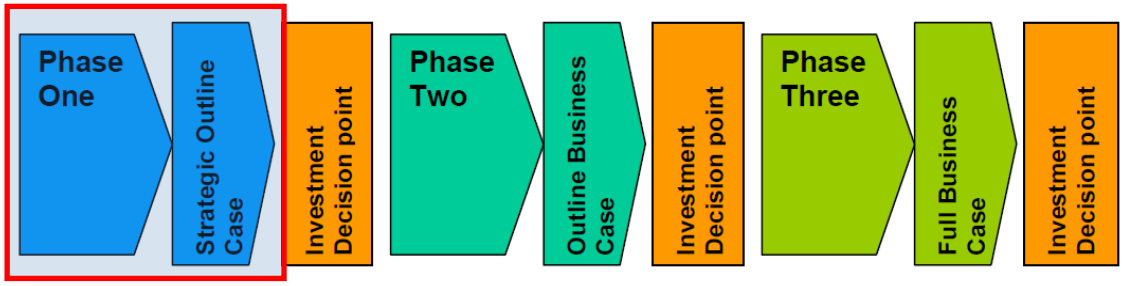
[9] See https://www.gov.uk/transport-analysis-guidance-webtag accessed 5 September 2014

options proposed for investment and those which, following assessment, are not to be developed further.

1.8. The latest WebTAG guidance suggests that the Economic Case should focus on appraisal of welfare impacts – so the initial BCR of the scheme (transport user benefits) and adjusted BCR (with agglomeration, move to more productive jobs) and the land value uplift. Therefore, if this scheme proceeds, to become compliant with the new draft WEI guidance, at the next stage of business case development we would move the Supplementary analysis section on additionality – the extra homes and jobs from its' current home of within the Economic Case to the Strategic Case instead.

The Decision Making Process

1.9. 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.



1.10. 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.

1.11. In '**Phase Two**', which if decision makers conclude this scheme is worthwhile progressing further, 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.

1.12. The final phase in the process, '**Phase Three**', will result in the production of the Full Business Case – this will accompany the application for consent.

The Role of the Mayor of London and TfL

1.13. 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).

1.14. TfL is responsible for operating, maintaining and improving the strategic road network (TLRN) in Greater London, including the A12 within London. The TLRN represents 4 per cent of London's road network, but carries 30 per cent of all traffic in London.

1.15. 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.

1.16. 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 A12 at Leytonstone. This would be tested further if the project progresses.

1.17. To date, there has been ongoing local engagement with the London Borough of Waltham Forest in relation to the proposed scheme. This has consisted of two officer-level meetings as well as higher level political engagement.

1.18. 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.

1.19. Notwithstanding this, the Roads Task Force (RTF) consultation in 2012[10] 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

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

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.

2. The Strategic Case

2.1. Transport for London (TfL) is proposing a major road-decking scheme on the A12 at Leytonstone. It is proposed to build a deck over the A12.

2.2. This Strategic Case has been prepared by TfL, in consultation with the London Borough of Waltham Forest (LBWF), 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 Leytonstone.

Structure of the strategic case

2.3. 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 A12 corridor at Leytonstone;
- based on the option assessment, show how decking over the A12 at Leytonstone would help towards solving some of these local challenges as well as those facing London as a whole, such as enabling housing growth; and
- demonstrate how the proposed decking intervention will achieve a strong fit with policy at all spatial scales.

2.4. The Strategic Case 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 improvement of TLRN corridors
- **Part D:** Options for addressing the problems on the TLRN at priority locations
- **Part E:** The problems identified for the A12 at Leytonstone
- **Part F:** Objectives for the A12 at Leytonstone and options identified

- **Part G:** How the decking option addresses the issues and challenges
- **Part H:** Scheme fit against strategic and local policy, strategies, frameworks and objectives

PART A: MAXIMISING THE ECONOMIC POTENTIAL OF LONDON THROUGH SUPPORTING SUSTAINABLE GROWTH

Section Summary:

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 accommodate growth most sustainably and efficiently
- 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
- 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
- By investing in its road network, TfL can unlock more land for urban regeneration and contribute to meeting London's housing targets
- As London grows, the level of congestion on its strategic road network is forecast to grow, even with sustained investment in public transport capacity

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 would help to unlock development in areas with high regeneration and growth potential
- The road tunnel schemes being considered aim to release 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
- 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

2.5. 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).

2.6. 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.

2.7. 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.

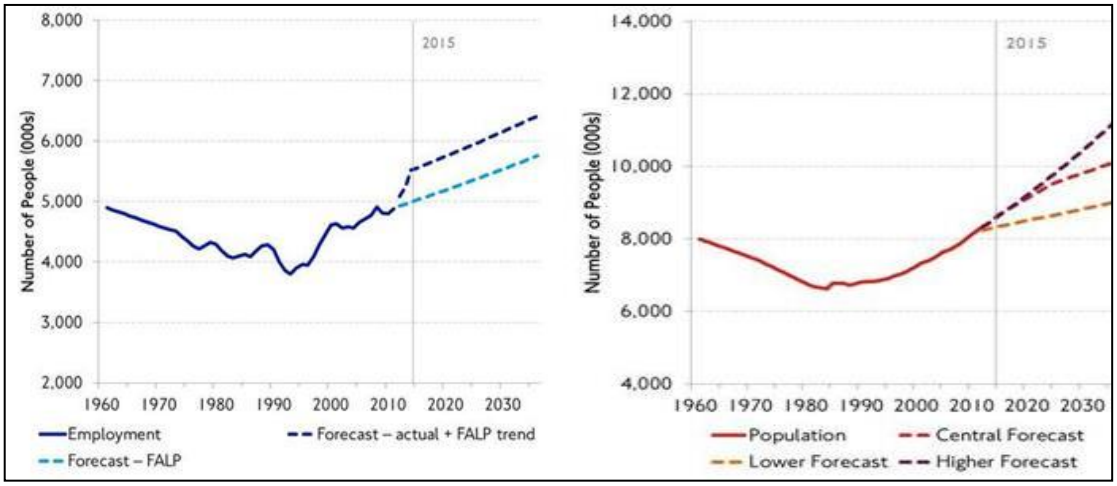
Key Finding:

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

2.8. After reversing a steady period of decline, London has been on a growth trajectory since the 1980s. These trends are shown in Figure 9.

Figure 9: Historic trends and projected growth in London's employment and population to 2036



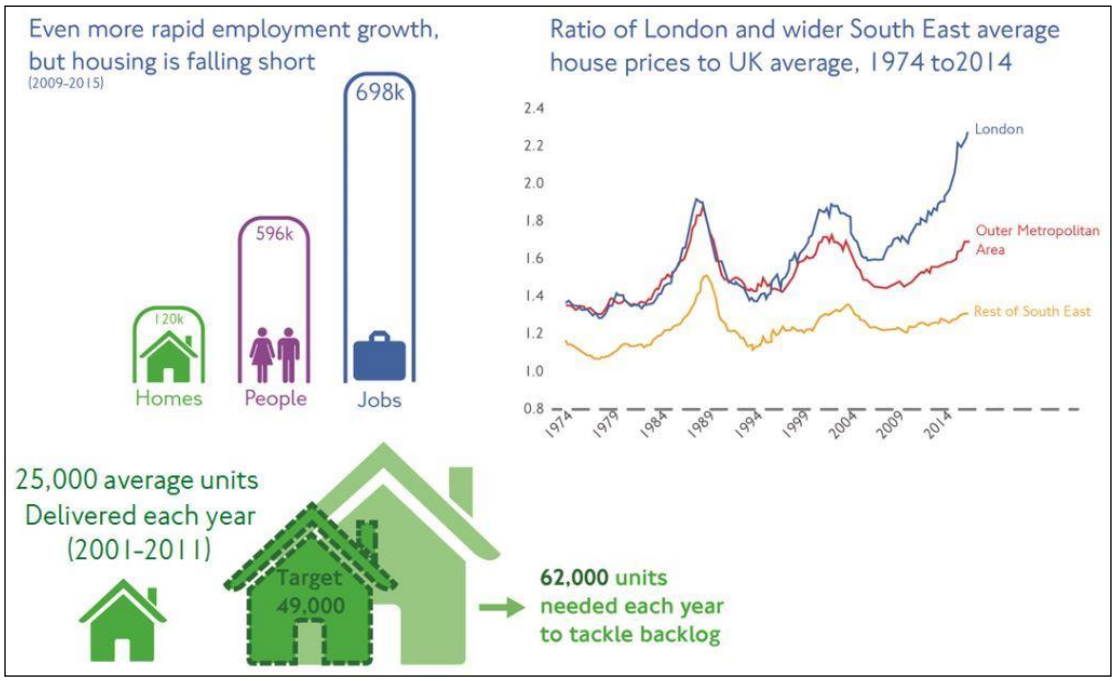
2.9. Between 1991 and 2011, the number of jobs in London rose by 900,000 and over the same period, the population rose by 1.4m. The number of jobs in London is expected to grow by 1.4m between 2011 and 2036. As the left hand graph in Figure 9 above shows, a total of 650,000 of these jobs have already been created between 2012 and 2014[11]. 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.

2.10. The UK Office for National Statistics projections expect a 23 per cent rise in London's population between 2011 and 2031 which equates to a 1.9m increase, taking the population to 10.1m[12] by 2036, as shown in the right hand graph in Figure 9. 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 planned[13].

2.11. As Figure 10 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.

[11] 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.
[12] FALP (2014) - GLA Population forecasts
[13] London Infrastructure Plan 2050
https://www.london.gov.uk/sites/default/files/LIP%202050%20update%20presentation%20March%202015.pdf

Figure 10: Summary of housing supply and affordability issues facing London



2.12. 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 accommodate growth most sustainably and efficiently

2.13. 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.

2.14. 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.

2.15. 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.

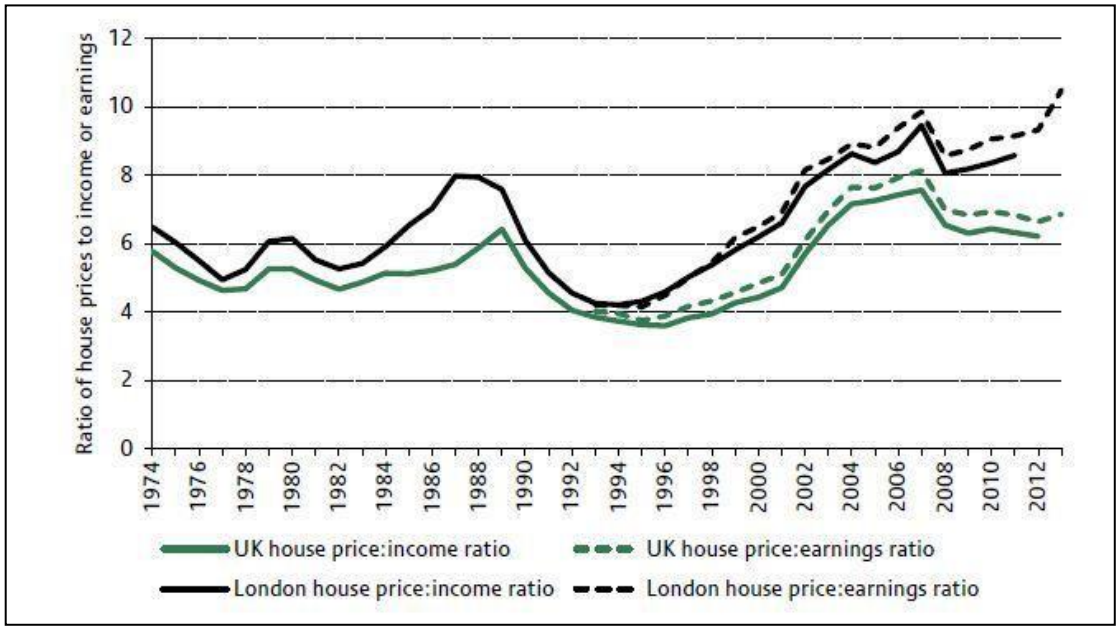
London is delivering only 25,000 new homes a year, when it needs to deliver at least double this volume, resulting in worsening housing affordability

2.16. 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.

2.17. 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.

2.18. 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 11 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 11: House price to income and earnings ratios for the UK and London[14]



2.19. 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

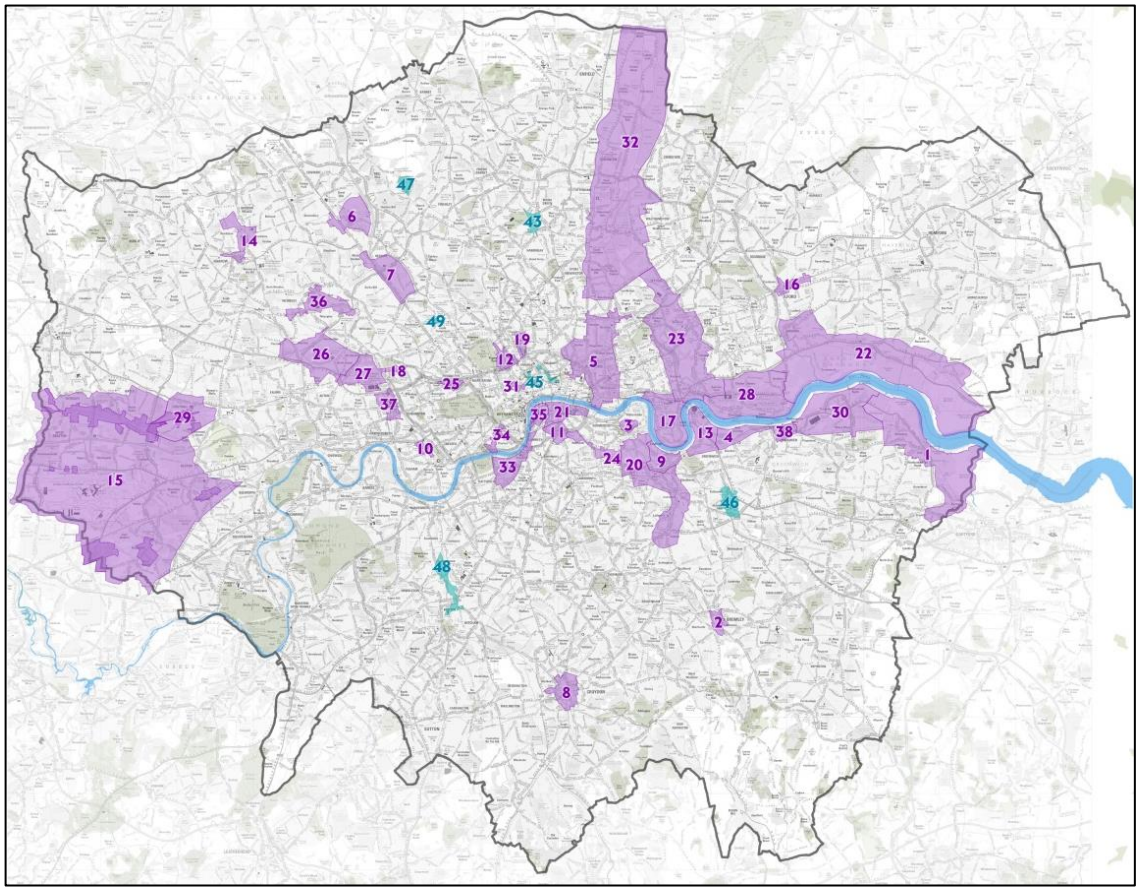
[14] Source: Nationwide, Labour Force Survey, Family Expenditure Survey and Family Resources Survey

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

2.20. London has limited opportunities for accommodating large scale development. A range of suitable areas are identified in the Mayor's London Plan (March 2015), including 38 Opportunity Areas, shown in Figure 12. London's 38 Opportunity Areas 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 accessibility[15]". However, there are no OAs in the London Borough of Waltham Forest. All parts of outer London must help to accommodate more homes.

Figure 12: London's Opportunity Areas



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

Opportunity Areas

1 Bexley Riverside
2 Bromley
3 Canada Water
4 Charlton Riverside
5 City Fringe/ Tech City
6 Colindale/Burnt Oak
7 Cricklewood/Brent Cross
8 Croydon
9 Deptford Creek/Greenwich Riverside
10 Earls Court
11 Elephant and Castle
12 Euston
13 Greenwich Peninsular
14 Harrow & Wealdstone
15 Heathrow
15 Heathrow Core
16 Ilford
17 Isle of Dogs
18 Kensal Canalside
19 King's Cross - St Pancras
20 Lewisham, Catford & New Cross
21 London Bridge, Borough & Bankside
22 London Riverside
23 Lower Lea Valley
24 Old Kent Road
25 Paddington
26 Park Royal
27 Old Oak Common
28 Royal Docks & Beckton Waterfront
29 Southall Hinterland
29 Southall Development Sites
30 Thamesmead & Abbey Wood
31 Tottenham Court Road
32 Upper Lea Valley
33 Vauxhall, Nine Elms & Battersea
34 Victoria
35 Waterloo
36 Wembley
37 White City
38 Woolwich

Area of Intensification

42 Farringdon/Smithfield
43 Haringey Heartlands/Wood Green
45 Holborn
46 Kidbrooke
47 Mill Hill East
48 South Wimbledon/Colliers Wood
49 West Hampstead Interchange

2.21. If London is to meet its housing needs, it has to utilise its land as effectively as possible and be creative about assembling sites for development and identifying more usable space. Policy 3.3E of the London Plan states: "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".

2.22. 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.

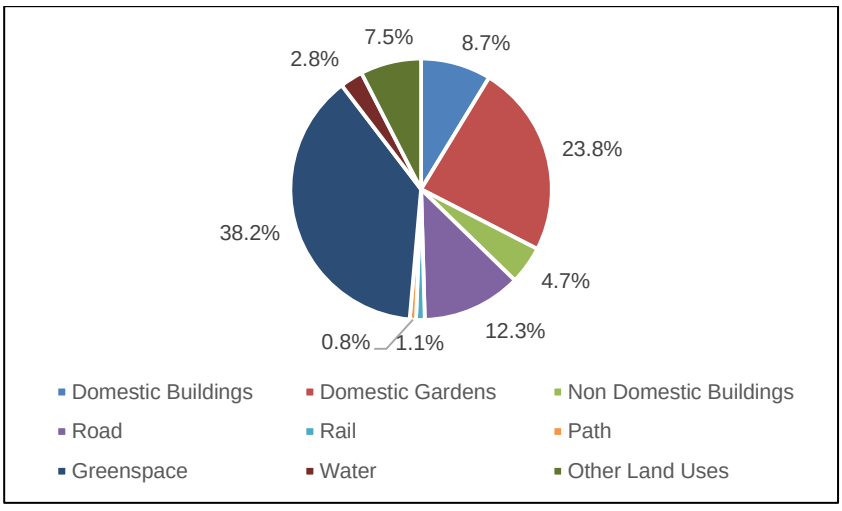
Key Finding:

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 Leytonstone. Increasing the density of development in these more accessible locations is a sustainable way of accommodating London's growth.

By investing in its road network, TfL can unlock more land for urban regeneration and contribute to meeting London's housing targets

2.23. Figure 13 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.

Figure 13: London Area by Land Use[16]



[16] Source: Land Use Generalised Land Use Database 2005

Key Finding:

There is a need for innovative ways of unlocking housing potential within London's boundaries. A better use of the TLRN, balancing the sense of place and its strategic movement function, could enable higher housing densities.

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

2.24. In 2013, road congestion cost the London economy £5.4bn, accounting for 41 per cent of costs to all of UK's large urban areas[17].

2.25. 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 London[18].

2.26. London's growing population, as well as supporting employment growth in the CAZ will strain TfL's strategic road network as high 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.

2.27. The Government's National Infrastructure Plan 2014[19] 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 A12 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 potential[20].

2.28. 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.

2.29. Without significant investment, congestion and road traffic delay will grow in many areas as illustrated in Figure 14.

2.30. 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.

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[17] 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

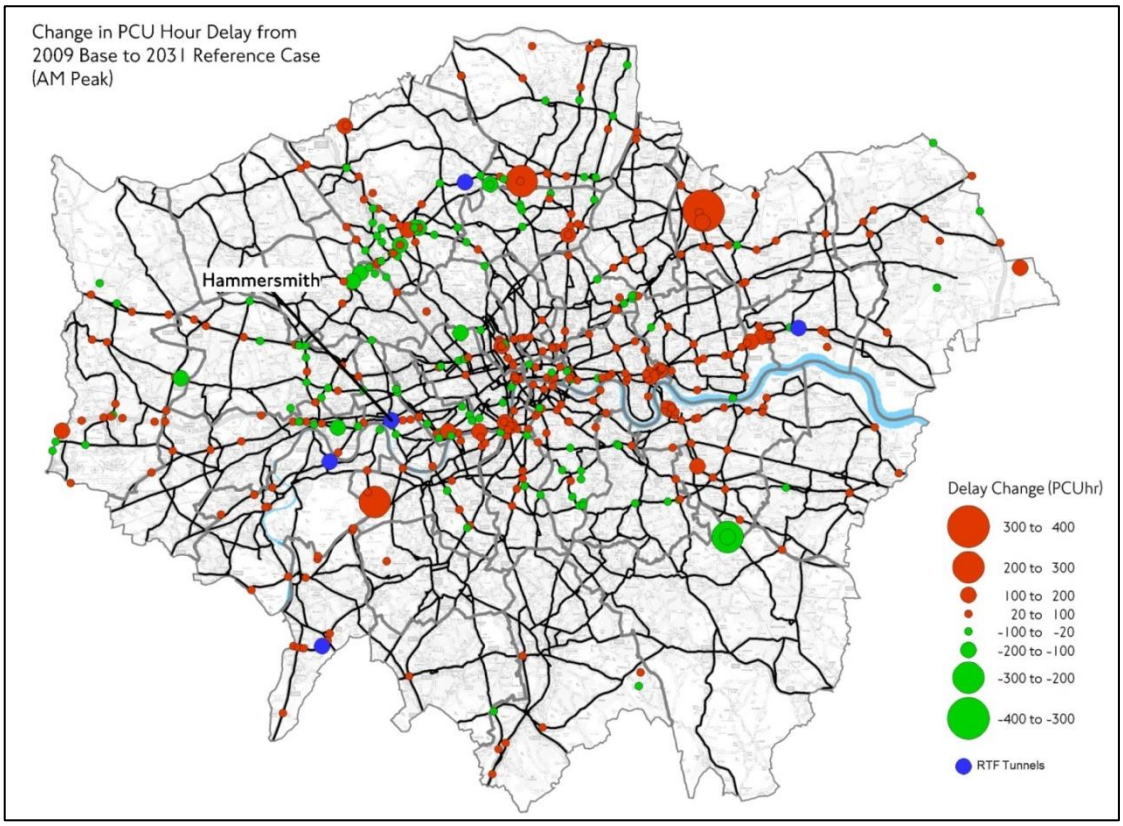
[18] Based on percentage of average daily trips in three year period 2007/8 to 2009/10

[19] National Infrastructure Plan 2014 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/381884/2902895_NationalInfrastructurePlan2014_acc.pdf

[20] As part of its Road Investment Strategy, the Government announced significant investment in the M25 / A12 interchange, road widening around Chelmsford and Colchester, and a whole-route technology upgrade.

2.31. 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.

Figure 14: Change in PCU hour delay, 2009 – 2031



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 A12, 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

2.32. The Mayor's 2020 Vision[21] is for London to be the greatest city in the world to live, play, study, invest and do business.

2.33. 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.

[21] Mayor's 2020 Vision https://www.london.gov.uk/mayor-assembly/mayor/vision-2020

2.34. 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.

2.35. 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.

2.36. The need for maintaining and improving traffic flows is especially relevant to the A12 corridor – as this route plays a strategic role for vehicle trips between different areas of east and central London towards major growth areas in Essex and Cambridgeshire, including Stansted Airport.

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

2.37. Investment to enhance the attractiveness of locations both for businesses and also local residents and potential workers will stimulate regeneration of under-utilised land.

2.38. There is a clear role for public intervention in the form of targeted investment, enabling sites such as Leytonstone to maximise their development potential. 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.

2.39. 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 aim to release 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

2.40. 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.

2.41. Each tunnel or decking scheme will have a different mix or focus.

2.42. 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.

Key Finding:

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

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

2.43. 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.

2.44. 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'.

2.45. 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.

2.46. Three important dimensions to helping ensure London's continued growth and competiveness 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 pinch points 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.

PART B: THE PROBLEMS AFFECTING TLRN CORRIDORS IDENTIFIED

Section Summary:

There is a close relationship between London's road network and its ability to bring forward the necessary level of housing and commercial development to support 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**

There is a close relationship between London's road network and its ability to bring forward the necessary level of housing and commercial development to support growth

2.47. 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.

2.48. Within London the number of homes being built has fallen short of the level of need.

2.49. Much of London's land is already developed. The city's Opportunity Areas (OAs), shown in Figure 11, are its largest remaining brownfield sites for potential development.

2.50. 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.

2.51. 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.

2.52. 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

2.53. 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.

2.54. 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.

2.55. 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 15. Traffic levels can affect the vitality of town centres and quality of place and life through creating severance, noise and air pollution.

Figure 15: The RTF street types matrix

2.56. Roads such as the A12 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. Other roads such as Kensington High Street have to balance a clear movement function with an equally important place function.

2.57. 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.

2.58. 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 15 have the effect of discouraging new residential development and lowering property prices.

2.59. 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 Leytonstone, whilst not addressing the issue of congestion, would maintain the strategic movement role of roads such as the A12 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

2.60. 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.

2.61. 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.

2.62. 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.

2.63. 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.

2.64. 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

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

2.65. 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.

2.66. 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.

2.67. 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.

2.68. 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

2.69. 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.

2.70. 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.

2.71. 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.

2.72. 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.

2.73. 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.

2.74. 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 IMPROVEMENT ON TLRN CORRIDORS

Section Summary:

The Roads Task Force report 2013 recommends that TfL consider the delivery of major highway interventions on the TLRN, including tunnels, fly unders and over-decking.

A process of prioritisation has been adopted, with a long list of 70 locations assessed using Multi-Criteria Analysis to identify which locations tunnel, fly under 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. Further feasibility work has since commenced on other scheme proposals.

2.75. 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 under consideration.

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

2.77. 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.

2.78. 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.

2.79. 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: THE 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, nine have been taken forward for further feasibility work**

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

2.80. 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.

2.81. 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.

2.82. 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'.

2.83. 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

2.84. 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

2.85. 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

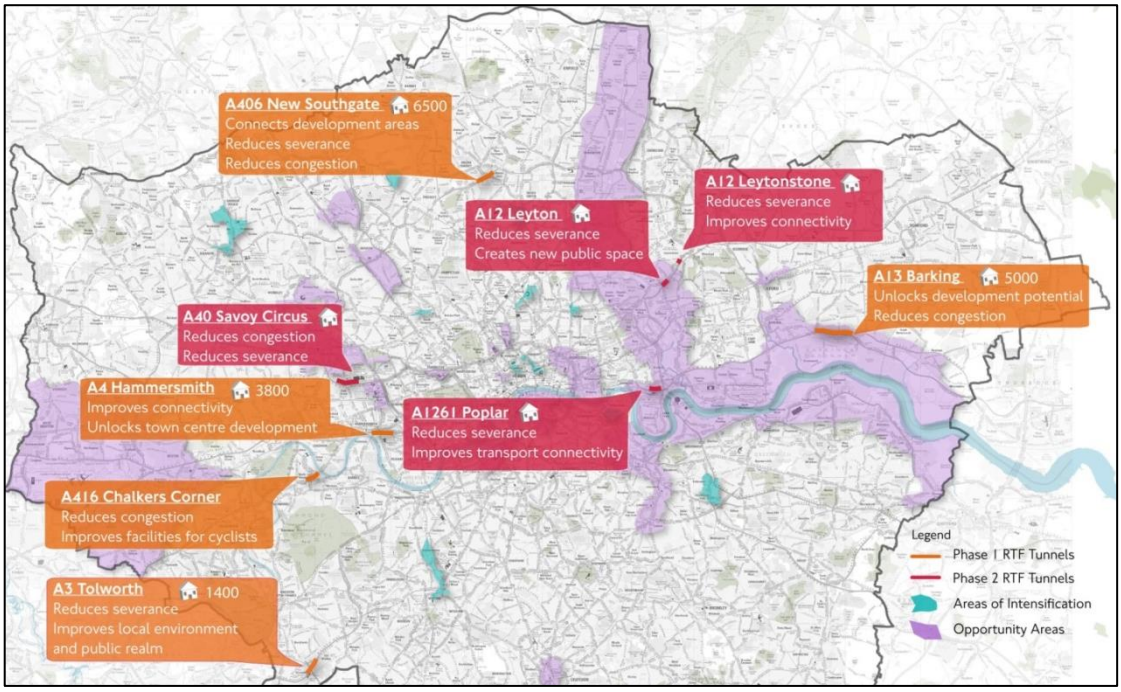
2.86. From an initial list of approximately 70 locations, through a Multi-Criteria Analysis (MCA) a shortlist of fifteen sites was identified. These sites were identified as having sufficient potential for initial feasibility studies. A combined score was developed from SAF[22] and RTF appraisals. For 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;
- Route to consent; and
- Cost of delivery

[22] 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.

From a short list of 15 schemes, nine have been taken forward for further feasibility work. The Leytonstone decking scheme is one of these nine

Figure 16: The locations of the nine RTF tunnel/decking schemes



2.87. As part of a rolling feasibility assessment programme, five initial locations were taken forward for further assessment in 2015. These five locations are:

- A13, Barking Riverside
- A3, Tolworth
- A316, Chalkers Corner
- A4, Hammersmith
- A406, New Southgate

2.88. A further four locations have been taken forward in 2015/16. These four locations are:

- **A12, Leytonstone**
- A12, Leyton
- A1261, Poplar
- A40, Savoy Circus

2.89. All nine schemes are shown above at Figure 16.

PART E: THE PROBLEMS IDENTIFIED ON THE A12 AT LEYTONSTONE

Section Summary:

A growing population in northeast London and the London Borough of Waltham Forest requires higher density residential development in accessible locations

- **Projected population growth in LB Waltham Forest is outstripping delivery of new homes**
- **There is land available for development in Leytonstone town centre, but its potential to accommodate high-density development is constrained by the negative impacts of the A12**

The A12 causes severance, visual blight, noise and air pollution, which together inhibit walking and cycling movements along with access to public transport

- **The A12 exerts a negative impact on local connectivity within Leytonstone town centre**
- **Severance caused by the A12 restricts access to public transport**
- **There is a need to balance demand for private vehicle travel with the demands of other road users**
- **Air and noise pollution around the A12 are extremely high**

The capacity and function of the A12 strategic road corridor need to be maintained

- **The A12 serves a key strategic movement function, which delivers substantial economic benefits to London and the UK**

A growing population in northeast London and the London Borough of Waltham Forest requires higher density residential development in accessible locations

2.90. The A12 is a heavily used road connecting central London, the Blackwall Tunnel, Stratford east London, the M11 and major towns in Essex and Suffolk. It forms part of London's strategic road network, connecting central London both with areas to the east and northeast, including Stansted Airport.

2.91. The section of the A12 through Leytonstone, known as the M11 Link Road, was constructed in the 1990s, against fierce opposition in the local community. The road was built to near-motorway standard, replacing the former single carriageway route into central London that ran along heavily congested local high streets.

2.92. The M11 to A13 Link Road known as the A12, follows the alignment of the London Underground Central Line tracks at Leytonstone. Although the railway tracks are at-grade, the road was built below ground level, though it is still open to the air above.

2.93. Whilst improving connectivity and journey experience for users of the A12 and relieving congestion on local high streets, the construction of the M11 Link Road created new barriers for local communities along its route, leading to increased

severance and poor local environment. Though the new road was constructed below ground level, it still created a significant barrier to east-west movements through Leytonstone. An image of the road as it exists today can be seen in Figure 17.

2.94. Today, this stretch of the A12 is an important and busy section of the Transport for London Road Network (TLRN). It carries Average Annual Daily Traffic (AADT) flows of 97,000, of which approximately 6% are Heavy Goods Vehicles. Reduction in the capacity of this road would lead to severe congestion on both this and other routes in the area, worsening environmental conditions and damaging London's economy.

Figure 17: Existing conditions on the A12 at Leytonstone

Projected population growth in LB Waltham Forest is outstripping delivery of new homes

2.95. In recent years, population and employment growth in the London Borough of Waltham Forest has been significant. In 2011, Waltham Forest had a population of 260,000 people, an increase of 17% from the 2001 population. Between 2011 and 2031, this population is projected to rise by a further 18% to 307,000 people[23] as shown in Figure 18. This growth rate is slightly higher than that projected for outer London as a whole. It is worth noting that in recent years population projections have consistently underestimated the actual population growth observed in London.

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

2.96. At the same time, the population of boroughs around Waltham Forest in northeast London is also projected to rise rapidly. Boroughs neighbouring Waltham Forest, including Redbridge and Newham, are also among the fastest-growing boroughs in London.

2.97. Importantly, the projected population growth in this area is not matched by a similar rate of growth in home building. Between 2009 and 2014, there was an increase of 2313 housing units in Waltham Forest. This is 1297 units less than the target set for the borough in the London Plan, representing a shortfall of 36%[24].

2.98. Despite this recent shortfall, the housing target for Waltham Forest was increased in the March 2015 Further Alterations to the London Plan, from 760 to 862 units per year, reflecting the acceleration of projected population growth in this area and London as a whole.

2.99. Given the shortfall in homes compared to the projected increase in population, significant increases in house prices in Waltham Forest and the wider area can be expected as a result of demand outstripping supply.

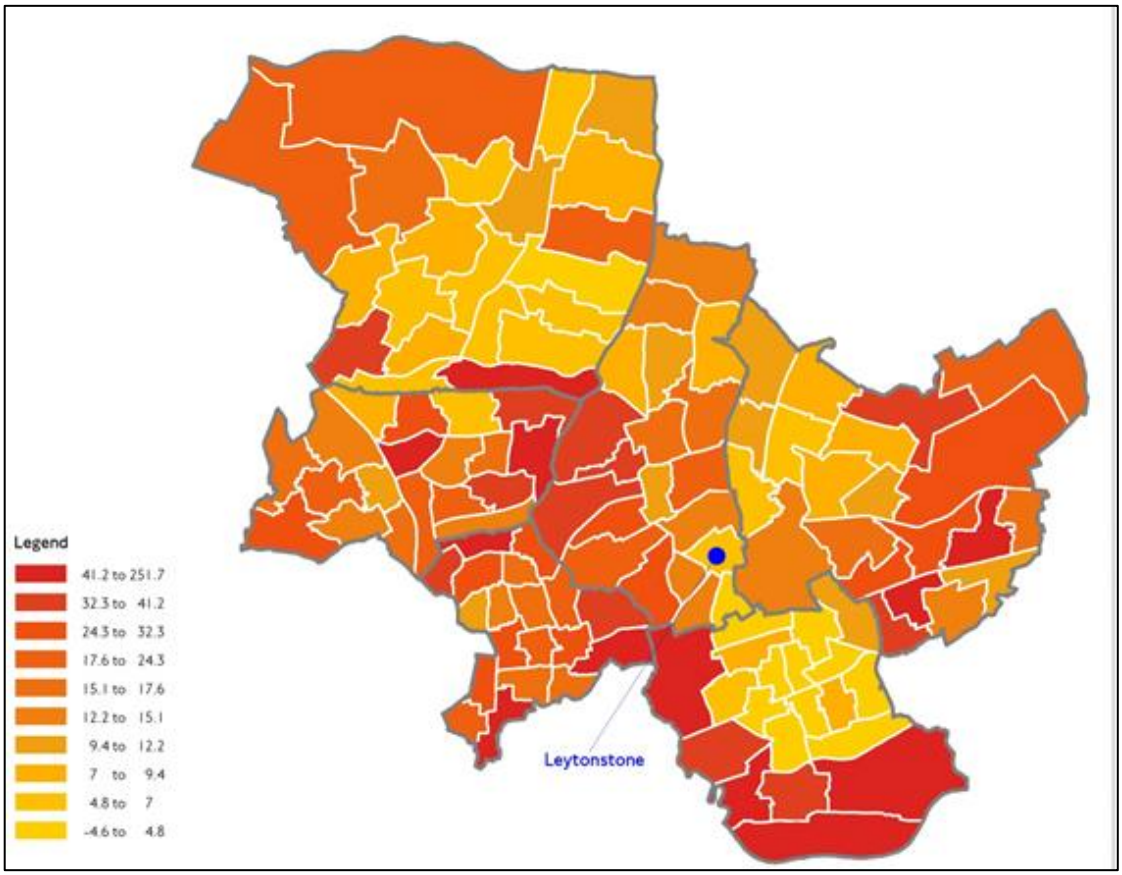
2.100. The effect of demand outstripping supply driving up house prices is already being seen in Waltham Forest. Between 2009 and 2014, median house prices in the borough rose by 51% from £212,000 to £320,000[25]. Prices rose by 21% between 2013 and 2014 alone. This was the fourth highest rate of growth across London boroughs. Though such increases cannot be attributed entirely to shortfalls in construction, it is clear that without a substantial increase in the number of new homes built in this area, prices are likely to continue rising rapidly, leading to increasing unaffordability and potentially wider social polarisation in the area.

Key Finding:

LB Waltham Forest requires a substantial increase in homes. If homebuilding in this area is not substantially increased, this will likely lead to greater unaffordability and social polarisation in the area.

[24] LB Waltham Forest Annual Monitoring Report 2013/14.
[25] GLA, Average House Prices by Borough

Figure 18: Projected Population Change in Northeast London, 2011 to 2031



There is land available for development in Leytonstone town centre, but its potential to accommodate high-density development is constrained by the negative impacts of the A12.

2.101. Leytonstone as a whole is a desirable area in which to live, with long-established residential neighbourhoods, an established town centre and good transport connectivity, both via the A12 and public transport. However, opportunities for development within the town centre are largely constrained, and this is reflected in the projected lower population growth rate for the area compared to neighbouring town centres. Almost all of the area around the town centre is currently occupied by low-rise Victorian housing, and any redevelopment of these residential areas is highly unlikely.

2.102. The poor prospects for redevelopment around Leytonstone are reflected in the much lower projections of population growth in this area compared with other parts of Waltham Forest. As shown in Figure 18, between 2011 and 2031, the population of Leytonstone ward if projected to rise by just 5.77%, well below what the borough as a whole will need to accommodate.

2.103. Within the town centre and around Leytonstone station itself, there are notable pockets of land with significant development potential (either to replace their current usage or for oversite development allowing their current usage to continue). To date, however, no plans have come forward to develop these sites. Potential development sites include the current London Underground car park

between the railway and A12, the privately owned car park to the south east of the Tube station, the two bus stations, and the commercial block occupied by Matalan and other stores along with its associated car park northeast of the station. The station building itself is also potentially suitable for oversite development.

2.104. However, given these sites all face directly onto the A12 or railway corridor, they are particularly strongly impacted by the poor environment and restricted connectivity associated with this transport corridor. It is unlikely that dense development on these sites would be possible without a significant intervention to address the severance and environmental damage caused by the A12. Without such an intervention, these sites are likely to continue in their current usage, failing to take advantage of these opportunities to help meet the demand for housing in Waltham Forest and London more widely.

Key Finding:

There is a significant demand for new housing in the area around Leytonstone, but at present there are very few opportunities to accommodate such housing in Leytonstone. The opportunities that do exist are currently constrained by the negative impact of the A12 and Central Line corridor.

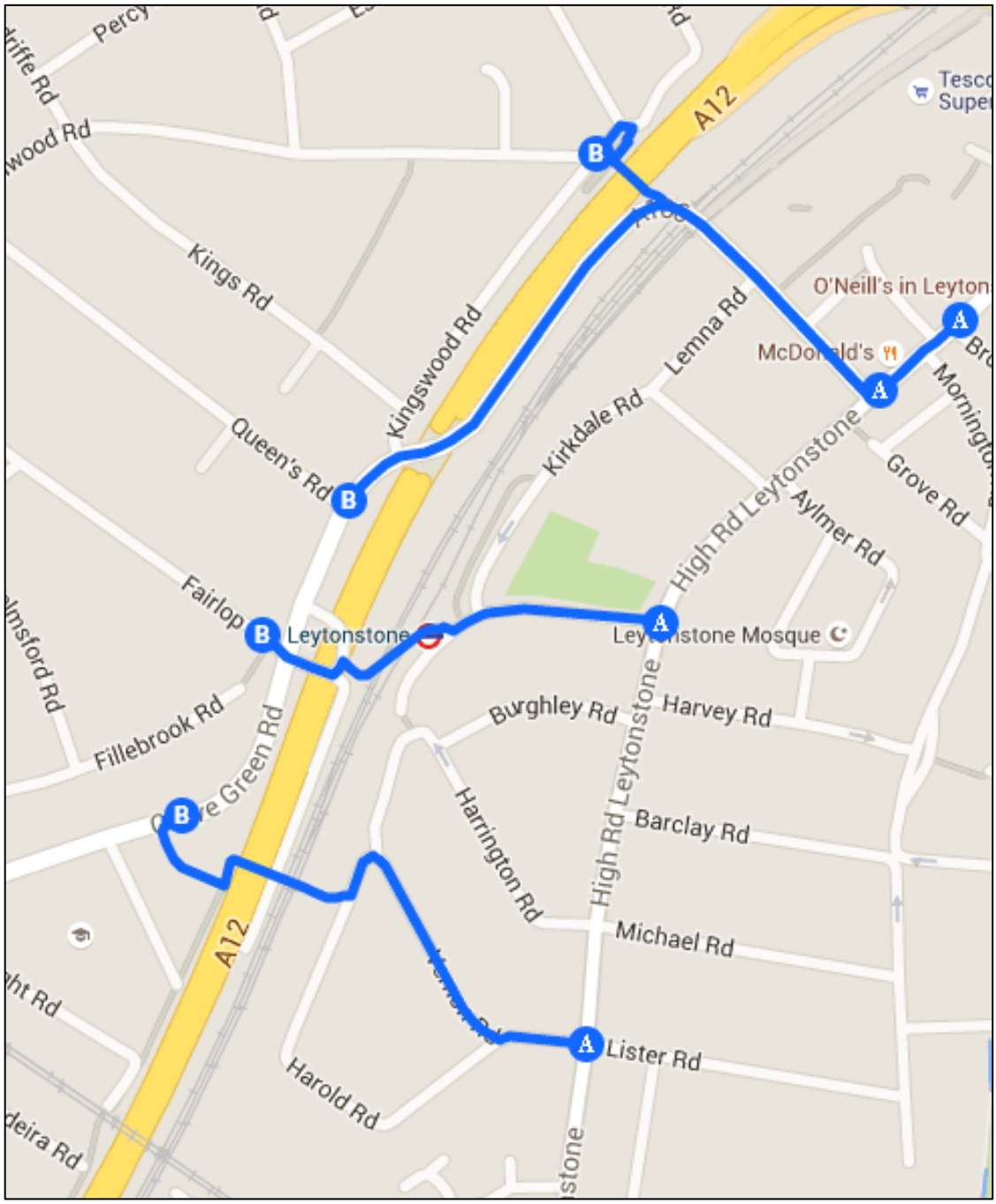
The A12 causes severance, visual blight, noise and air pollution, which together inhibit walking and cycling movements along with access to public transport

The A12 exerts a negative impact on local East to West connectivity within Leytonstone town centre

2.105. The physical presence of the A12, the associated noise and visual intrusion, and the presence of almost 100,000 fast-moving vehicles daily, causes both physical and perceptual severance, creating a barrier between Leytonstone town centre, station and the residential areas to the west.

2.106. In the area around Leytonstone town centre, there are four points at which the A12/Central Line corridor can be crossed, as shown in Figure 19. Only one of these routes (the subway through the Tube station) offers a relatively direct means of crossing the road and railway, with the others all requiring significant detours, ramps or stairs. For cyclists, there is no direct route as they must dismount through the station.

Figure 19: Crossings across the road/railway corridor in Leytonstone



2.107. None of the road and railway corridor crossings are attractive routes by which to move through the area. Both the northern and southernmost routes are unattractive pedestrian/cycle bridges (as shown in Figure 20), which require detours to access and do not give off an appearance of being safe and secure. They both also involve many steps or circuitous ramps, making them unattractive to cyclists. The only route to follow a road, along the A106 to the north of the station, is highly circuitous and exposes travellers to the noise and air pollution emanating from the A12. The most direct and central route, the subway through the Tube station, is narrow and congested at peak times, and is designed

primarily for accessing the station rather than navigating across the road corridor.

Figure 20: Pedestrian/cycle bridge to the south of Leytonstone station

2.108. Taken together, these difficulties in crossing the road/railway corridor at Leytonstone create a significant severance, giving a sense of Leytonstone as two communities divided in half, rather than one cohesive area where people can move fluidly between their homes, leisure destinations and key services.

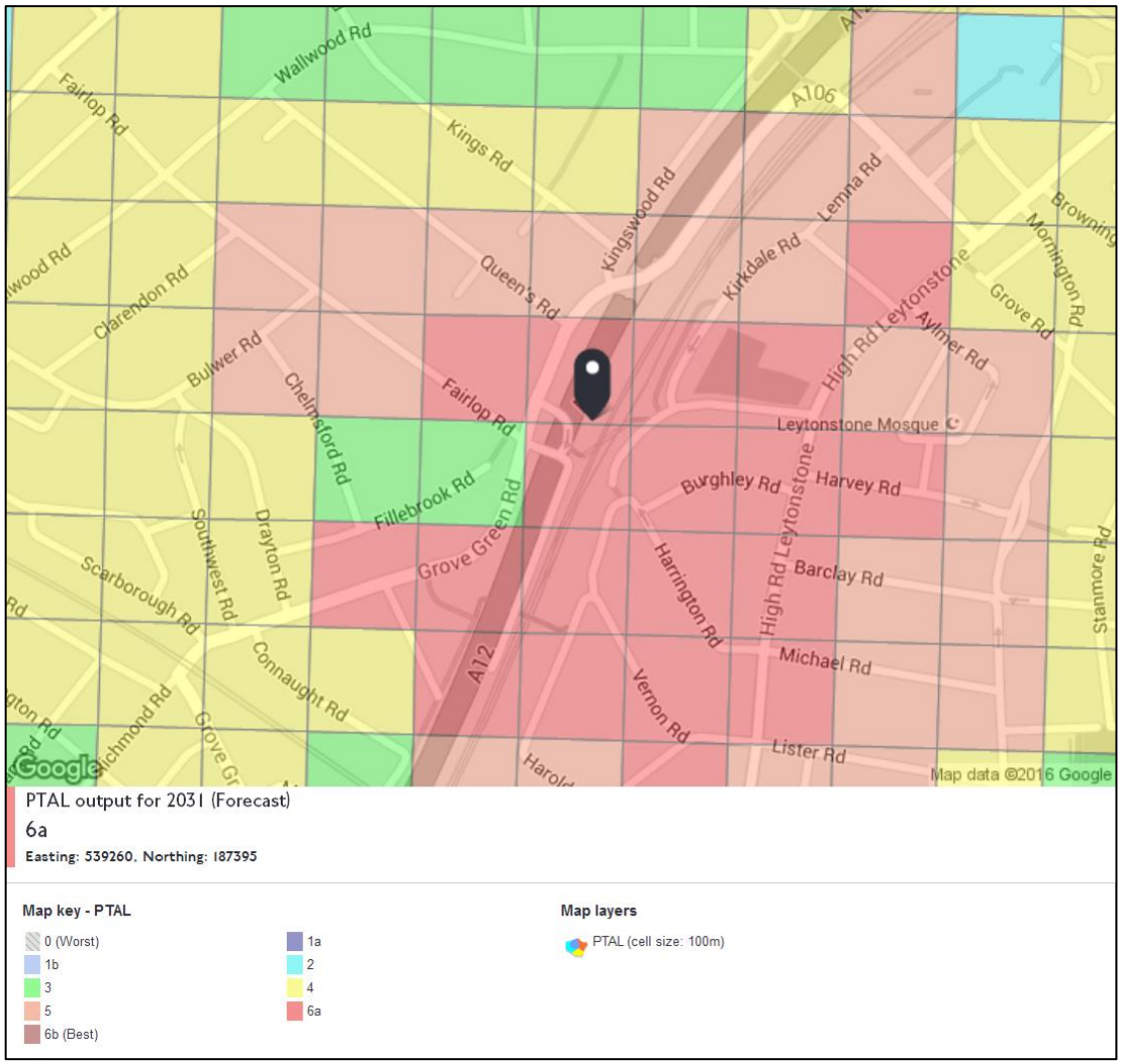
Severance caused by the A12 restricts access to public transport

2.109. As detailed above, in order to access the rail services from Leytonstone station, as well as bus services serving the eastern bus station, cyclists and pedestrians coming from the western side of the A12 currently have to use the limited crossings provided across the A12. This leads to move convoluted journeys, longer access times and poorer accessibility to public transport.

2.110. The current PTAL level, which gauges connectivity to public transport services (bus and rail), for the area around Leytonstone is shown in

2.111. Figure 21. It can be seen that Leytonstone in general has very good public transport accessibility, with frequent services from Leytonstone station and the two bus stations. However, the effect of the severance caused by the A12 can be seen in the rapid drop off in accessibility experienced by residents around Fillebrook Road and Chelmsford Road, for whom access to public transport is much more restricted due to the barrier of crossing the main road.

Figure 21: Projected PTAL levels at Leytonstone in 2031 without decking scheme



There is a need to balance demand for private vehicle travel with the demands of other road users

2.112. In line with the rest of Outer London, the north London sub-region sees 45% of all trips completed by car.[26]

2.113. Travel to work mode shares within Waltham Forest itself indicate that there is a wide diversity of modes of travel to work. As of the 2011 census, 31% of Waltham Forest residents who travel to work used a car or van (either as driver or passenger) as their main mode of transport for their commute. This made it the second most common mode of transport to work, behind underground/light rail.

2.114. Though car travel is clearly a significant element of the transport network in Waltham Forest and northeast London more generally, only a minority of trips are made using cars, with many more trips being undertaken on public transport, as well as on bicycle or foot. These transport users need to have appropriate facilities that enable them to access public transport or navigate their local area via active modes of travel.

[26] North London sub-regional plan update poster, TfL, 2014.

Air and noise pollution around the A12 are extremely high

2.115. The physical and perceptual severance caused by the A12, coupled with the noise and air pollution associated with the daily 100,000 vehicles using the A12 mean that quality of life for those living and travelling close to the A12 is negatively impacted.

2.116. The A12 reaches the highest measured daily noise level for roads of 75+ decibels (Figure 22), whilst levels of NO_2, a major air pollutant, is also high (Figure 23).

2.117. These high levels of noise and air pollution create an unpleasant environment along the road and railway corridor, reducing the likelihood of further residential and business development coming forward, as few want to live or work in such an environment.

Key Finding:

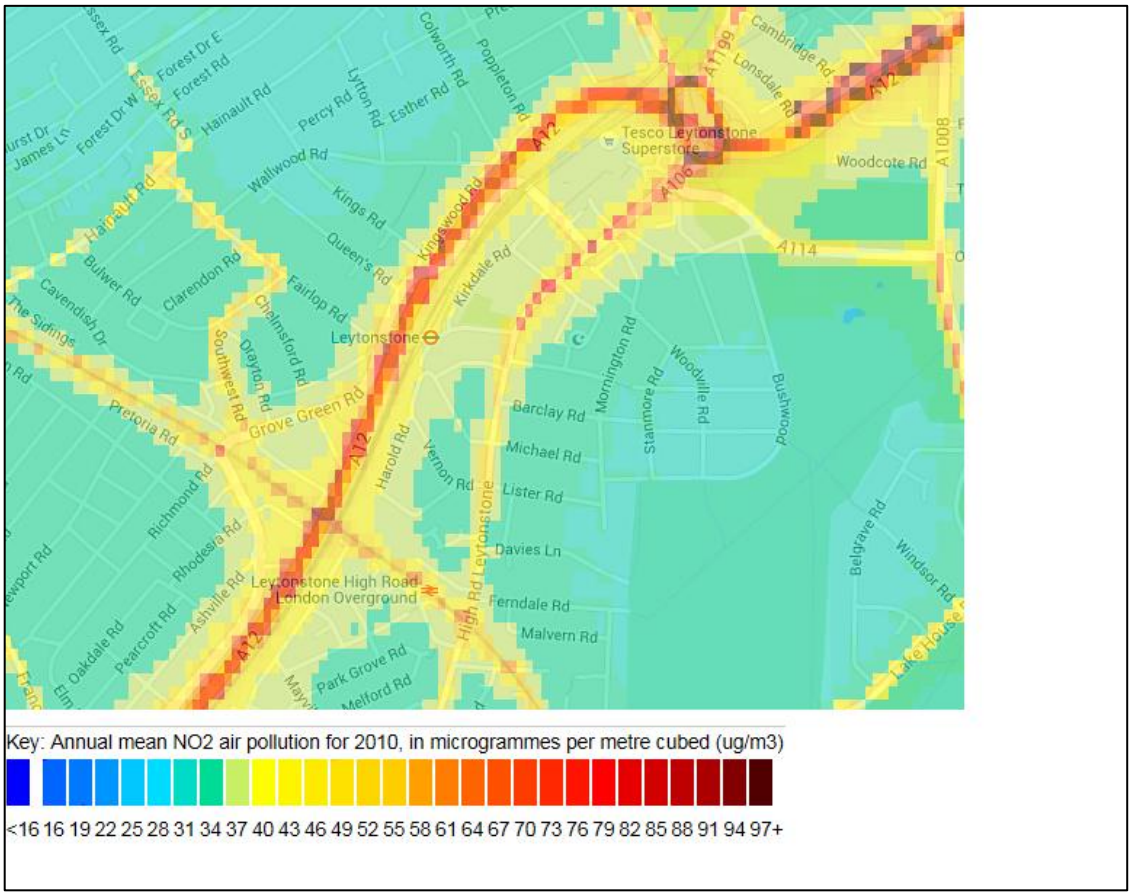
Pedestrians and cyclists are negatively affected by the severance, visual blight, noise and air pollution caused by the A12 in Leytonstone. The severance cased by the A12 also restricts access to Leytonstone station and public transport services more generally.

An infrastructure solution is required which better balances the demand for private vehicle travel with the needs of pedestrians, cyclists and public transport users.

Figure 22: Noise levels at Leytonstone[27]

[27] DEFRA – Noise Mapping England. http://services.defra.gov.uk/wps/portal/noise/

Figure 23: NO_2 levels at Leytonstone[28]



The capacity and function of the A12 strategic road corridor needs to be maintained

2.118. The A12 in Leytonstone 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% of London's road length but carries 30% of London's traffic.

2.119. The A12 is a key link in this network, providing a strategic route linking central London, the Blackwall Tunnel, Stratford, the M11 and East Anglia. Traffic data indicates the road consistently carries Average Annual Daily Traffic (AADT) flows of 97,000, of which approximately 6% are Heavy Goods Vehicles.

The A12 serves a key strategic movement function, which delivers substantial economic benefits to London and the UK

2.120. The strategic traffic flow supported by the A12 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 A12 as part of its Road Investment Strategy in order to support sustainable economic growth.

[28] http://www.cleanerairforlondon.org.uk/londons-air/air-quality-data/london-emissions-laei/laei-personalised-view

2.121. 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 A12 on Leytonstone must avoid harming the traffic flow of the A12.

Key Finding:

Any proposal to address the negative impacts of the A12 must maintain the important movement function of the A12 and wider TLRN.

PART F: OBJECTIVES FOR THE A12 AT LEYTONSTONE AND OPTIONS IDENTIFIED

Section Summary:

- **Objectives and measures of success for an intervention on the A12 at Leytonstone have been defined.**
- **Options for achieving these objectives have been identified.**
- **The recommended option is Option 3.**

Objectives and measures for success for the A12 at Leytonstone

2.122. The objectives for any enhancements to the A12 at Leytonstone are listed in Table 6 below. To ensure the project objectives are achieved, measures of success have been identified, and these are also included in Table 6. More specific measures and the associated monitoring strategy will be developed at a later stage.

Table 6: Objectives and measures of success for the A12 at Leytonstone

Strategic challenges	Objectives for the A12 at Leytonstone	Measures of success
A growing population in northeast London and the London Borough of Waltham Forest requires higher density residential development in accessible locations	Facilitate regeneration and development at Leytonstone including a significant number of new homes	Creation of up to 377 new homes Stimulating development on sites in a wider area around Leytonstone
The A12 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 the two halves of Leytonstone, enhancing the quality of the urban realm and local environment	Creation of new surface links between the two sides of Leytonstone Provision of attractive cycling and walking routes Provision of high-quality new open space Reduced noise and air pollution around the deck above the A12

The capacity and function of the A12 strategic road corridor need to be maintained	Maintain and improve the vital strategic movement function of the A12 at Leytonstone while accomplishing the above objectives	Traffic counts and measures of delay on the A12 at Leytonstone

Options for the A12 at Leytonstone

The options appraisal process described in Part D concluded that further feasibility investigation into decking the A12 at Leytonstone should be undertaken

2.123. Having identified Leytonstone as a priority location for investigating the feasibility of providing a decking intervention, a number of options were considered.

2.124. Early feasibility work identified two potential decks that could be constructed at Leytonstone: one to the north of the Tube station, and one to the south. Constructing both decks was seen as the preferred option as this would deliver the highest benefits in terms of connectivity, new public space and maximising development.

2.125. Further feasibility work refined these ideas and identified three main options for this scheme. The major points that vary between the options are the use of the northern deck for either a bus station or development, and whether or not the deck should hold car parking to replace that lost from the current car parks on the site.

Option 1

2.126. Option 1 would not alter bus facilities at Leytonstone, with the northern deck used for development. Replacement car parking would be provided to replace the existing Tube station car park.

2.127. As set out on Figure 24 and Figure 25 respectively, it creates new development based on four decks (three new, one existing):

- A deck over the Central line enabling development on two existing car parks;
- Modification of the existing deck to reconfigure bus parking and add mixed use development and public space.
- An adjacent deck over the A12 for lightweight use to the south of the existing deck;
- A third deck with new development to the north of the existing deck;

Figure 24: Option 1 masterplan

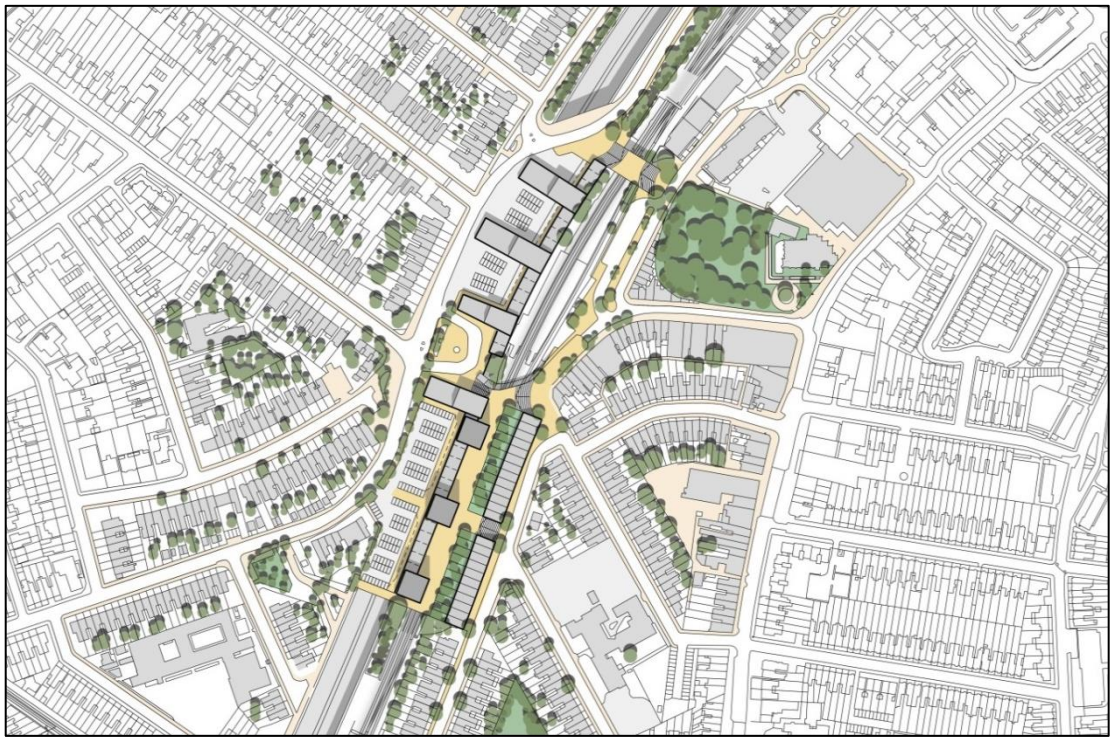
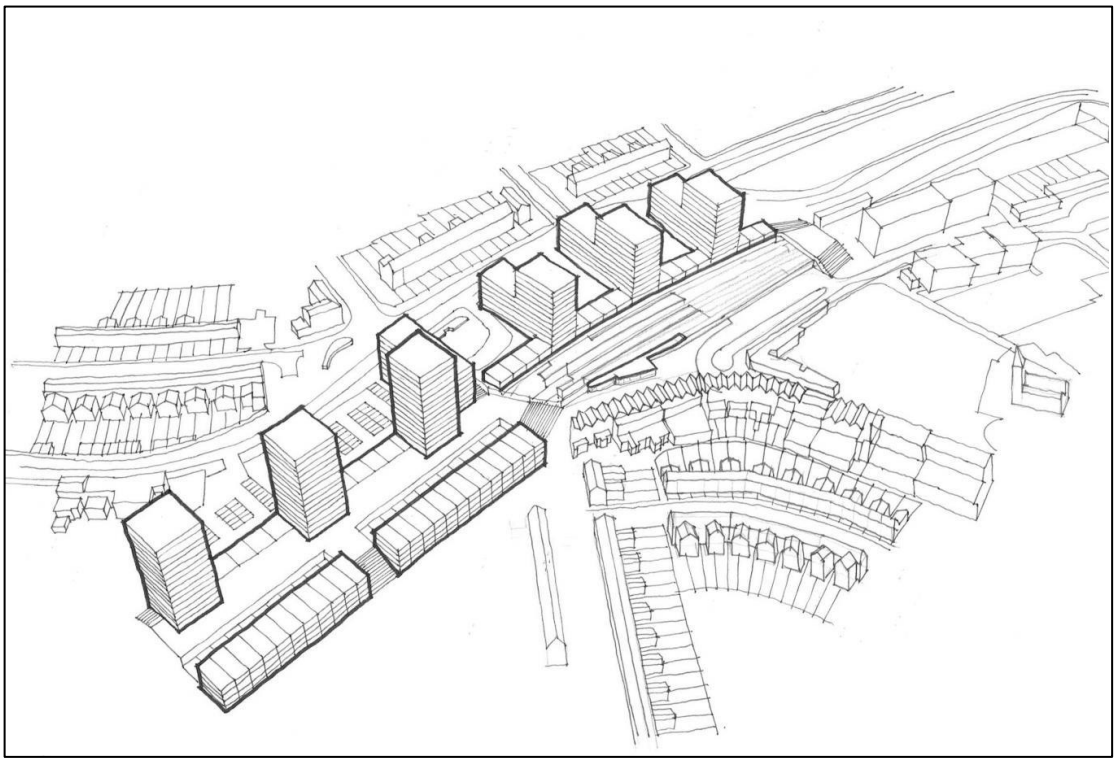


Figure 25: Option 1 visualisation



2.128. The proposals place emphasis on providing new homes in order to contribute to Waltham Forest's housing target set out in the Borough's Local Plan. In addition to housing, the proposals include for mixed development and employment uses

at street level.

2.129. The proposals include a mixture of commercial, residential and live/work units, although the focus is on residential given LBWF's aspirations for the area and on the basis that it is not a designated town centre or employment area. This includes new town houses along the eastern edge to face existing development and complement the current architecture by providing a transition in scale from the existing to the proposed larger structures located on the deck. This also makes use of a 121m space between buildings on Grove Green Road (west) and Church Lane (east) so as that buildings are tallest where located furthest from existing buildings.

Option 2

2.130. As with Option 1, Option 2 (see Figure 26 and Figure 27 respectively) proposes development over four decks (three new, one existing):

- A deck over the Central line enabling development on two existing car parks;
- Modification of the existing deck to reconfigure bus parking and add mixed use development and public space.
- An adjacent deck over the A12 for lightweight use to the south of the existing deck;
- A third deck with new development to the north of the existing deck;

2.131. This option would use the northern deck for a new bus station, enabling the existing bus stations to be redeveloped. Some car parking would be retained on the southern deck to replace the existing Tube station car park.

2.132. As with Option 1, the design aims to reduce pedestrian severance between the residential area to the west and town centre to the east. Limited existing crossings mean that those living to the west have reduced access to amenities than those living to the east of the A12/ Central line. The proposal retains two new surface level pedestrian crossings over the A12 included in Option 1 and enlarges an existing crossing at Dyers Hall Road alongside a new raised public space.

2.133. The proposal includes a new public square over the A12 which would form the approach to Leytonstone Station from the west. As with Option 1, it will be supported by ground level retail. A wide pedestrian route, raised on a deck over the Central line would provide public space and access to the proposed residential blocks.

2.134. Under this option, is proposed that existing bus facilities on the deck off Grove Green Road and off Kirkdale Road (to the Northwest of Leytonstone LU station) would be relocated to the new northerly deck over the A12. This would consolidate bus movements to and from Leytonstone town centre into a single location and may enable service reconfiguration that realises operating efficiencies and passenger benefits.

2.135. Car parking would be provided on the new deck to the south of the existing deck. This would replace the existing car parks located either side of Leytonstone LU

station.

Figure 26: Option 2 masterplan

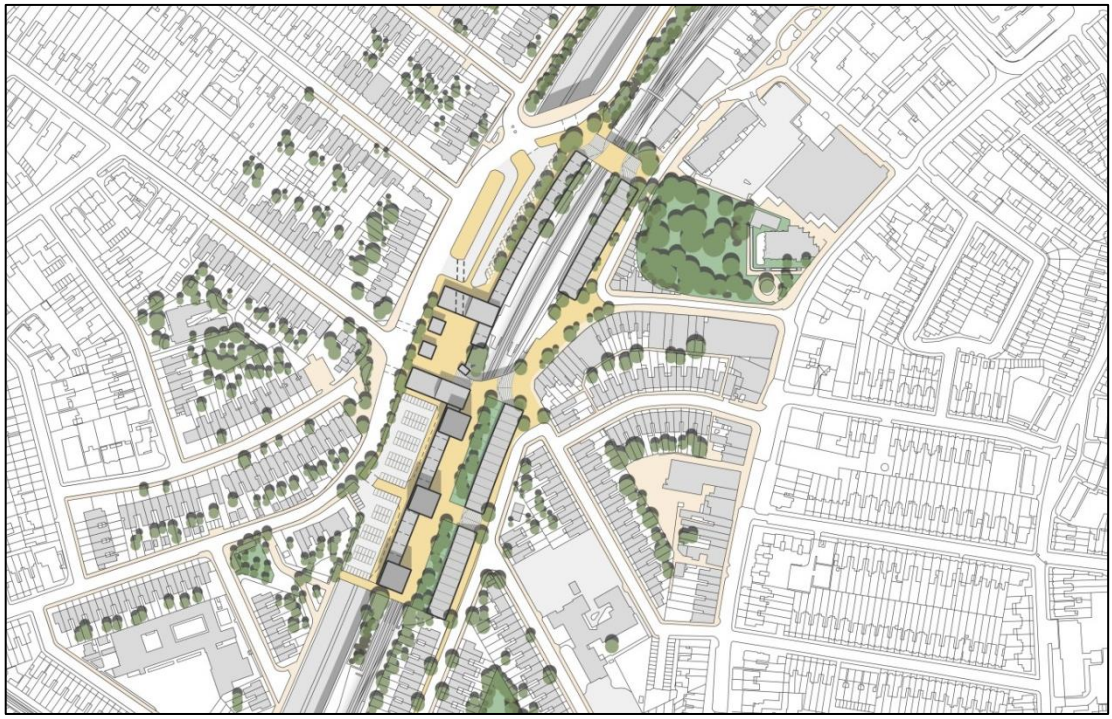
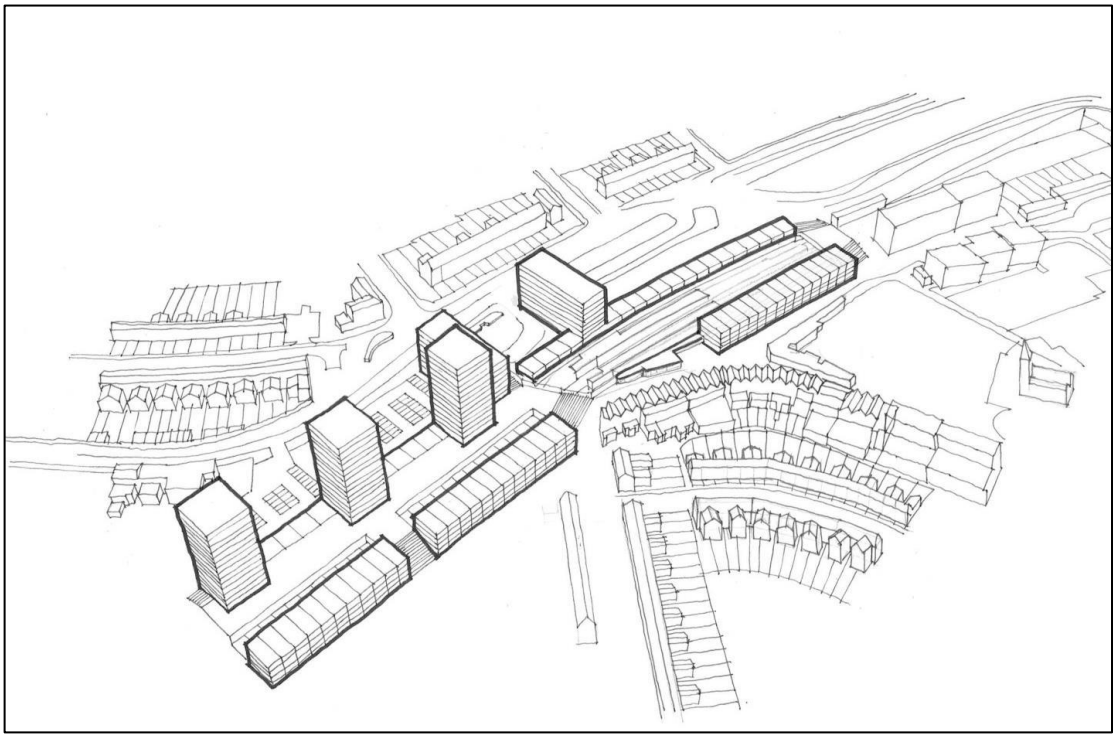


Figure 27: Option 2 Visualisation



Option 3

2.136. Option 3, shown in Figure 28 and Figure 29 respectively, would again use the northern deck for a new bus station, while in this option no car parking would be retained, with additional open space in its place.

2.137. Option 3 combines elements of Options 1 and 2 again through the provision of four decks. The deck proposed to be built to the south of the existing deck off Grove Green Road would need to accommodate development in this option.

2.138. in addition to the bus facility relocation described for Option 2, the new southerly deck would in this option be used for mixed-use development rather than car parking. With the redevelopment of the existing car parking facilities, this would mean a removal of car parking adjacent to Leytonstone LU station. This is judged to be acceptable as this station is in Zone 2/3 where relatively few LU stations have car parking, although more detailed analysis and liaison with London Underground would be required to confirm this.

2.139. The mixed use development on the southerly deck would feature new urban realm improvements. Land owned by LBWF at the corner of Grove Green Road and Dyers Hall Road could also be potentially developed under this option. This has not been assessed as part of this study.

Figure 28: Option 3 masterplan

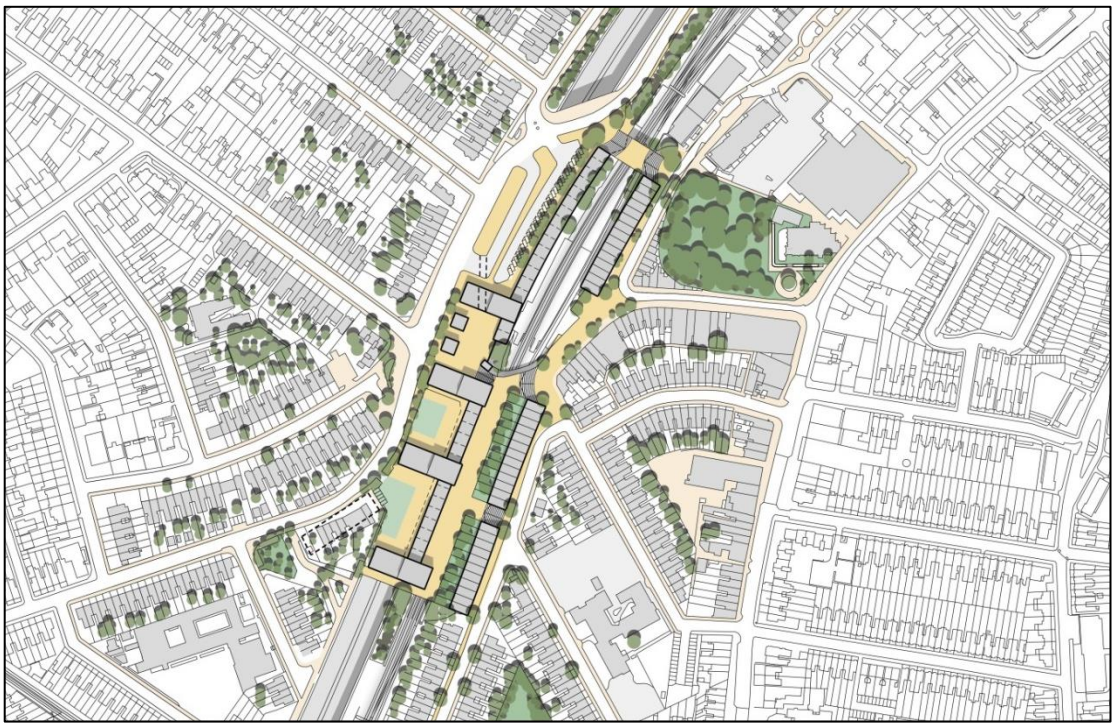
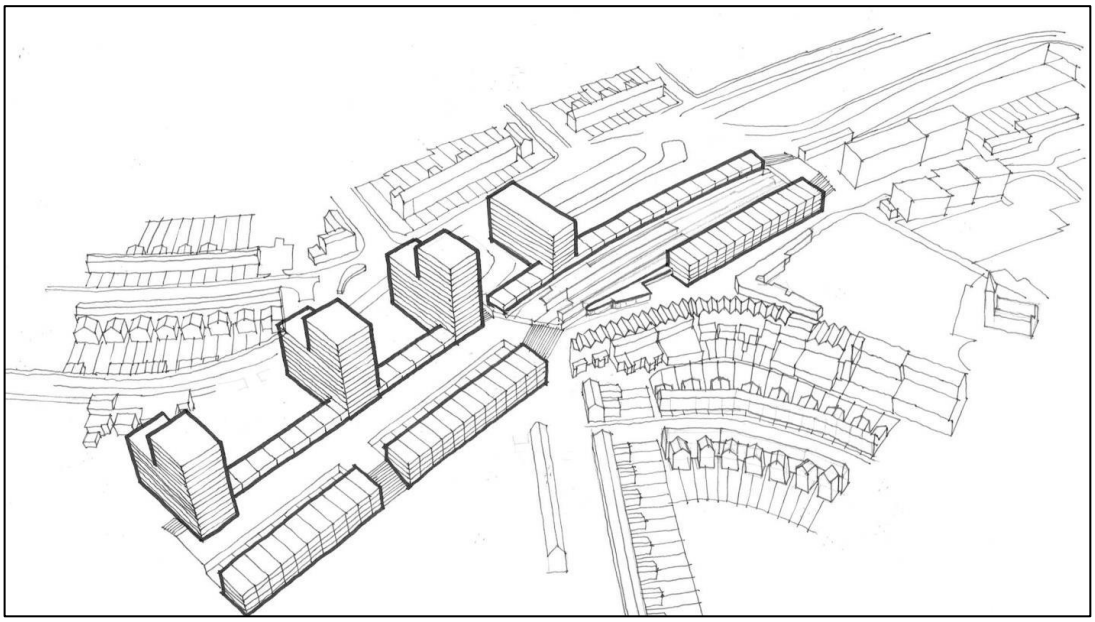


Figure 29: Option 3 Visualisation



Based on assessments of land use effects, structural integrity and economic benefits, Option 3 emerged as the option most likely to deliver against the objectives

2.140. Based on the analysis set out above, the preferred option is Option 3 at Leytonstone because:

- Improves accessibility to Leytonstone station relative to the base case and Option 1;
- Maximises transport-orientated residential development potential close to Leytonstone Station relative to Option 2;
- Maximises urban realm potential relative to Option 1 through the proposed public space on the existing deck that is being used for a bus station;
- Reduces severance across A12 and Central Line more effectively than Option 1.

2.141. Remaining issues with the preferred option include:

- Substantial residual funding gap;
- Developing design proposals that meet highway and London Underground requirements for oversite development;
- Assessment of feasibility of bus service and facility reconfiguration with TfL Buses and other stakeholders.

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

2.142. 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 may involve temporary and permanent acquisition of residential properties.	Working closely with LB Waltham Forest and local residents to minimise impact on residents and those affected by the scheme.
Impact on A12 traffic during construction	Construction	Risk that disruption to traffic on strategic road network is unmanageable during construction.	Use best practice to understand innovative construction techniques. Careful traffic management and diversions would be required to ensure delays and disruption are minimised.
Proposed masterplan layout	Planning	No formal consent for number of dwellings/construction as outlined in masterplan. Development applications may come forward on nearby sites before scheme implementation.	Working closely with LB Waltham Forest, GLA and other stakeholders to agree way forward and safeguard opportunities where possible.

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

2.143. Interdependencies identified include:

- The Central Line is proposed to be upgraded in the mid-2020s as part of the New

Tube for London plan.

- This will increase the capacity of trains serving Leytonstone station and may involve some alterations to the station, for example the introduction of platform-edge doors.

PART G: HOW THE DECKING OPTION ADDRESSES THE ISSUES AND CHALLENGES

Section Summary:

This section sets out how the proposed decking scheme addresses the objectives for an intervention at Leytonstone identified in Part F.

Objective 1: Facilitate regeneration and development at Leytonstone including a significant number of new homes

- **The development delivered by this scheme would create new homes in an ideal location**
- **Wider objectives for redevelopment and growth in Leytonstone would be supported by this scheme**

Objective 2: Improve the connectivity between the two halves of Leytonstone, enhancing the quality of the urban realm and local environment

- **The deck would improve connectivity between the two halves of Leytonstone**
- **The proposed deck would improve access to public transport in Leytonstone**
- **The local environment around the A12 would be improved with new public space and reduced noise**

Objective 3: Maintain the vital strategic movement function of the A12 while accomplishing the above objectives

- **The capacity of the A12 would not be affected by this scheme**

2.144. Decking over a section of the A12 in Leytonstone would unlock significant development sites, helping to deliver new homes that are desperately needed in an area of rapid population growth. It would provide new public space and improved connectivity between the western and eastern halves of Leytonstone, greatly improving access to Leytonstone town centre. The currently poor urban realm and environment would be improved, enhancing the quality of life in the area. These objectives would be accomplished without reducing the capacity of the strategically important A12. These issues are discussed in greater depth below.

Objective 1: Facilitate regeneration and development at Leytonstone including a significant number of new homes

The development delivered by this scheme would create new homes in an accessible location

2.145. The area around Leytonstone is ideally located for high-density development given its very high public transport accessibility level. This scheme would create 377 new homes on land that is not currently developable, including new development directly on top of the A12 as well as on the current Tube station car parks.

2.146. These homes would be located almost immediately adjacent to the Tube and bus services, encouraging new residents to use these sustainable modes of transport. This will minimise the impact of this new development on the surrounding road network.

2.147. An estimate of the homes unlocked at each of the development sites for the preferred Option 3 at Leytonstone is shown in. The total number of homes supported by this option is estimated at 377.

Table 8: Estimate of homes unlocked

Block	Footprint (sqm)	Storeys Retail	Storeys Office	Storeys Residential	Residential area (GFA)	Retail (GFA 100m2)	Office (GFA 100m2)	Residential area (NIA)	No. Households
A1	858	0	0	4	3432	0	0	2471	32
A2	858	0	0	4	3432	0	0	2471	32
B1	325	0	0	14	4550	0	0	3276	42
B2	325	0	0	14	4550	0	0	3276	42
B3	325	0	0	14	4550	0	0	3276	42
B4	335	0	0	9	3015	0	0	2171	28
B5	335	0	0	9	3015	0	0	2171	28
B6	335	0	0	9	3015	0	0	2171	28
C1	1360	1	0	2	2720	13.6	0	1958	25
D1	335	1	0	10	3350	3.35	0	2412	31
D2	335	1	0	5	1675	3.35	0	1206	15
E1	1360	0	3	0	0	0	40.8	0	0
F1	1170	1	0	3	3510	11.7	0	2527	32
TOTAL						**32**	**40.8**		**377**

Wider objectives for redevelopment and growth in Leytonstone would be supported by this scheme

2.148. Although the masterplan for the scheme has focused only on the sites mentioned above, the improved connectivity, urban realm and environment created by this scheme could make other sites in a wider area more attractive for redevelopment. The scheme could therefore increase the viability of redevelopment on other sites and help to facilitate even more substantial growth across Leytonstone.

2.149. In addition to the benefits this new development would give in terms of meeting the demand for new housing in this area and London more generally, contributions from these new developments could form a major element of the funding required to construct this scheme. This issue is discussed in depth in the Financial Case.

Key Finding:

The proposed decking scheme has the potential to directly deliver a significant quantity of development above and beside the current A12/Central line corridor. Wider objectives for new development around Leytonstone would also be supported by the improved connectivity and urban realm created by this scheme.

Objective 2: Improve the connectivity between the two halves of Leytonstone, enhancing the quality of the urban realm and local environment

The deck would improve connectivity between the two halves of Leytonstone

2.150. This scheme would create new routes improving and adding to the existing, inadequate crossings of the road and railway corridor.

2.151. In the north, a new bridge would be created across the railway, linking to the existing road crossing at Gainsborough Road. This would remove the need for a long diversion to the north to cross the railway, providing a much more direct link between residential areas in the west and Leytonstone town centre.

2.152. At the southern end of the deck, the entire road and railway corridor would be covered by the deck, creating new public space that would offer flexible routes across the corridor. The deck would replace the existing pedestrian/cycle bridge in this location, which currently offers a circuitous route in an unattractive setting. The southern end of the deck would connect to Grove Green Road and Vernon Road, offering residents to the south of Leytonstone station an improved crossing of the transport corridor.

2.153. Leytonstone town centre is entirely located on the eastern side of the A12. It is very accessible to those who live on this side of the corridor, but residents in the western part of Leytonstone face more circuitous journeys to reach the services and employment on offer in the town centre. By improving the routes across the road and railway, this scheme would open up opportunities to residents of western Leytonstone, which would be of benefit to these residents as well as increasing the vitality and economic performance of the town centre.

The proposed deck would improve access to public transport in Leytonstone

2.154. In addition to improving routes for pedestrians and cyclists within Leytonstone, the accessibility of public transport links would be improved.

2.155. Access to Leytonstone station would be improved, most notably from the south, where passengers would be able to approach the station across the new public space rather than using Grove Green Road and the bus station. As well as reducing physical severance, the perceptual severance caused by the A12 would be reduced, as those accessing the station would be sheltered from the noise of the road and would proceed through a more legible urban landscape than is currently available.

2.156. This improved access to public transport would encourage more people in Leytonstone to travel by sustainable modes of transport, improving health outcomes and potentially contributing to a small reduction in congestion in the local area.

The local environment around the A12 would be improved with new public space and reduced noise

2.157. Whereas the A12 and the area around it are currently characterised by the noise and pollution created by the 97,000 vehicles that use the road every day, this scheme would provide shelter from these negative environmental effects and create a vastly more pleasant urban realm. As well as development, there would be new open space on top of the deck, encouraging its use as a place for socialising as well as moving. What is currently solely a transport corridor would be converted into an attractive new district.

2.158. Noise from traffic would be contained under the deck, helping to reduce the very high noise levels in this area shown in Figure 22. Though further work will be necessary to understand the specific benefits of the scheme in reducing noise, it is clear that the deck would provide considerable shelter from the traffic noise below.

2.159. Further work will be needed to determine the impact of the scheme in terms of reducing air pollution from road traffic.

Key Finding:

Decking the A12 would deliver significant connectivity benefits for Leytonstone, providing improved routes between residential areas and the town centre as well as improved access to public transport services. The scheme would also reduce the existing negative environmental and visual impacts of the A12, resulting in an overall positive impact on the public realm and quality of life for those living and working nearby.

Objective 3: Maintain the vital strategic movement function of the A12

The capacity of the A12 would not be affected by this scheme

2.160. The layout of the A12 would not be changed by this scheme. Though some lane closures and realignments may be necessary during the construction period, once construction is completed the road would continue to have three lanes of traffic available in both directions. It would thus continue to play the same role in London's strategic road network as it does today.

2.161. Modelling has been undertaken to reveal the impact of the new development associated with this scheme on the road network. As no highway schemes are to be implemented to ease congestion in the local area, all impacts are negative (i.e. dis-benefits) as additional traffic would result in increases in delay to all other traffic. Figure 30 shows the changes in flow as a result of the new development proposed by this scheme in the morning and evening peaks.

2.162. An assessment of the impact on the road network from the development proposed at Option 3 was undertaken using LoHAM. The major impact on the road network was from the residential development proposed to be built on and around the new decking structures. Key assumptions used for LoHAM include:

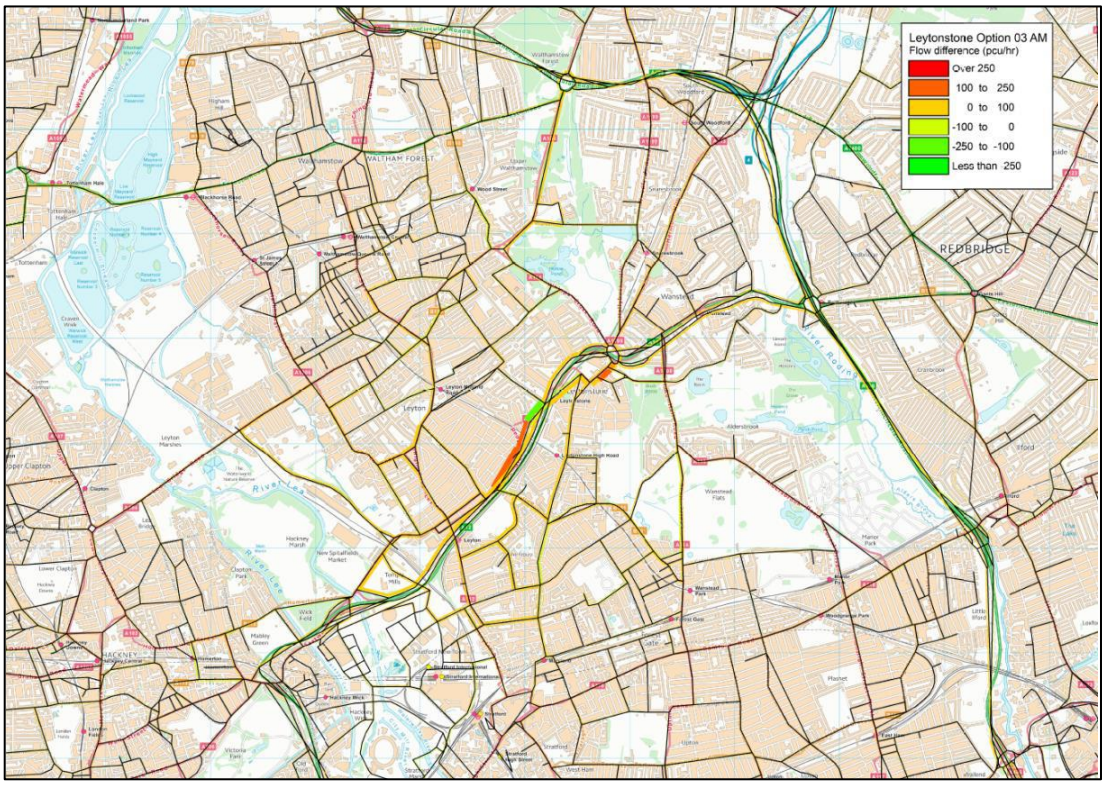
- There would be little to no additional Heavy Goods Vehicle (HGV) trips generated in the AM and PM peak, reflecting the predominantly residential nature of the

development.

- There would likewise be only small numbers of Light Goods Vehicle (LGV), taxi and car trips during work time.

2.163. LoHAM modelling shows that Option 3 would result in very limited increases to traffic flow on the A12 and surrounding roads in the AM and PM peak relative to the reference case. Flow differences for the AM peak are shown in Figure 30. More detailed assessment is included in the Highway Modelling and Economic Appraisal Technical Report attached to this study.

Figure 30: AM Peak Difference in Actual Flow to the Reference Case (pcu/hr)



Key Finding:

This scheme could be implemented without affecting the functioning of the A12 road corridor.

PART H: SCHEME FIT AGAINST STRATEGIC AND LOCAL POLICY, STRATEGIES, FRAMEWORKS AND OBJECTIVES

Section Summary:

Overall, the A12 Leytonstone decking scheme conforms to policy at all levels, helping to secure London and the UK's continued prosperity

National policy context

- Decking the A12 Leytonstone would contribute towards DfT priorities 4, 5, and 6 for the transport network
- The A1 Leytonstone 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 scheme
- The London Plan emphasises the importance of town centres such as Leytonstone in accommodating London's future growth
- The aims set out by the Roads Task Force (RTF) would all be supported by the A12 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 north London SRTP

Local policy context

- Whilst there is no specific reference to the decking of the A12 within LB Waltham Forest planning documents, a number of strategic objectives have been set out 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

Overall, the A12 Leytonstone decking scheme conforms to policy at all levels, helping to secure London and the UK's continued prosperity

103. Due to the role of the A12 Leytonstone decking scheme 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 London Borough of Waltham Forest Core Strategy and Local Implementation Plan in addition to the Northern Olympic Fringe Area Action Plan.

National policy context

Decking the A12 at Leytonstone would contribute towards DfT priorities 4, 5, and 6 for the transport network.

2.164. 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

2.165. The scheme would encourage sustainable local 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 Leytonstone station. It also has the potential to improve safety for pedestrians and cyclists by providing higher quality and better lit crossings of the A12 compared to the current, uninviting pedestrian/cycle bridge.

The A12 Leytonstone decking scheme would contribute towards the overarching objectives of the NPPF in its promotion of sustainable economic growth

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

2.167. 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.

2.168. 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.

2.169. 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.

2.170. The proposed scheme would contribute towards the overarching objectives of the NPPF, notably its contribution to sustainable economic growth at Leytonstone as well as supporting the wider economic growth and global competitiveness of London as a whole.

Key Finding:

The decking scheme for the A12 demonstrates a close fit with national policy goals, including the DfT's nine transport priorities and the NPPF. It allows urban challenges to be addressed while protecting the strategic role of the A12 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 scheme

2.171. 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.'*

2.172. 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

2.173. 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.

The proposed scheme would significantly improve the public realm and environmental quality within the environmental quality within the vicinity of the scheme, making Leytonstone a more walkable area, more walkable area, improving the connectivity for non-motorised transport users as well as supporting users as well as supporting the wider regeneration and development opportunities in the Leytonstone opportunities in the Leytonstone area. It would therefore contribute to objectives 1 – 4 of the MTS and objectives 1 – 4 of the MTS and would support the MTS policies set out in Table 9

2.174. Table 9.

Key Finding:

The A12 decking scheme contributes towards MTS objectives 1-4.

Table 9: 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.	The proposed decking would help unlock housing and new employment by enabling higher density of development in and around Leytonstone.
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.	The decking would offer improved pedestrian and cycling routes to Leytonstone station. Most of the area around Leytonstone station currently has a PTAL rating of 6a, but this drops to 4 in the area west of the proposed deck, and this area would see improved access to the station and nearby bus services with the decking solution. The whole area around the deck would also benefit from improved pedestrian and cycling routes across the A12.
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.	The proposed decking would improve access to Leytonstone station and the onward connections to major employment centres it offers, as well as improving access into Leytonstone district town centre itself.

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.	Leytonstone is a District Centre, and the proposed decking scheme would improve pedestrian and cycling access to and therefore viability of the current town centre. New developments on the deck could also enable new businesses to occupy space in the town centre, increasing its offering to the public.
9	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: a) 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) b) 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 c) Access for deliveries and servicing, maximise the opportunities for sustainable freight distribution where possible d) Land for transport use is safeguarded in line with London Plan policy and Supplementary Planning Guidance e) Planning contributions are sought for transport improvements where appropriate	The decking scheme would create space for developments to be located immediately adjacent to Leytonstone station, which offers excellent public transport accessibility. Contributions from developers could help to fund the improvements to the transport infrastructure planned in this scheme. The scheme would also improve pedestrian and cycling routes from the existing residential areas to Leytonstone station and town centre.
11	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.	The proposed decking would encourage modal shift from the private car by providing improved facilities for pedestrians and cyclists, as well as by improving the accessibility of the public transport services at Leytonstone station.

14	The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other stakeholders, will seek to improve transport's contribution to the built and natural environment.	The decking scheme can include public space on top of the deck, improving the built environment in the local area.
16	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.	The proposed decking would reduce noise impacts from vehicles on the A12 by helping to contain noise from the road within the decking area, reducing its impact on local residents.
17	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.	The proposed decking would reduce severance and provide new routes for pedestrians and cyclists, encouraging people to access Leytonstone station and town centre via these active modes of travel.
22	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.	The proposed decking would reduce community severance by reducing severance arising as a result of the A12. The deck would provide a safer and more pleasant crossing over the A12 compared to the existing pedestrian/cycle bridge. Open space on top of the bridge would enhance the urban realm in an area that currently suffers from a deficiency of publically accessible open space.
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.
31	The Mayor, and TfL, will maximise any available efficiencies, subsidise services at appropriate levels and ensure that value for money is otherwise achieved from the existing and planned transport network, while reviewing fares levels to provide, if required, a residual means of achieving the goals of this transport strategy. Innovative ways of financing investment and services, including making the most of the value of transport infrastructure, will be explored.	The scheme includes the potential to develop above the London Underground station at Leytonstone, increasing the value of and revenue derived from this TfL-owned property.
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 Leytonstone in accommodating London's future growth

2.175. 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.*'

2.176. 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 A12 Leytonstone decking scheme contributes towards London Plan objectives 1-6.

2.177. The London Plan states that town centres should provide a major focus for commercial and residential development outside the Central Activities Zone (CAZ). Leytonstone 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 A12 remains as at present – its modification would create the potential for additional growth in jobs and homes, meaning that growth above these levels may be possible.

2.178. This project would 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 would help London to retain its status as a competitive global city. A better, more walkable public realm with reduced severance would improve safety for Londoners of all ages and backgrounds and enhance the setting of landmark buildings. The project would 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 would 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 A12 Leytonstone decking scheme

2.179. 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.

2.180. 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

2.181. 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 A12 decking scheme at Leytonstone 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

2.182. 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).

2.183. 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'.

2.184. The Plan has identified ten outcomes for surface transport in London.

2.185. Table 10 below summarises how this project supports several of these outcomes.

Table 10: 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.	Combination of the two bus stations into one would make the bus service simpler to understand for passengers and improve interchange between bus routes.
Reliable roads: Ensuring a reliable and resilient road network for all of London by managing congestion and improving connectivity.	Decking over the A12 would maintain the current operation of the TLRN, ensuring it remains a reliable link in the road network in future.
Improving the environment: Continuing to deliver environmental improvements, by reducing pollutants from ground based transport and enhancing the natural environment.	Decking over the A12 would improve the local environment for those living adjacent to the road and non-motorised transport users travelling around the local area.
More and safer cycling: Enabling more people to cycle, more safely, more often.	Decking over the A12 would 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 A12 would 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 networks	Not applicable
Sustainable freight: Enabling safer, cleaner and more efficient delivery and servicing activity to support London's economy.	The scheme would reduce noise levels generated by HGVs. The strategic function of the A12 as a freight corridor would 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 would help reduce the fear of crime, as would the replacement of the current, poorly lit pedestrian/cycle bridge.
Realising rivers' potential: Harnessing the potential of London's rivers and waterways to carry people and goods.	Not applicable.

Key Finding:

The A12 Leytonstone decking scheme contributes to Surface Outcomes 1-5, 7 and 9.

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

2.186. 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.

2.187. 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 North London Sub-Regional Transport Plan

2.188. The North London Sub-Regional Transport Plan (SRTP) identifies the transport challenges, opportunities and constraints within those boroughs represented by the north London partnership[29], and helps TfL to develop the priorities for business planning in order to address the medium- to longer-term challenges for London and the sub-region.

2.189. A number of challenges have been identified in the sub-region, most notably:

1. Facilitating and responding to growth, particularly in Brent Cross/Cricklewood and the Upper Lee Valley
2. Relieving crowding on the public transport network
3. Managing highway congestion and making more efficient use of the road network
4. Enhancing connectivity and the attractiveness of orbital public transport
5. Improving access to key locations and to jobs and services.

[29] London Boroughs in the north London sub-region are Barnet, Enfield, Haringey, Waltham Forest, Hackney, Camden and Islington.

2.190. This scheme would closely address a number of these challenges. Growth (challenge 1) would be facilitated in Leytonstone through the creation of new space for development on top of and alongside the deck. Access to the orbital bus routes at Leytonstone station and High Road (challenge 4) would be improved, enabling more people to easily travel to neighbouring town centres such as Walthamstow, Stratford and Ilford. The scheme would also strongly improve access to the district centre at Leytonstone (challenge 5), bringing more people within easy reach of the area's jobs and services.

Key Finding

The scheme would support a number of objectives of the north London SRTP by providing new connectivity across the A12 for non-motorised users, facilitating growth in Leytonstone town centre, improving access to jobs and services, and enhancing the attractiveness of orbital public transport. As such, the A12 decking scheme offers benefits to the wider sub-region as well as to Leytonstone itself.

Local policy context

Whilst there is no specific reference to the decking of the A12 at Leytonstone within local planning documents, a number of local strategic objectives have been set out which would be supported by this scheme.

2.191.

Table 11 below sets out those aspects of strategic local policy framework for which the proposed project would make a positive and direct contribution.

Table 11: Local policy context summary

LB Waltham Forest Core Strategy	
Strategic Objectives	The Core Strategy sets out a number of strategic objectives which seek to deliver the Borough's vision of a vibrant, sustainable and inclusive community by 2026. Objectives that are particularly relevant to this scheme include: • SO1 - Capitalise on redevelopment opportunities to secure physical, economic and environmental regeneration of the borough and ensure the delivery of key benefits for local people. • SO7 - Ensure Waltham Forest is a safe, vibrant and healthy place to live and work by enhancing connectivity across the borough, facilitating regeneration and growth in a sustainable manner, minimising congestion and pollution, and providing a range of attractive travel options to access to jobs, opportunities and facilities within the Borough and beyond. • SO13 - Improve the health and well-being of Waltham Forest residents by positively influencing the wider and spatial determinants of health, such as physical activity, pollution and food choices. • SO14 - Safeguard and strengthen the function of Walthamstow Town Centre, the District and Neighbourhood Centres capitalising on their respective roles for shopping, culture, leisure, tourism, housing and employment etc, and ensuring they continue to develop as vibrant, attractive, distinctive, safe and welcoming places. • SO15 - Create positive and inclusive environments (buildings and spaces) of high quality that contribute to the distinctiveness of Waltham Forest's neighbourhoods.
Leytonstone	The strategy notes the A12 as a barrier to movement that has obliterated historic links in Leytonstone's street pattern. Removing this barrier and improving urban realm in Leytonstone is considered a means by which to increase pedestrian movements in the area and the vitality of the town centre. Leytonstone town centre is suggested as an area that is appropriate to accommodate growth, including high-density development. It is also noted as an area with a deficiency of publically accessible open space.

Local Implementation Plan	
Transport objectives	This document sets out the borough's plans for implementing the Mayor's Transport Strategy. It sets out 12 objectives, many of which would be strongly supported by this scheme. These are set out below: • Objective 1 - Improve the accessibility to, within and between our key regeneration and growth areas • Objective 4 - Improve pedestrian and cycling permeability • Objective 5 - Reduce the adverse environmental effects of transport • Objective 6 - Improve air quality and reduce noise impacts • Objective 7 – Enhance the borough's public realm, historic and natural assets • Objective 8 - Improve physical accessibility • Objective 12 - Facilitate regeneration in the south of the borough
Leytonstone	Improvements in accessibility to town centres, including Leytonstone, are emphasised as an important need in this plan. Specific improvements sought for Leytonstone include public realm upgrades, reduced congestion, increased use of walking and cycling, better air quality and upgrades to Leytonstone station.

Key Finding

The A12 Leytonstone decking scheme would make a positive contribution to five of the objectives of the LB Waltham Forest Core Strategy and seven of the objectives of the Local Implementation Plan. In particular it would help promote and enhance walking and cycling as transport modes as well as addressing specific challenges to the wider development and regeneration of Leytonstone.

Stakeholders

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

2.192. Table 12 outlines the main stakeholder groups that will be involved with or interested in the project.

Table 12: Summary of main stakeholder groups

Stakeholder	Description
Affected boroughs: LB Waltham Forest	• 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	• Protecting policy and constituent interests
Greater London Authority (GLA)	• Statutory planning authority, protecting interests of Londoners and policy interest

Stakeholder	Description
Deputy Mayor for Transport	• Providing policy advice and direction, setting priorities and taking decisions relating to transport issues on behalf of the Mayor
HM Treasury	• Maintaining control over public spending, setting the direction of economic policy
Department for Transport (DfT)	• Setting national policy for transport
Other TfL Projects	• Interests with other TfL projects in the local area, ensuring that interdependencies are managed effectively and project delivery is not compromised.
Local Communities	• Local interest in scheme benefits and impacts

2.193. To date, TfL has engaged the local Borough, the local MP John Cryer 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.

STRATEGIC CASE SUMMARY

2.194. 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 A12 decking scheme can support the delivery of additional homes by supporting the regeneration of Leytonstone and helping to unlock key development opportunities.**
- **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 A12 Leytonstone 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 decking scheme. In line with WebTAG guidance, cost-benefit analysis has been undertaken to assess the scheme's value for money in transport terms. This has been carried out with TUBA, a DfT modelling appraisal tool.

Over the 60 year appraisal period using DfT's London Value of Time (VoT), the net present value (NPV) of the decking scheme is estimated at £-1.363m[30] with a Benefit Cost Ratio (BCR) of -19.04. Based on these values of time, the scheme would represent "poor" value for money.

However this doesn't account for the wider regeneration and strategic benefits that this development would unlock for London. The BCR is therefore not sufficient on its own to judge the merits of the scheme.

Option appraised

3.1. The A12 is a strategic road carrying extremely high volumes of traffic between central London, the M11 and the east of England. 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 A12.

3.2. The construction of a series of decks provides a good solution to address these issues by protecting the capacity of the A12 while also unlocking the potential of the Leytonstone area.

3.3. Option 3 – the preferred option – will provide three decks: one over the Central line, an adjacent deck over the A12 and a third deck to the north of the existing deck. It will also modify the existing deck.

3.4. By creating new open space, improving connectivity and addressing problems with the local environment, decking over the A12 would greatly increase the viability of high-density residential development in Leytonstone.

3.5. Development on new land created by this scheme could accommodate up to 377 new homes, making a significant contribution to the need for new homes in the area.

3.6. The scheme would also help address issues of air quality, noise and residential amenity, all of which would encourage new development and allow it to better integrate with the existing built environment and Leytonstone town centre.

Modelling Approach & Assumptions

DfT transport appraisal guidance (WebTAG) has been followed for all sections of this report

3.7. A cost-benefit analysis has been undertaken to assess the scheme's value for money. That is, the monetised benefits are weighed against the costs of the

[30] Costs excluded; Land take, significant temporary works necessary for more advanced traffic management, premium construction working hours of any type. And surface highways, public realm or development works enabled but not essential to the schemes, any costs associated with redevelopment of Leytonstone station

scheme to form a Benefit to Cost ratio which quantifies the benefit received to the economy for every £1 invested in the scheme.

3.8. 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.

3.9. WebTAG also outlines approaches to the social and environmental aspects of an appraisal. This includes aspects such as severance, journey quality noise and air quality. This economic analysis focuses on severance as this impact is deemed to be the most important.

TUBA Analysis

3.10. As no highway schemes would be implemented to ease congestion in the local area, all impacts would be negative (i.e. dis-benefits) as additional traffic will result in increases in delay to all other traffic. However, as shown below, these impacts are not expected to be very substantial.

Summary of TUBA benefit analyses

3.11. This section explores both road user and non-road user benefits in terms of travel time savings. TUBA is the main economic appraisal software for 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. The TUBA analysis does not take into consideration the wider, non-transport related benefits of the scheme. The BCR resulting from the analysis does not reflect housing delivery or commercial development benefits, which are the scheme's primary objectives.

3.12. Assumptions for the Leytonstone decking scheme are as follows:

- Scheme opening year: 2021;
- 60 year appraisal period;
- Model years: 2021 and 2031;
- Modelled periods: AM, IP and PM peaks;
- Price base and base year for discounting: 2010;
- Discount rate 3.5% for 30 years from current year, then 3% thereafter;
- 2031 LoHAM model input twice into TUBA; as 2021 and 2031; and
- Road demand growth in line with TfL LTS low-car scenario.

3.13. Franklin + Andrews calculated a preliminary estimate of the costs. These include: allowance for contractor preliminaries, contractor overheads and profit, design costs, client costs, London Underground approvals and possession, utilities costs and optimism bias.

3.14. Results of the TUBA analysis are shown in Table 13.

Table 13: TUBA headline results of Leytonstone decking scheme

	2010 prices and values (£'000s)
	DfT VoT
Economic Efficiency: Consumer Users (Commuting)	£-17,826
Economic Efficiency: Consumer Users (Other)	£-53,264
Economic Efficiency: Business Users and Providers	£-1,247,372
Wider Public Finances (Indirect Taxation Revenues)	£38,696
Present Value Benefits (PVB)[31]	£-1,295,058
Present Value Costs (PVC)	£68,000
Net Present Value (NPV)	£-1,363,058
Benefit Cost Ratio (BCR)	-19.04:1

3.15. The Present value of benefits (PVB) is estimated to be £-1,295m in 2010 prices and the Present value costs (PVC) is expected to be £68m. These have been calculated based on the DfT WebTAG Values of Time (VoT).

3.16. A BCR of one to one (1:1) shows a project 'break-even' point where for every £1 invested in the scheme, there are £1 benefits received from the scheme. Therefore any BCR above unity shows value for money in terms of receiving higher benefit for every £1 of invested cost. This BCR excludes wider benefits such as the addition of up to 377 new homes and 7,290 sq.m of commercial floorspace, which are the primary goals of the scheme. Therefore the scheme should not be judged on the BCR alone.

3.17. Table 13 shows a BCR of -19.04:1 (using DfT VoT) which suggests that the scheme is 'poor' value for money.

3.18. Table 14 shows the distribution of time savings by distance travelled and user class with the highest percentage band of time savings in the 5-10km category (27%).

Table 14: 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	-164	-4816	-5212	-3012	-1707	-2698	-1052	-403
Car – commuting	-2	-60	-82	-47	-25	-52	-34	-16
Car – other	-4	-170	-246	-141	-73	-183	-114	-50
LGV	13	-613	-975	-729	-353	-544	-202	-110
OGV	-1	-137	-196	-117	-6	-144	-36	-18

[31] 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.

	Time benefits £'000s							
	<1km	1-5km	5-10km	10-15km	15-20km	20-50km	50-100km	>100km
Total	-158	-5796	-6711	-4046	-2164	-3621	-1438	-597
Percentage of total	1%	24%	27%	16%	9%	15%	6%	2%

Summary of TUBA benefit analyses

3.19. The Present Value of Benefits relating to the provision of the Leytonstone decking scheme is £-1,295m

3.20. The majority of benefits relate to trips over between 5 and 10km. The resulting BCR is -19.04 which is 'poor' value for money according to DfT VfM Assessment criteria. However, this BCR does not include the regeneration and wider impacts of changes in land use and mixed use development brought forward by the scheme. Indeed these positive impacts and objectives of the scheme 'count against' it in this traditional transport user benefits approach to appraisal.

Key Finding

If traditional transport user benefits were considered in isolation, the Leytonstone decking scheme would offer 'poor' value for money. However, given that the schemes focus is on enabling regeneration, the BCR of -19.04 should be considered alongside the significant benefits of regeneration and land use change brought forward by the scheme.

Table 15: Appraisal summary table

Appraisal Summary Table		Date produced:	06/06/2016	Contact:	
Name of scheme:	A12 Leytonstone decking scheme			Name	
Description of scheme:	Option 3 – the preferred option – will provide three decks: one over the Central line, an adjacent deck over the A12 and a third deck to the north of the existing deck. It will also modify the existing deck			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	There will likely be an increase to traffic flow in the AM and PM peak periods relative to the reference case as the development will generate additional trips	Value of journey time changes(£)			- 1,163,718,000	Large adverse	- 1,163,718,000	
			Net journey time changes (£)						
			0 to 2min	2 to 5min	> 5min				
			- 1,006,632,000	- 157,038,000	- 48,000				
	Reliability impact on Business users	The increase in traffic - with no highway scheme implemented to mitigate this - is likely to reduce reliability for road users in the area					Moderate adverse	N/A	
	Regeneration	The decking scheme will release land for development and enable place-making. It has the potential to act as a catalyst for regeneration of the wider area around Leytonstone station.	This land will enable 179 net additional homes and 205 jobs which will generate £108 million in GVA				Moderate beneficial	N/A	
	Wider Impacts	The decking scheme will enable the delivery of additional homes and employment, which will help to address London's acute housing need. The existing Central line station provides excellent connectivity towards employment centres including Stratford, the Docklands and central London.						N/A	
Environmental	Noise	A noise assessment has not been carried out at this stage of the assessment. If the scheme is progressed to the next stage of development then one will be needed.					Not applicable as no assessment has been carried out at this stage	tbc	
	Air Quality	An air quality assessment has not been carried out at this stage of the assessment. If the scheme is progressed to the next stage, then one of development then one will be needed.					Not applicable as no assessment has been carried out at this stage	N/A	
	Greenhouse gases	An assessment on the effects on greenhouse gases has not been carried out at this stage of the assessment. If the scheme is progressed to the next stage of development then one will be needed.	Change in non-traded carbon over 60y (CO2e)				Not applicable as no assessment has been carried out at this stage	N/A	
			Change in traded carbon over 60y (CO2e)						
	Landscape	An assessment of the effects on the Landscape has not been carried out at this stage of the assessment. If the scheme is progressed to the next stage of development then one will be needed.					Not applicable as no assessment has been carried out at this stage	N/A	
	Townscape	An assessment of the effects on the Townscape has not been carried out at this stage of the assessment. If the scheme is progressed to the next stage of development then one will be needed. The decking scheme will enable development and public realm improvements which would be expected to improve the quality of the townscape.					Not applicable as no assessment has been carried out at this stage	N/A	
	Historic Environment	An assessment of the effects on the historic environment has not been carried out at this stage of the assessment. If the scheme is progressed to the next stage of development then one will be needed.					Not applicable as no assessment has been carried out at this stage	N/A	
	Biodiversity	An assessment of the effects on biodiversity has not been carried out at this stage of the assessment. If the scheme is progressed to the next stage of development then one will be needed.					Not applicable as no assessment has been carried out at this stage	N/A	
	Water Environment	An assessment of the effects on the water environment has not been carried out at this stage of the assessment. If the scheme is progressed to the next stage of development then one will be needed.					Not applicable as no assessment has been carried out at this stage	N/A	
Social	Commuting and Other users	The increase in traffic flow in the AM and PM peak period means that commuters and other users will be negatively affected. They are likely to experience longer journeys	Value of journey time changes(£)			- 64,974,000	Moderate adverse	- 64,974,000	
			Net journey time changes (£)						
			0 to 2min	2 to 5min	> 5min				
			- 59,867,000	- 3,343,000	- 1,764,000				
	Reliability impact on Commuting and Other	The increase in traffic is likely to reduce reliability for road users in the area					Slight adverse	N/A	
	Physical activity	An assessment of the effects on Physical activity has not been carried out at this stage of the assessment. If the scheme is progresed to the next stage of development then one will be needed.					Not applicable as no assessment has been carried out at this stage	N/A	
	Journey quality	The increase in traffic is likely to reduce journey quality					Slight adverse	N/A	
	Accidents	An assessment on the effects on accidents has not been undertake at this stage of the assessment. If the scheme is progressed to the next stage of development then one will be needed					Not applicable as no assessment has been carried out at this stage	N/A	
	Security	The scheme is not expected to have security impacts					Neutral	N/A	
	Access to services	The scheme will ensure better access to buses either side of the station. It will also enable access to the public space create on the deck					Slight beneficial	N/A	
	Affordability	This scheme is not expected to have affordability impacts					Neutral	N/A	
	Severance	The scheme aims to improve connectivity for pedestrians and cyclists, improve access to buses on either side of the station and enable a more welcoming and inclusive environment					Large 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							68,000	
	Indirect Tax Revenues							38,700	

Supplementary Analysis

3.21. 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 that would be unlocked by the decking scheme in Leytonstone.

3.22. This section presents an overview of the additionality approach and its results. In order to maintain clarity, technical details are omitted here.

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

3.23. 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)[32] report, commissioned by the Department for Transport (DfT) and published in October 2014.

3.24. 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."[33] Their final recommendations inform revisions of the DfT WebTAG appraisal guidelines on Wider Impacts and Dependent Development (Tag Units A2.1 and A2.3) which were released in September 2016.[34].

3.25. TfL has developed this approach to specifically address 3 of the 7 recommendations of the TIEP report[35]:

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.

[32] 'Transport investment and economic performance', Venables, Laird & Overman (2014). URL: https://www.gov.uk/government/publications/transport-investment-and-economic-performance-tiep-report
[33] Ibid, p. 9
[34] 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
[35] Venables et al. (2014): pp. 62-63

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

3.26. As a framework, this approach follows published guidance[36] from the Homes and Communities Agency (HCA), and is consistent with both the HM Treasury 'Green Book'[37] and the '3Rs'[38] guidance published by the Department for Communities and Local Government (DCLG). In addition, Professor Peter Tyler, lead author of research into additionality for DCLG[39] and the Department of Business, Innovation and Skills (BIS)[40], has advised TfL throughout the development process.

3.27. Additionality is defined as "the net changes that are brought about over and above what would take place anyway."[41]

3.28. 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

3.29. 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.

[36] 'Additionality Guide' 4th ed., Homes and Communities Agency (2014). URL: https://cfg.homesandcommunities.co.uk/sites/default/files/aboutus/additionality_guide_2014_full.pdf
[37] '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-governent
[38] '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_deveopment.pdf
[39] 'Valuing the benefits of regeneration', Tyler et al. (2010). URL: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6382/1795633.pdf
[40] '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
[41] HCA (2014): p. 3

3.30. 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.

3.31. For the A12 Leytonstone decking scheme, the following options were assessed for additional impact:

- Reference case (or 'deadweight') - development consistent with Local plans – no decking scheme
- Intervention Case (Option 3) – The combination of elements of option 1 and 2 through the provision of four decks: one over the Central line, modification of an existing deck, and adjacent deck over the A12 and a third deck to the north of the existing deck.

3.32. These intervention options assume a scheme opening year of 2030.

3.33. The employ ent 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
  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 DCLG[42], it is assumed that 25% of additional housing generates additional indirect employment. For London, this is probably a conservative assumption.

- Increased local household spending
  Additional housing generates indirect jobs as a result of new households' spending on community, leisure and retail services in the local economy. A GLA Economics working paper[43] suggests that in areas of poor transport connectivity 171 jobs are created for every 1,000 additional homes provided.

[42] Tyler et al. (2010)

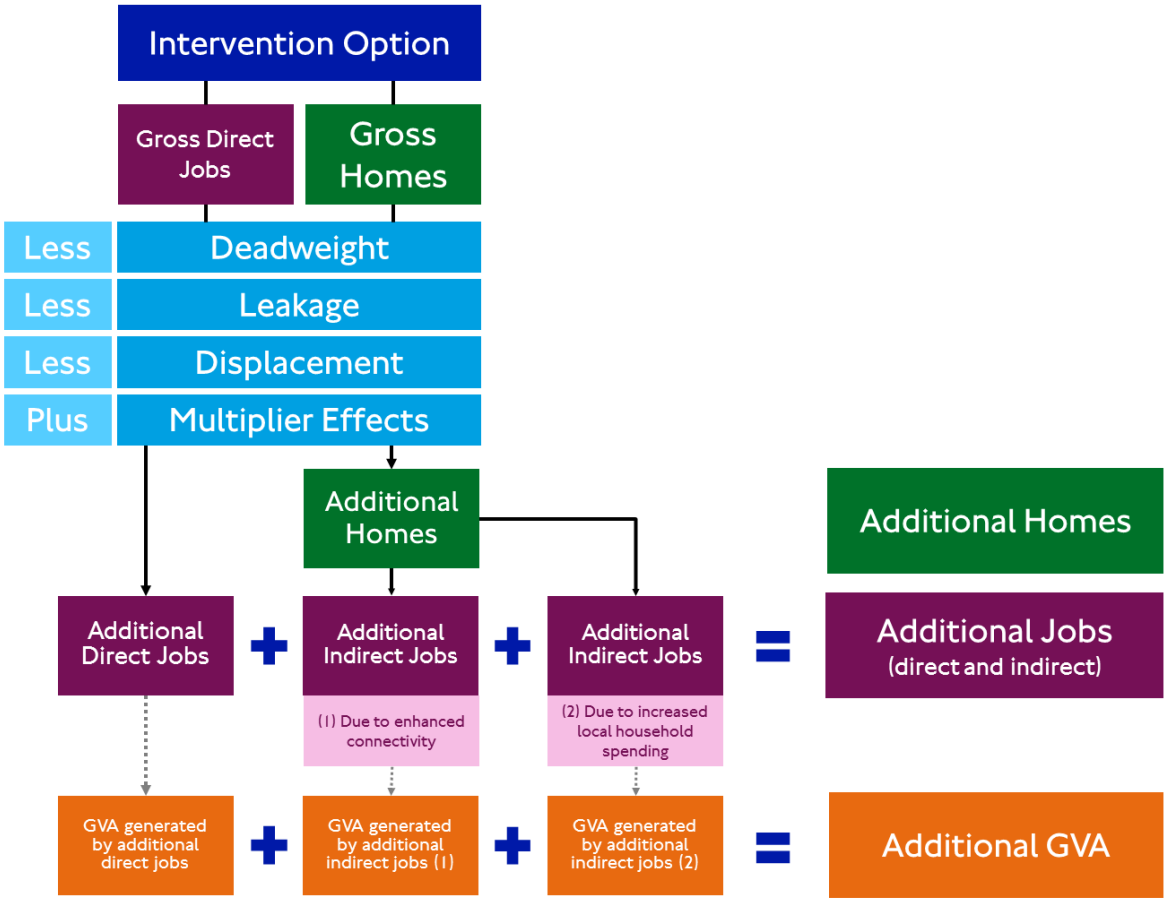
[43] More residents, more jobs? 2015 update The relationship between population, employment and accessibility in London - https://www.london.gov.uk/sites/default/files/working-paper-71.pdf

3.34. 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)

3.35. The overall methodology of the approach is summarised in Figure 31:

Figure 31: Summary of TfL Additionality Approach



The Leytonstone decking scheme would help to deliver new housing, jobs and GVA in the area

3.36. The results of the additionality approach, presented for each assessed intervention option, are summarised in Table 16, below:

Table 16: Summary of additional impacts of the Leytonstone decking scheme (at London level)

Development and regeneration benefits of the decking option	Option 3
Net Additional homes – London level (after accounting for displacement etc.)	180
Net Additional jobs (direct and indirect) – London level	205
GVA generated by additional jobs (direct and indirect) (£m PV)	110

3.37. As indicated in Table 16, the Leytonstone decking scheme could support the delivery of up to 180 net additional new homes, and new office floorspace and other employment floorspace which would support up to 205 net additional new jobs (direct and indirect). This new employment would generate an additional GVA for the London economy of up to £110 million – significantly greater than the cost of Option 3 – £68 million.

3.38. However, given that housing market constraints in London are very different to other parts of the UK, following the additionality guidance and assuming that 50% of housing displaces housing delivery elsewhere is a conservative assumption. This is not reflective of reality in the London context, so it could reasonably be argued that 360 new housing units that would be enabled in Leytonstone are genuinely net additional.

3.39. Realising this growth is dependent on more flexible planning policies being adopted that support higher densities. These benefits are contingent on a level of housing delivery that would require higher density development at sites in the vicinity of the existing A12. However, they demonstrate potentially significant economic benefits for the London economy.

Public realm

3.40. The core aims of the Road Task Force (RTF) include improving the quality of the city's public realm and transforming 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 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. It is also an

increasingly important strategic factor determining the competitiveness of cities.

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

3.41. 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).

3.42. Table 17 illustrates some of the potential mechanisms through which better quality public realm is realised.

Table 17: Mechanisms that capture benefits realization 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

3.43. 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 would 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 quantification of public realm enhancements will be carried out as this business case is developed.

3.44. 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)[44] 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)

3.45. The VURT derives monetized 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.

3.46. The VURT toolkit methodology follows a two-stage approach:

1) 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.).

2) 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.

3.47. 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

3.48. 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 18 illustrates the magnitude of social benefits that can be achieved from schemes which have similar public realm improvements.

[44] TfL's Business Case Development Manual now recognises the VURT toolkit as the approved means of producing values for the User Experience of Public Realm

Table 18: 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

3.49. 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

3.50. 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.

3.51. 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.

The Leytonstone scheme would deliver a range of public realm benefits

3.52. Leytonstone is an area of North East London, and part of the London Borough of Waltham Forest. It is a suburban area. It borders Walthamstow to the north-west, Wanstead (in the London Borough of Redbridge) to the north, Leyton to the south, and Forest Gate (in the London Borough of Newham) to the east.

3.53. The key public realm goals of the option are;

- enable more welcoming inclusive and accessible development
- create a large amount of public space on the deck with amenity as well as movement and access value
- offer an opportunity to improve the local Greenway

Figure 32: Station access from west side (left), footbridge over a park (right)

Key Finding:

The Leyton decking scheme would deliver public realm benefits for the area through creating large amounts of public space with amenity as well as movement and access value

Table 19: PERS attributes affected by the scheme

Link	Description	Scheme impact
Effective Width	The space available for pedestrian movement	Substantially improved north-south and east-west connectivity for pedestrians
Permeability	Extent to which pedestrians can make their own informal movements rather than rely on designated crossings	Substantially improved accessibility to bus offer either side of the station
Legibility	Way in which the pedestrian environments' built form may assist the user to navigate them within the space	Substantially improved accessibility to bus offer either side of the station
Personal security	Environmental features that relate to individual pedestrians' vulnerability to, or fear of, crime	Improved safety for pedestrians and cyclists currently travelling east-west and north-south via less friendly or secure routes
Surface quality	Poor surfaces can create trip hazards, reduce comfort and cause route severance for the mobility-impaired	-
User conflict	Hazards to pedestrians as a result of making conflicting movements with other users (e.g. cyclists, road users)	-
Quality of Environment	The general ambience of the streetscape	The local Greenway will be improved while the negative impacts of poor air quality and noise will be reduced
Space	**Description**	**Scheme impact**
Sense of place	The aesthetics and quality of the environment	The scheme will create a large amount of public space on the deck
Opportunity for activity	A public space can have many functions and can provide a facility for a variety of needs	The space created on the deck will have amenity movement and access value

The A12 and Central line cause severance in the area

3.54. 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.

3.55. The A12 is very heavily-trafficked key south-to-east route in East London. In the Leytonstone vicinity it is associated with severance for all modes, particularly pedestrians and cyclists. The severance seriously affects the amenity and accessibility of the land either side, and its re-development potential.

3.56. The scheme aims to improve connectivity for pedestrians and cyclists, improve access to buses on either side of the station and enable a more welcoming and inclusive environment.

3.57. Based on this evidence and scheme outlines it is therefore assessed that this scheme would bring positive benefits in terms of severance to the local area.

Key Finding:

Decking of the A12 and Central Line at Leytonstone would reduce severance and unlock development sites in an area of reasonably good accessibility

ECONOMIC CASE SUMMARY

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

- **The proposed scheme to deck over the A12 at Leytonstone Over the 60-year appraisal period, the decks (with development and DfT Values of Time) have a Net Present Value of £-1,363m (2010 prices), with a Benefit Cost Ratio of -19.04, representing 'poor' value for money.**
- **However, these values do not take into account the regeneration benefits of the scheme at a local and a London-wide level.**

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.

Funding

Some funding from associated new development could be secured for the decking scheme

4.1. TfL appointed a consortium of Mott MacDonald, Tony Meadows Associates (TMA) and Jones Lang LaSalle (JLL) to develop the decking options and estimate project capital costs and funding potential. As part of this work JLL carried a comprehensive review of possible funding sources, in consultation with TfL, and advised on their potential scale.

4.2. All three decking options are able to unlock new residential and commercial development. The potential scale of this development is presented in Table 20 below:

Table 20: Summary of Potential New Development

Decking Option	Housing (units)	Commercial (sqm)
1	447	6110
2	358	7950
3	377	7280

4.3. As part of their funding analysis JLL focused on examining both land ownership and redevelopment model and taxation mechanisms. The list of funding sources examined in detail was as follows:

- Residual land value (RLV) arising from TfL's partial ownership of development plots around the proposed scheme;
- Voluntary developer contributions;
- Borough Community Infrastructure Levy (BCIL);
- Incremental Business Rates (IBR);
- Stamp Duty Land Tax (SDLT).

4.4. Given the early stage of the scheme, sources of funding are still indicative as no consultations with the local authorities or the central Government has yet taken place to assess the scale of their potential contribution. Figures presented below represent a maximum value that could be secured from new development using the various sources. It is clear from the analysis that a workable funding package for the decking scheme would need to come from a combination of sources.

Residual Land Value (RLV)

4.5. One of the possible funding sources would come from the sale of TfL land

unlocked for redevelopment as a result of the deck construction. TfL would need to acquire some land in order to construct the deck and not all of the land is likely to be needed in the long-term, so TfL may have an ability to sell it on to a willing private sector developer at a profit. Proceeds from the land could be increased if TfL was willing to develop its land in conjunction with a private sector partner (e.g. through a joint venture agreement). This would however open TfL up to taking on the development risk. The calculation of RLV that TfL could realise assumes the less risky land sale model.

Voluntary Developer Contributions

4.6. Private landowners and developers may be willing to make a voluntary contribution to the decking scheme if they perceive that the scheme would add significant value to their land and/or development and if they believe that their contribution would be a deciding factor in whether the scheme proceeds or not.

4.7. It is not however anticipated that the decking scheme would provide significant enhancement to the value of the neighbouring developments and a voluntary contribution, if forthcoming at all, is likely to be insignificant.

Borough Community Infrastructure Levy (BCIL)

4.8. The purpose of a BCIL is to fund strategic local infrastructure. The decision on whether to direct BCIL to this project will be taken by the local authority. The size of the funding contribution would be influenced by the perception of the importance of the decking scheme and by other local infrastructure funding requirements in the area. BCIL figures presented in the table below represent total BCIL that would be chargeable on the new development under the current BCIL rates. In reality, borough contribution is likely to be smaller, given other calls on the BCIL revenues.

Incremental Business Rates (IBR)

4.9. Given that the scheme could help unlock some commercial development, IBR is a funding option worth exploring. Control over business rates is being devolved to local authorities, i.e. the boroughs and the Mayor of London. At present, 50% of business rates can be retained locally. By the end of the current Parliament (by 2020) the proportion will go up to 100%. The analysis of potential IBR assumed that 50% of the retained business rates from new commercial development could go towards the decking scheme. This would need to be tested with both the borough and the Mayor of London.

Stamp Duty Land Tax (SDLT)

4.10. SDLT is currently payable on the purchase of property above £125,000. This is a national tax and there are no current plans of devolving it to local authorities. If the stamp duty revenue within designated zones or corridors was devolved, or an equivalent earnback arrangement created, then this could provide a potential funding source for infrastructure projects, which could include the decking scheme at Leytonstone.

4.11. It is worth noting that financing against stamp duty would be difficult, given the uncertain nature of property sales transactions. A direct Government contribution, reflective of the size of the stamp duty receipts the new

development could yield over time, would be more desirable. Utilisation of SDLT for transport projects funding requires Government support and may face implementation challenges.

Between 12% to 18% of the construction cost of the decking scheme could be secured through new development-related sources, assuming maximum contribution from each funding source

4.12. The identified sources of funding could cover up to 18% of the decking construction costs, depending on which option is selected and assuming that a maximum contribution can be secured from each identified funding source. The summary table in Table 21 below presents the amount of funding as % of the project construction cost:

Table 21: Summary of funding sources explored

Availability	Funding Sources (£m, 2015/16)	Option 1	Option 2	Option 3
	Residual Land Value	8.7	6.6	3.8
	Voluntary Developer Contributions	-	-	-
	Borough CIL	1.2	1.1	0.9
	Incremental Business Rates	3.3	4.0	3.5
	Stamp Duty Land Tax	6.1	5.6	4.7
	Potential Maximum Funding Total	**19.3**	**17.3**	**13**
	Capital Project Cost	**105**	**105**	**105**
	Funding as % of Cost	**18%**	**16.5%**	**12.4%**

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

4.13. If the development does not progress or progresses at a slower rate, there will be a knock-on effect on whether/when the funding will become available and this presents a degree of risk. Other means of covering the decking costs such as government grant funding will also need to be considered.

Financing

4.14. Detailed assessment of financing options and their implications should be carried out when the scheme is close to covering its funding gap. In general however, TfL would face an up-front project expenditure which would be repaid from a mix of the funding sources identified above and other sources, for example central or local government grant funding.

4.15. TfL could potentially use a privately financed solution to deliver the decking project. This could take the form of the private sector taking 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 a road project.

4.16. Alternatively, the public sector could borrow. The rate of public sector borrowing is usually lower than the private sector's. Detailed assessment of the most appropriate financing structure should be carried out once the funding package is close to being assembled.

FINANCIAL CASE SUMMARY

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

- **Cost estimates suggest the Leytonstone decking project' capital cost is around £105m (2015/16 prices)**
- **Up to 18% of project cost could be met from funding sources associated with new development, if directed towards the scheme in full**
- **Further work is needed to identify whether other local funding sources or central government funding would be available to close the funding gap**

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 Leytonstone decking scheme. TfL will also achieve efficiencies by delivering the Leytonstone scheme within a wider programme of decking/tunnel projects. The project would support many jobs outside of London.

Procurement strategy and sourcing options

5.1. The scheme is being promoted by TfL and will be developed through close working with the Borough of Waltham Forest which is closely engaged with the project.

5.2. TfL is responsible for the Transport for London Road Network (TLRN), which the A12 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.

5.3. 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 Borough of Waltham Forest 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 Leytonstone decking scheme

5.4. 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).

5.5. 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 Leytonstone scheme within a wider programme of decking/tunnel projects and linked into a wider highway capital investment programme

5.6. 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.

5.7. The A12 Leytonstone 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 Leytonstone.

5.8. 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

5.9. 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

5.10. 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.

5.11. 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

5.12. TfL has extensive experience of developing and delivering Traffic Management Plans. As part of the TLRN, the A12 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.

5.13. 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 Borough of Waltham Forest, but with maintenance privileges for the

underground section of the A12 to be retained.

5.14. 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.

5.15. 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.

5.16. 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

5.17. 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

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

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

COMMERCIAL CASE SUMMARY

5.20. 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 Leytonstone 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

6.1. TfL has extensive experience in developing, promoting and implementing significant infrastructure projects and securing necessary consents required.

6.2. 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 A12 Leytonstone 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.

6.3. 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.

6.4. The Leytonstone 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.

Key project assumptions

6.5. 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.

6.6. It is assumed that the land for the proposed route can be acquired through the Planning and Compulsory Purchase Act (2004).

Project risk

6.7. 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.

6.8. 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) would be undertaken should the scheme be progressed, in order to provide more certainty on costs. Following the completion of the QRA, TfL would then look 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

6.9. 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.

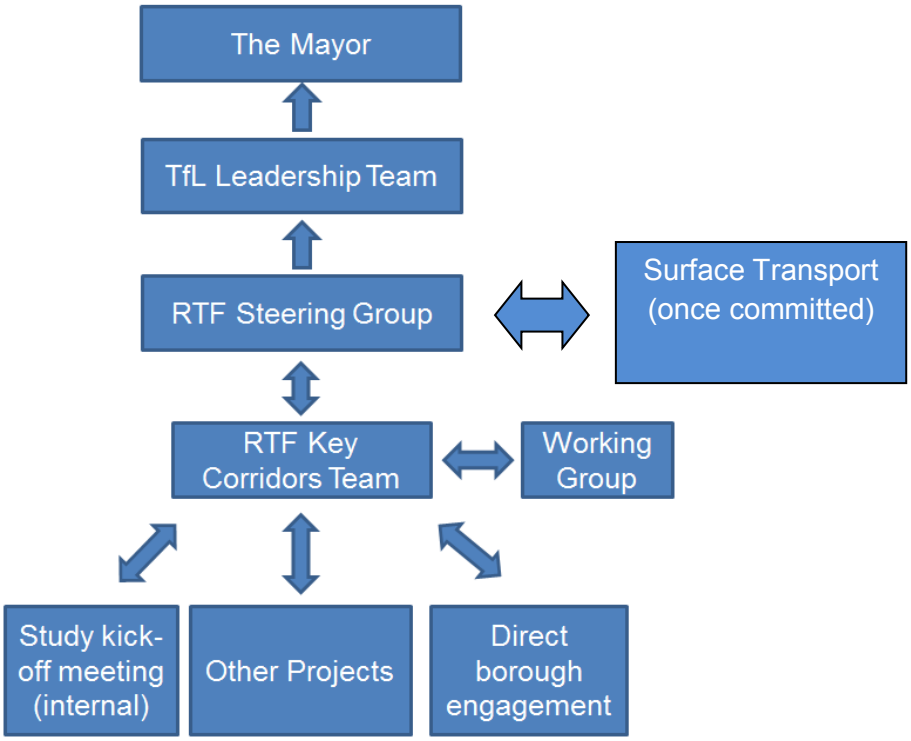
Governance, organisational structure and roles

Internal governance

6.10. Decking of the A12 at Leytonstone 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.

6.11. As part of future scheme development, an Independent Peer Review Group (IPRG) may be established to provide independent expert scrutiny of the Leytonstone 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 33: RTF internal governance structure



Programme/Project Plan

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

Table 22: 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 -2021
Construction and Testing	2021 – 2022
Operation	2022

Assurance and approvals plan

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

6.13. 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.

6.14. 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.

6.15. 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.

6.16. 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

6.17. 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

6.18. 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.

6.19. 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.

6.20. 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.

6.21. 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.

6.22. 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).

6.23. 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).

6.24. 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.

6.25. 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 A12 Leytonstone 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

6.26. 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

6.27. 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 and expanded as necessary.

6.28. Some initial stakeholder engagement has already been undertaken and there is strong support for the scheme from the Borough of Waltham Forest. A future programme of stakeholder engagement if the scheme progressed further has been developed.

6.29. The external stakeholders identified are summarised below:

- Boroughs

- Political Stakeholders
- Statutory Stakeholders
- Local Communities

Programme/Project Reporting

TfL would develop programme controls supported by robust reporting processes

6.30. These would 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.

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

- Governance meetings would 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 would be fully defined, together with content requirements, target audience and timing.

MANAGEMENT CASE SUMMARY

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

- **TfL would make full use of best practice within the company and from industry**
- **A comprehensive and robust project management framework would 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. Conclusions

There are strong benefits of decking over the A12 at Leytonstone, and TfL should continue to consider this scheme

7.1. The proposed decking scheme on the A12 at Leytonstone would unlock development in an area of high housing need. It would improve connectivity within Leytonstone, encourage sustainable transport, improve the urban realm and better link communities. And it would protect the key transport infrastructure in this area, while reducing its dominance over the local landscape.

7.2. The SOBC for the decking of the A12 at Leytonstone demonstrates that across the Five Case Model:

- There is a clear case for change for an intervention to address existing issues of severance, poor connectivity and environmental problems caused by the A12 at Leytonstone. 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 Leytonstone, and supports the delivery of additional housing and employment. It would enable an increase in economic activity. 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. However, this is not the appropriate measure by which to judge the scheme given its focus is on regeneration and improving the urban realm.
- Taking account of the regeneration and housing impacts of the decking, the scheme would enable 377 new homes and 6,205 extra jobs. This is considerably lower than other RTF tunnelling schemez of the 9 assessed.
- 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 not affordable within the current TfL Business plan horizon. The total estimated cost of Option 1 is £104.6m but in the **'financial case'** analysis sets out the project team will need to explore all 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 scheme

7.3. It is for decision makers to consider the case for decking over the A12 at Leytonstone given the current net benefit which is currently poor. However there are regeneration benefits that may not yet have been taken into account. It is recommended that a high priority be given to defining a funding and financing strategy for the scheme to ensure that funds can be raised and disbursed in a financially sustainable manner for TfL.

7.4. Other factors to be considered in greater depth include the air quality, noise and social/distributional impacts of this scheme.

7.5. However TfL is not proposing to progress this scheme at this time.