



A316/A205/A3003 Chalkers Corner Fly under

Strategic Outline Business Case



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Executive Summary

Purpose of this document

About this document

1. This document is the Strategic Outline Business Case (SOBC) for the A316/A205/A3003 Chalkers Corner fly under and sets out:
 - the need for the scheme;
 - its impacts; and
 - its benefits.
2. 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 financially affordable – the '**financial case**';
 - is commercially viable – the '**commercial case**'; and
 - is achievable- the '**management case**'.

Londonwide context: The Mayor's Roads Task Force has set out a new vision for London's roads and streets - including tunnelling at key locations

3. Following the recommendations of the Roads Task Force report 'The Vision for London's Roads and Streets' published in July 2013, TfL undertook a series of studies to identify opportunities for decking over or tunnelling under roads at a number of locations around London on the Transport for London road Network (TLRN).
4. The overall aims of the interventions considered were to help balance increasing and changing aspirations for place while maintaining the traffic movement function of the TLRN. As part of this, the studies considered the potential of each intervention to:
 - 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;
 - relieve congestion and improve journey time reliability;
 - reduce severance; and
 - reduce the negative impacts of roads on noise and air quality.

Sites selected for potential tunnel interventions

5. As part of this, the initial phase of work identified **70 potential locations**, and sifting work identified **15 locations suitable for high level feasibility work**.
6. This feasibility work identified **five key locations** with the potential to make a significant contribution to achieving the aims and objectives of the Roads Task Force. Further feasibility work was carried out for each of these five locations resulting in the production of a Strategic Outline Business Case for each scheme. These locations are:
 - A316/A205/A3003 Chalkers Corner;
 - A13 Barking Riverside;
 - A4 Hammersmith;
 - A406 North Circular Road at New Southgate; and
 - A3 Tolworth.
7. This business case is concerned with the identifying the issues and proposed response for the A316/A205/A3003 at Chalkers Corner.

Chalkers Corner: Summary of key benefits

8. A fly under on the A316/A205 at Chalkers Corner would provide a major opportunity to address a number of key strategic challenges facing London and south London in particular, and would contribute towards ensuring London's long-term economic success.

A fly under at Chalkers Corner would support and protect the economic efficiency of south London

- Businesses in south London would benefit from less congestion and higher productivity, making it more likely that the 10,600 new jobs forecast in LB Richmond from 2011 to 2036 would be realised; and
- Time lost through delays and congestion would be reduced. Without the scheme total delays increase between 2009 and 2031 by 30% in the AM peak and 50% in the PM peak. The scheme is forecast to reduce these delay levels by over 50%.

A fly under at Chalkers Corner would benefit London by delivering the Mayor's Roads Task Force's movement and place vision - reducing conflict between different road users

- Strategic through traffic movements on the A316 radial route to and from central London can be separated from the more localised, but still heavy, movements on the A205 and A3003 through relocation into a fly under;
- A fly under would enable Chalkers Corner to function better as a local centre to the benefit of its residents;
- It would provide a balanced solution for all users of this busy junction, be they private vehicle, buses, business freight, cyclists or pedestrians; and

- The scheme is an intelligent response to the problems of a complex junction, the current design of which inhibits movement for all rather than serving its users well.

A fly under at Chalkers Corner would benefit transport system users by delivering journey time savings through reduction of congestion and delays to traffic

- Strategic through traffic movements on the A316 would benefit through reduced conflict with traffic crossing from the A205 and A3003; and
- A benefit to cost ratio of 1:26 using TfL Values of Time is achieved by the scheme, meaning that it offers 'ow' value for money, if assessed purely on traditional transport appraisal criteria.

At the same time a fly under at Chalkers Corner could also enable transformational change to the public realm on the surface, reducing severance and providing a powerful opportunity to increase walking and cycling levels in this part of London

- More walking and cycling can be encouraged, in association with the A316 Corridor Plan promoted by Surface Transport; and
- It could also be complementary to the proposed 'Mini-Holland' for the area, should any future bid be successful, and to other cycling measures undertaken in LB Richmond.

A fly under at Chalkers Corner would bring environmental benefits by reducing air pollution and noise

- Removing strategic through traffic movements on the A316 from the surface would reduce delays and air pollution caused by stationary traffic and queuing at all arms of the junction;
- This would help reduce pollution in this designated Air Quality Management Area (AQMA) which encompasses LB Richmond, where the junction is located; and
- The noise pollution currently experienced by businesses and residents would reduce through the relocation of strategic through traffic, including HGVs, into the fly under

1. The Strategic Case

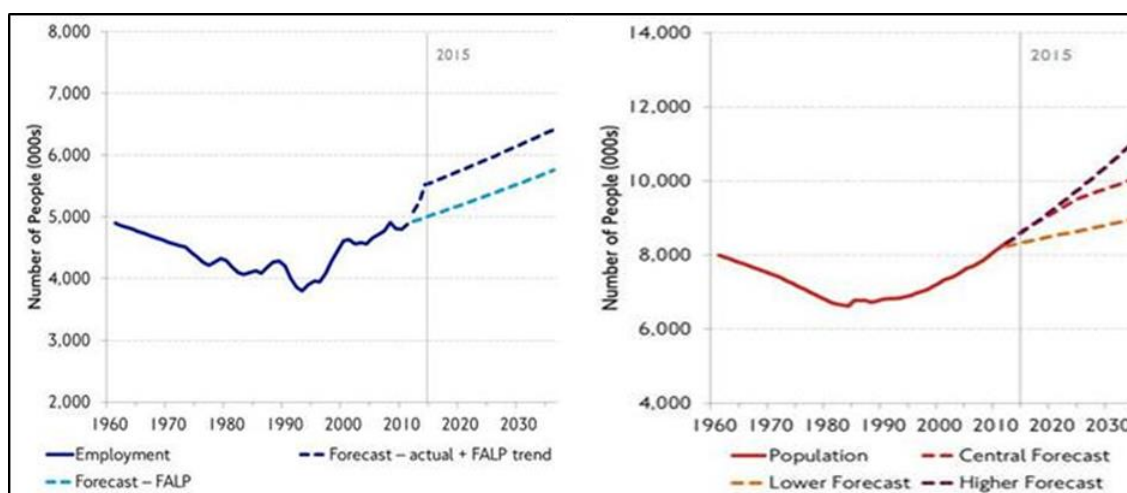
9. The Strategic Case demonstrates the need for an intervention, problems identified, and the possible solutions to the problems.
10. A fly under on the A316/A205 at Chalkers Corner would provide a major opportunity to address a number of key strategic challenges facing south London, thereby contributing towards ensuring London's long-term economic success.

Part A: The problems identified affecting TLRN corridors

As London's population and economy grows, substantial investment in its infrastructure will be required – including in the transport network

11. London Plan forecasts suggest that the capital's population is expected to continue to grow, reaching 10.1 million residents by 2036, and that the number of jobs in London is expected to grow by 1.4m over the same timescale (Figure 1).

Figure 1: Historic trends and projected growth in London's employment and population to 2036



12. Recent trends suggest that the actual level of growth could be significantly greater; therefore London would make a greater contribution to the success of the wider UK in terms of its productivity and competitiveness.
13. As the Roads Task force demonstrated, a key part of London's future success and prosperity depends on its 'offer' to its residents and businesses in ensuring both safe and efficient movement, and a high quality of place is essential in ensuring London's long-term success.
14. Sustaining this economic success requires increased spending on infrastructure, enabling London's increasing population to access jobs and simultaneously giving London's businesses access to a large pool of well qualified labour.
15. The challenges for south London identified by the South London Partnership¹ (SLP) mirror those for London as a whole – generally prosperous and a growing population and economy, and a need to accommodate growth and development while coping with structural changes in the employment structure.

¹ The [South London Partnership](#) covers the area of the TfL south London sub-regional transport plan, with the addition of LB Wandsworth.

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

16. As shown in Figure 2, 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 Chalkers Corner, less attractive for development.

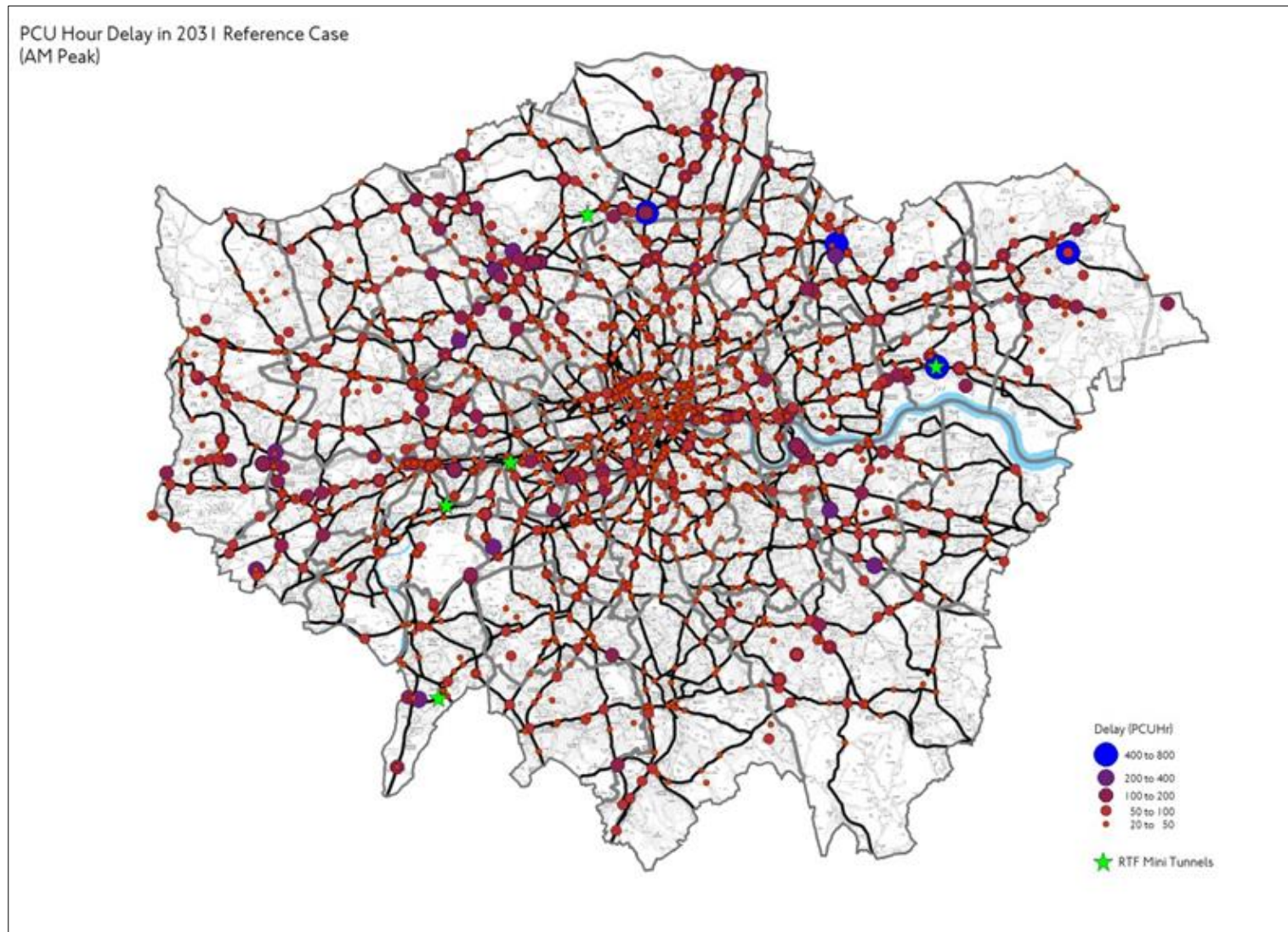
There has been extensive recent investment in rail public transport, but similar levels of investment have not been made to the road network in London

17. 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.
18. 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.
19. A project such as the A316/A205/A3003 Chalkers Corner fly under scheme 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.²
20. 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 2.
21. This investment would also continue to promote sustainable public transport movements at Chalkers Corner, including on the four bus routes serving it forming 1% of total traffic movements across the junction with 415 services per day:
- 190: Richmond bus station to West Brompton station via Great Chertsey Road
 - 419: Richmond bus station to Hammersmith via Lower Richmond Road and Castelnau

² 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.

- R68: Kew Retail Park to Hampton Court station via Richmond
 - N22 night Bus: Fulwell to Piccadilly Circus via Lower Richmond Road
Castelnau
22. The Surface Transport Outcome Study for the A316 (2016) notes that bus services are intensively used on the corridor.
 23. It should be noted that no buses serve A205 Clifford Avenue south of Chalkers Corner.
 24. Investment in Chalkers Corner would also significantly contribute in managing the significant freight movements at Chalkers Corner. Light goods vehicles (LGVs) and heavy goods vehicles (HGVs) comprise approximately 16% of flows on arms such as Clifford Avenue and Lower Richmond Road, for example. Overall, 4% of movements are comprised of HGVs.
 25. In addition to improving noise and pollution levels at the junction, the flyunder would improve the experience for cyclists and pedestrians at the junction.

Figure 2: PCU Hour delay in 2031 reference case



Part B: Objectives for action for TLRN corridors

26. 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.
27. These arise from two key sources, the Mayor's Transport Strategy and the Roads Task Force report 'Vision for London's Roads and Streets.'³
28. 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.
29. 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;
 - 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.
30. 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 C: Options for addressing the problems on the TLRN at priority locations

31. 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.
32. 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

³ Roads Task Force, July 2013

33. From the short list of 15 schemes, five have been taken forward as a first tranche of projects for further feasibility work. Chalkers Corner is one of these five. Further feasibility work has since commenced on other scheme proposals.
- A316/A205/A3003 Chalkers Corner;
 - A13 Barking Riverside;
 - A4 Hammersmith;
 - A406 North Circular Road at New Southgate; and
 - A3 Tolworth.
34. TfL is now beginning to look at the options for the next tranche of shortlisted schemes in further detail.

Part D: The problems identified for the A316/A205 at Chalkers Corner

35. **There is a case for new road tunnels at key locations such as Chalkers Corner deliver wider objectives without losing surface road space and otherwise increasing congestion costs.**
36. The A316 is part of the TLRN and its location is shown in Figure 3 and the local context in Figure 4. Whilst the TLRN represents 4 per cent of London's road network, it carries 30 per cent of all traffic in London. The A316 is a key part of this network, carrying 65,000 vehicles AADT comprising strategic, economically important traffic between central London and the south west of London and the M3 corridor beyond.
37. The Chalkers Corners junction straddles the Kew, North Richmond and Mortlake & Barnes Common wards of the London Borough of Richmond upon Thames,
38. Maintaining and safeguarding this key strategic movement is essential to south London's future economic success. Constructing a fly under at Chalkers Corner is the only infrastructure solution capable doing this, whilst simultaneously enabling improvements to the local environment and reducing issues of severance (see Figure 5 and Figure 6).
39. The relocation of the main strategic traffic flow from the surface at Chalkers Corner would provide a major opportunity to address the negative local impacts (including noise, severance and air quality) and reduce journey times for all road users, including pedestrians and cyclists.

Figure 3: Location map of Chalkers Corner in London

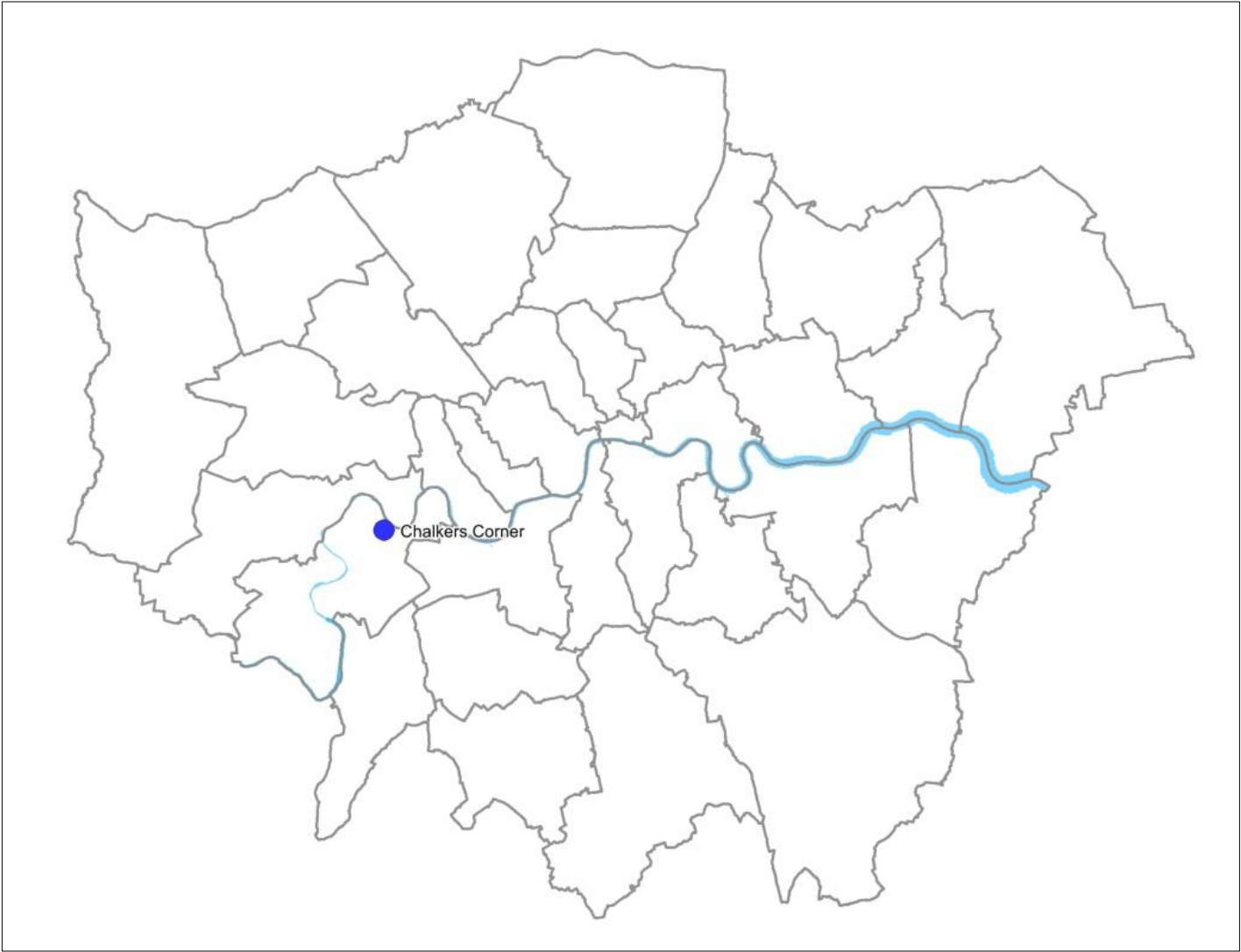


Figure 4: Chalkers Corner location plan

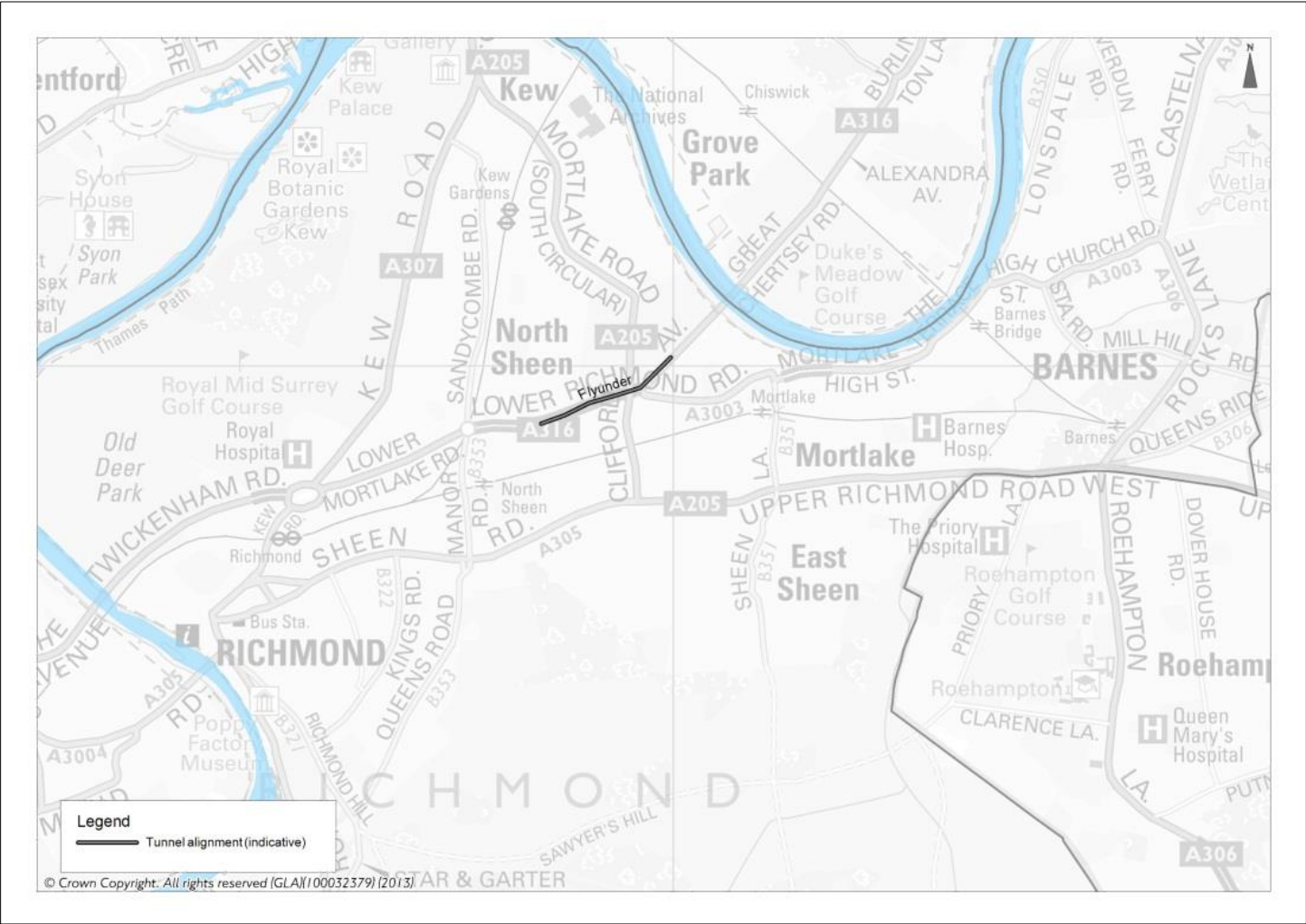


Figure 5: Key issues of severance



Figure 6: Movement related facilities and features



Part E: Objectives for A316/A205/A3003 Chalkers Corner and options Identified

40. From the issues and opportunities identified at Chalkers Corner, TfL has identified five objectives for a scheme at this location, aimed at:

- Supporting and protecting the economic efficiency of south London;
- Reducing journey times and delays;
- Improving local environmental quality;
- Reducing severance and increasing sustainable connectivity for all; and
- Enabling improvements for sustainable modes.

- 2.1. In order to ensure the specific project objectives outlined above are achieved the following high level measures of success have been identified. More specific measures and associated monitoring strategy would be developed at a later stage.

- Local economic output grows and employment increased;
- Reduced journey times for motorised traffic;
- Better air quality and less noise;
- Growth in pedestrians and cyclists using the junction at the surface; and

41. A number of options were appraised to determine the best solution to address both these on- and off-highway challenges. On behalf of TfL, CH2M initially investigated five potential options:

1. Surface only improvements, including flyover based improvement
2. A205 fly under (north-south)
3. A316 fly under (east-west) with staggered portals
4. A316 fly under (east-west) with narrower cross section
5. A316 fly under (east-west)

42. **Through this process of option appraisal and assessment, an A316 fly under (east-west) with two lanes in each direction emerged as the best option to investigate further.**
43. This option could meet the RTF's core objectives and the scheme objectives, enabling people to move more effectively, a transformation in the environment for sustainable modes and dramatic improvements to the public realm.
44. CH2M evaluated the new development potential around the Chalkers Corner fly under. There would be some land that would need to be compulsorily purchased in order to facilitate the fly under construction. Some of this land would be needed on a temporary basis only and could subsequently be sold off. The development potential on this land is however immaterial for the purposes of project funding (up to 48 new dwellings). Preliminary estimates suggest a combination of borough CIL and stamp duty receipts on new development would raise in the region of £1m-£2m only.

Part F: How the Fly under addresses the problems

45. The option to build a fly under on the A316 at Chalkers Corner has been shortlisted because it meets overall policy in the London Plan and the Mayor's Transport Strategy (MTS), and is considered to be:

- practical to construct;
- in a suitable location;
- environmentally acceptable with public realm, air quality and noise benefits; and
- likely to be affordable.

In conjunction with the A316 Corridor Plan currently being developed by Surface Transport, this scheme also represents an opportunity to significantly increase levels of cycling and walking in this part of London.

46. The fly under would be able to accommodate all types of road vehicles, including the 15% of traffic that is comprised of light and heavy goods vehicles on the A316. Surface roads would remain open for local traffic. Figure 7 gives an indication of how the fly under could address the problems, showing how the urban realm on the surface could be remodelled to improve the pedestrian and cycle experience at the junction.
47. This fly under concept is also well supported by stakeholders. It featured in the London Borough of Richmond upon Thames' (LB Richmond) Mini-Holland bid.
48. LB Richmond has confirmed they are satisfied at this stage with proposals and the alignment, subject to more detailed feasibility work and planning permission at the appropriate time.

Figure 7: Urban realm improvements: Chalkers Corner



Part G: Scheme fit against strategic and local policies, strategies, frameworks and objectives

49. Overall, a fly under conforms to policy at all levels, helping to secure London's, and particularly south London's, continued prosperity.
50. Due to the extent that the A316/A205/A3003 Chalkers Corner fly under scheme would address the challenges faced in London, particularly in south London, it makes a significant contribution to policy at all levels.
51. At a national level the proposal:
- delivers against DfT's priorities for the transport network;
 - Delivers against National Planning Policy Framework (NPPF) objectives that support increasing levels of cycling and walking, and improving public realm; and
 - Adopts the good practice set out in the National Policy Statement for National Networks (NN NPS) in ensuring that reasonable endeavours are made to improve the situation for pedestrians and cyclists in any scheme affecting the strategic road network; the needs of pedestrians and cyclists lie at the heart of this scheme through the improved public realm and space freed up by the proposed construction of a fly under.
52. The fly under also supports and delivers against London-wide and local policies and strategies:
- Mayor's Spatial Development Strategy (known as the London Plan);
 - Mayor's Transport Strategy (MTS);
 - Mayor's Roads Task Force (RTF) objectives for balancing movement and place;
 - London 2050 Infrastructure Plan;
 - Mayor's Cycling strategy; and
 - Local policies such as borough Local Development Frameworks (Local Plans).
53. In summary, a fly under would address significant challenges that currently blight Chalkers Corner. It would
- mitigate congestion by providing a direct route for strategic traffic, separate from local movements;
 - on the surface, create more space for sustainable modes; and
 - reduce the negative impacts of heavy flows on the local environment, and provide new opportunities to raise levels of walking and cycling.

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

- The proposed scheme would address the regular and severe congestion experienced at Chalkers Corner, a key traffic bottleneck on the TLRN strategic road network in south London, enabling reduced delays for strategic road users.
- The proposed scheme would combat the adverse air quality, noise and severance impacts of heavy traffic flows at Chalkers Corner by removing the majority of the traffic flow from the surface. This would allow for a transformation in the quality of the public realm.
- The scheme would also enable more space to be dedicated to sustainable modes such as cycling, providing an opportunity to match the provision offered elsewhere in LB Richmond.
- The experience for pedestrians would be improved as the main heavy flow of strategic traffic is removed from the surface, improving perceptions of safety and space.
- Overall there would be a powerful opportunity to increase walking and cycling levels in this part of south London.

2. The Economic Case

55. The economic consequences of the fly under have been assessed.

The project would deliver benefits to transport users

56. In line with WebTAG guidance, cost-benefit analysis has been undertaken to assess the schemes value for money. This has been done with TUBA, a DfT modelling appraisal tool.
57. Over the 60 year appraisal period using TfL's London Value of Time (VoT), the net present value (NPV) of the fly under is estimated at £184.098m with a Benefit Cost Ratio (BCR) of 1.26 (taking account of additional land acquisition costs). Based on these values of time, the scheme would represent 'low' value for money.
58. As a sensitivity test, DfT National Values of Time were applied. This generates a BCR of 0.94, suggesting the scheme would represent "poor" value for money.
59. There are, however, more indirect benefits that this scheme could enable for which the monetised benefits are yet to be calculated but which could be expected to increase the BCR. As set out in the conclusion, TfL would investigate further the health-related benefits of the scheme for cyclists and pedestrians by using the HEAT and SART tools. Increases in walking and cycling levels can be expected from the improved public realm on the surface and reduction of severance and provision of easier, well designed pedestrian crossing points.
60. There may also be indirect benefits in completing other schemes in the vicinity that unlock growth, to mutual benefit, including through the implementation of the A316 Corridor Plan proposed by Surface Transport.

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

61. A high level WebTAG compliant noise appraisal has been carried out to assess the benefits of the tunnel on local residents. The noise analysis concluded that the covered area of the road network would cause a slight reduction in noise for those dwelling immediately alongside the A316. Overall, the scheme is expected to reduce the number of nearby residents exposed to noise.
62. The removal of the heavy strategic traffic flow on the A316 from the surface to the fly under would improve the environment. Pedestrians would find it easier to cross the road, and improving perceptions of safety. For cyclists, the project could enable the construction of dedicated cycle paths on the surface, away from the strategic traffic. This would make Chalkers Corner considerably easier to negotiate for pedestrians and cyclists than today.

The project would enable local regeneration

63. The fly under would enable some local regeneration benefits to occur owing to its location. The London Plan accepts that the London Borough of Richmond does not have brownfield land available to accommodate significant new housing or employment growth in the vicinity of Chalkers Corner. Where land would be required for construction, it is forecast that homes and businesses would be replaced, with some potential increase in housing units following redevelopment, totalling approximately 48 dwellings on redeveloped land.
64. The key points arising from the Economic Case can therefore be summarised as:

- A BCR of 1.26 is generated when using the TfL London VoT, suggesting the scheme is 'low' value for money – but this excludes potential recovery of costs from disposal of land compulsorily purchased following scheme completion.
- The scheme may indirectly unlock growth elsewhere and provide additional cycling and walking benefits.
- The fly under would bring additional benefits, including a reduction in the level of noise pollution experienced by nearby residents.
- The proposal would have a **neutral impact** on severance (pedestrians would remain unable to cross the road at tunnel portals). However, the effect of removing the main strategic traffic from the surface should not be underestimated: reduced surface traffic would make the road easier to cross, improve perceived safety and space available.
- Cyclists would also benefit from improvements to safety and space via improved facilities and separation from heavy traffic flows at the junction.

3. The Financial Case

Cost estimates suggest the fly under would cost £126m to construct plus land acquisition costs of £65m

65. The Financial Case sets out the project cost, the funding available to deliver the scheme and the proposed financing arrangements.

66. The estimated construction cost for the fly under is £126m. This cost is presented in 2015 prices, including 66 per cent optimism bias. Additional funds estimated at £65m would be required to undertake land acquisition.
67. The operational cost is estimated to be approximately £0.74 m per annum, made up of routine and reactive maintenance costs. It should be noted that this also includes £0.29m to be spent on lifecycle costs only every 10 years.
68. The fly under proposal is at an early stage, so TfL is working to improve the confidence around the initial cost estimates.
69. Further design work is being undertaken which may see these cost figures revised, and a Quantified Risk Assessment would be conducted should the project be progressed.
70. Cost figures presented do not include land acquisition costs of £65m; costs of traffic disruption as a result of construction; possible improvements to length of the A316; or possible improvements to the A205 and A3003.
71. No significant funding from new development is expected to come forward. More traditional means of covering the flyunder costs, such as government funding, would need to be considered.
72. The key points arising from the Financial Case can therefore be summarised as:

- Cost estimates suggest the Chalkers Corner fly under would cost around £126m at 2015 prices with a 66% optimism bias to construct; plus land acquisition costs of £65m
- No material funding from local sources has been identified given low levels of associated development
- Grant funding is going to be required

4. The Commercial Case

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

The fly under is being promoted by TfL. All potential suppliers would 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.

74. TfL has significant experience in the procurement and construction of major infrastructure projects, including rail tunnels and highway improvements, on projects such as Crossrail, Docklands Light Railway extensions, and major station schemes such as King's Cross St Pancras. Examples of significant highway improvements delivered by TfL include the Chiswick Bridge refurbishment, the Hammersmith Flyover refurbishment, and the Cycle Superhighways programme.

TfL has substantial experience of delivery of complex highway and tunnelling projects, which we would apply to the procurement, funding and financing of the fly under

75. The procurement approach and funding and financing mechanisms are currently expected to broadly follow the model applied on other TfL projects.
76. 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 London Borough of Richmond upon Thames, would be delivered in partnership with these other organisations.

TfL can achieve efficiencies by delivering the Chalkers Corner scheme within a wider programme of tunnel projects and link into a wider highway capital investment programme

77. TfL is undertaking and proposing a range of large capital infrastructure projects that involve procurement of skills and services that would all be highly relevant to approaches that would need to be adopted for the A316/A205/A3003 Chalkers Corner fly under. For example, Crossrail and the Northern Line Extension have led to an increase in skills associated with deep bored tunnel design and construction procurement, whilst the Cycle Superhighways and Better Junctions programmes have led to an increase in skills associated with large-scale highway engineering and construction traffic management.
78. There is also an opportunity to build on the experience TfL is developing through delivering the Silvertown Tunnel, applying this to other highway tunnelling projects, such as at Chalkers Corner.
79. The fly under is being proposed as part of a wider programme of Roads Task Force (RTF) tunnels and decking over 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 fly under.

TfL utilises supply chains from across the UK – work for a tunnel would support many jobs outside of London

80. Although TfL undertakes procurement for projects implemented in the capital, the wider benefit to the UK is extensive, with over 60,000 jobs estimated to be supported by services TfL procures from outside of London. The construction of the fly under would add to the pipeline of capital investment that supports jobs across the UK.
81. The procurement strategy for this stage of the project would be refined as the scheme was further developed.
82. The key points arising from the Commercial Case can therefore be summarised as:

- The fly under is being promoted by TfL. All potential suppliers would be required to consider the Mayor of London's Responsible Procurement Policy in their bid
- TfL has substantial experience of delivery of complex highway and tunnelling projects, which we would apply to the procurement, funding and financing of the fly under

- TfL can achieve efficiencies by delivering the Chalkers Corner scheme within a wider programme of tunnel projects, linking into a wider highway capital investment programme
- As TfL utilises supply chains from across the UK, the fly under is likely to support many jobs outside of London.

5. The Management Case

83. 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.

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

84. TfL has extensive experience in developing, promoting and implementing significant infrastructure projects. This ranges from modifications to existing infrastructure (such as refurbishment of the A4 Hammersmith flyover, modernisation of the London Underground, extensions to Tramlink and DLR) to major schemes such as Crossrail.

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

85. 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 would provide close scrutiny and challenge of risk management and decision-making throughout the project

86. 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). TfL has the option of establishing an Independent Peer Review Group (IPRG).
87. Initial stakeholder engagement has already been undertaken and there is strong support for the scheme from LB Richmond. A future programme of stakeholder engagement has been developed, if the scheme progresses further.
88. The current anticipated key milestones for the project are shown in Table 1 below, subject to the scheme progressing at this time. Any changes to baseline scope, cost and schedule would be reviewed, impact assessed and approved following the change control process.

Table 1: Key project development milestones

<i>Milestone Description</i>	<i>Date</i>
------------------------------	-------------

<i>Plan, design, approval, procure</i>	<i>2016-2021</i>
<i>Build</i>	<i>2021-2023</i>

89. 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 would provide close scrutiny and challenge of risk management and decision-making throughout the project

Conclusion

The A316/A205/A3003 Chalkers Corner fly under can deliver benefits for all categories of transport user, plus some local regeneration while supporting the wider economic efficiency of south London

90. The A316/A205/A3003 Chalkers Corner fly under SOBC demonstrates that across the Five Case Model:

- There is a clear robust **case for change** for the Chalkers Corner fly under to mitigate growing congestion costs, to provide surface space for pedestrians and cyclists, to tackle issues of poor public realm and environmental quality and to cater for the needs of future population and economic growth. This 'strategic case' is closely related to national, London-wide and local road policy objectives, with a particular reference to the London Plan and the Mayor's Transport Strategy.
- The analysis demonstrates that the scheme would deliver **direct economic benefits** for London, particularly south London through transport user benefits. With a NPV of £137.655m at 2010 prices, the scheme has a BCR of 1.26 with London values of time. Along with reductions in journey time through the junction, the scheme would facilitate a reduction in noise experienced by nearby residents and improvements to the public realm.
- The scheme may however enable deliver of more **indirect economic benefits** which could warrant further investigation, such as reduction in travel time elsewhere in the local network.
- **This scheme would require grant funding.**
- The scheme is **commercially viable**. The business case sets out the procurement, commercial structure and proposed allocation of risk and payment mechanisms for the project.

- The fly under **is achievable**. 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 work takes place to investigate the proposed option

91. While the Strategic Outline Business Case has reported on the majority of likely impacts of the scheme, further work is required on the air quality, noise, health and urban realm impacts in any future Outline and/or Full Business Case. This work would be undertaken prior to any future statutory consultation.
92. Given the strong case for the fly under scheme, TfL is proposing the following to facilitate its delivery:
 - Prepare a more detailed schedule of the alternatives considered to the scheme described in this document;
 - Undertake more detailed study of pedestrian and cyclists flows and desire lines to inform more detailed design of the decking element of the fly under
93. Subject to the acceptance of this Business Case, we propose to:
 - Investigate obtaining Powers to compulsorily purchase the land beyond highway boundary required to deliver the scheme on the southern side of the A316;
 - As part of the financial and commercial cases, prepare a plan to return non-required land back to the private sector upon scheme completion, to maximise return on scheme investment;
 - Investigate a loan facility to enable early land acquisition to secure value uplifts arising from a tunnel; and
 - Commit to ongoing use of the tunnelling expertise and supply chains which have been developed for other TfL projects to reduce infrastructure provision costs.

1. The Approach to the Business Case

Introduction

- 1.1. Transport for London (TfL) is assessing a potential fly under on the A316/A205 at Chalkers Corner. The scheme is designed to relieve congestion thereby improving the quality of the local environment, while also providing additional facilities/space for cyclists and pedestrians.
- 1.2. This document is the Strategic Outline Business Case for the project.
- 1.3. From the issues identified at Chalkers Corner, we have identified objectives for a scheme to meet at this location, aimed at:
 - Supporting and protecting the economic efficiency of south London;
 - Reducing journey times and delays;
 - Improving local environmental quality;
 - Reducing severance through better public realm increasing sustainable connectivity for all; and
 - Enabling improvements for sustainable modes.
- 1.4. The scheme set out herein has been identified against the above objectives and following the recommendations of the Roads Task Force (RTF) Report: 'Vision for London's Roads and Streets' published in 2013. The scheme is one of five schemes which form part of the first tranche of opportunities to address challenges facing 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 and further, detailed design and assessment would be undertaken during 2016, subject to the assessment of priorities within the wider programme.
- 1.5. Figure 8 below shows the location of Chalkers Corner, and illustrates the extent of the junction in the context of the local area.

Figure 8: London wide location map

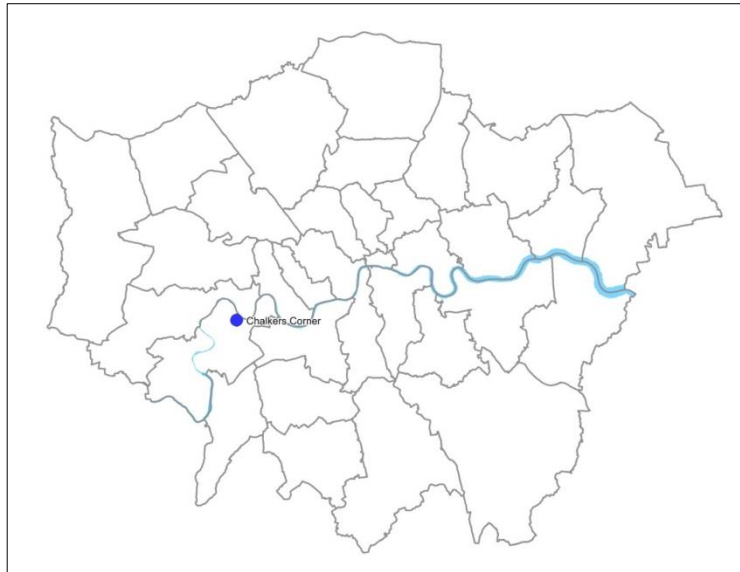
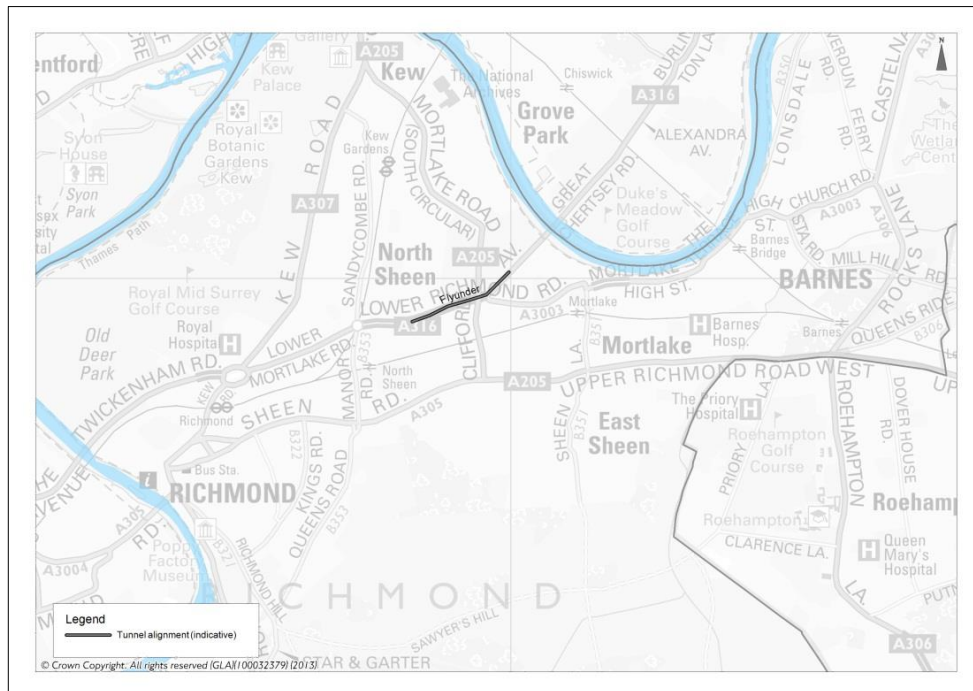


Figure 9: Junction location plan



1.6. The key points of the Strategic Outline Business Case can be summarised as follows:

- The proposed scheme would address the regular and severe congestion experienced at Chalkers Corner, a key traffic bottleneck in south London, reducing delays for strategic road users.
- The proposed scheme would combat the negative impacts of heavy traffic flows at Chalkers Corner by removing the majority of the traffic flow from the surface. This would allow for a transformation in the quality of the public realm.
- The scheme would also enable more space to be dedicated to sustainable modes such as cycling, providing an opportunity to match the provision offered elsewhere in LB Richmond.

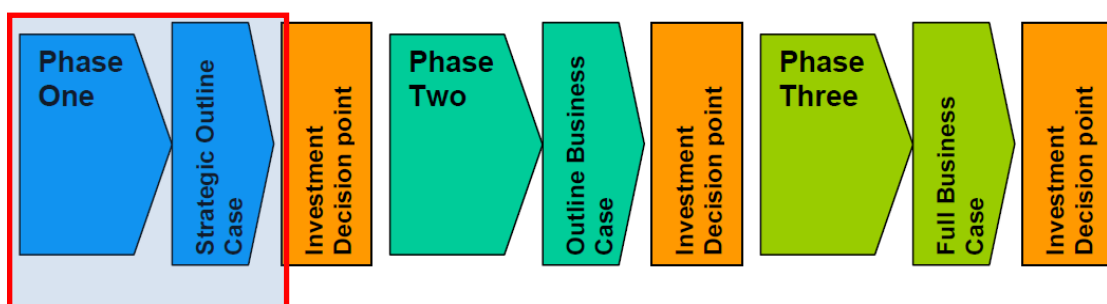
- The experience for pedestrians would be improved as the main heavy flow of strategic traffic is removed from the surface, improving perceptions of safety and space.
- Overall there would be a powerful opportunity to increase walking and cycling levels in this part of south London.

The Five Case Model for Transport Appraisal

- 1.7. The purpose of a 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 Department for Transport⁴. This is based on HM Treasury's advice on evidence-based decision making as set out in the Green Book⁵ and uses the best practice five case model approach.
- 1.8. 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 financially affordable – the '**financial case**'; and
 - are commercially viable – the '**commercial case**';
 - are achievable – the '**management case**'.
- 1.9. The evidence gathered as part of the business case preparation process has been prepared using the tools and guidance provided by the DfT notably WebTAG⁶. This approach ensures that the evidence produced is robust and consistent for all the options examined in detail. This applies equally to those options proposed for investment and those, which following assessment, are not to be developed further.

The decision making process

- 1.10. 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.



⁴ See https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/85930/dft-transport-business-case.pdf, accessed 5 September 2014

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

⁶ See <https://www.gov.uk/transport-analysis-guidance-webtag>, accessed 5 September 2014

- 1.11. The current **Phase One** of this process focusses on articulating the need for the intervention and summarising the range of options developed and considered. This phase
- 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.
- 1.12. In the next stage, **Phase Two**, which would follow over the course of late 2015 and 2016, TfL would reconfirm the conclusions from Phase One and would concentrate on a more detailed assessment of the options to find the best solution, culminating in the preparation of an Outline Business Case, which would build on the Strategic Outline Business Case.
- 1.13. The final phase in the process, **Phase Three**, would result in the production of the Full Business Case – this would accompany other processes such as the CPO application, as necessary.

The role of the Mayor of London and TfL

- 1.14. 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 through the publication of the Mayor's Transport Strategy (MTS).
- 1.15. TfL is responsible for operating, maintaining and improving the strategic road network in Greater London. The TLRN represents 4 per cent of London's road network but carries 30 per cent of all traffic in London.
- 1.16. The business strategy of TfL is shaped 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.
- 1.17. The legislative framework for the MTS is laid down by the Greater London Authority (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

- I.18. No formal consultation has taken place to date. Given the early stages of the project, consultation has been limited to engagement with key stakeholders: The Greater London Authority (GLA) and the London Borough of Richmond upon Thames (LB Richmond).
- I.19. If the project develops, TfL would seek to consult with the public and stakeholders at the earliest appropriate opportunity.

2. The Strategic Case

Introduction

- 2.2. Transport for London (TfL) is assessing a potential fly under on the A316/A205 at Chalkers Corner. The scheme is designed to relieve congestion thereby improving the quality of the local environment, while also providing additional facilities/space for cyclists and pedestrians.
- 2.3. This Strategic Case has been prepared by TfL, in close consultation with the London Borough of Richmond upon Thames, with support from an independent Expert Group comprised of experts in economic appraisal of major transport infrastructure projects. It forms the first of the five cases forming the Transport Business Case. Its purpose is to set out the need for investment in the transport system at Chalkers Corner.

Chalkers Corner objectives and measures of success

- 2.4. The scheme option described in part G of this Strategic Case has been identified following the recommendations of the Road Task Force (RTF) Report: 'Vision for London's Roads and Streets' published in 2013, and from national, London-w-de and local policies and strategies. The scheme is one of five schemes which form part of the first tranche of opportunities to address Transport for London Road Network (TLRN) challenges 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 would be undertaken during 2016.
- 2.5. From the problems identified at Chalkers Corner, we have identified objectives for the A316/A205/A3003 Chalkers Corner fly under aimed at:

- Supporting and protecting the economic efficiency of south London;
- Reducing journey times and delays;
- Improving local environmental quality;
- Reducing severance through better public realm increasing sustainable connectivity for all; and
- Enabling improvements for sustainable modes.

- 2.6. In order to ensure the specific project objectives outlined above are achieved the following high level measures of success have been identified. More specific measures and associated monitoring strategy would be developed at a later stage.

- Local economic output grows and employment increased;
- Reduced journey times for motorised traffic;
- Better air quality and less noise;
- Growth in pedestrians and cyclists using the junction at the surface; and

- Enabled/delivered better walking and cycles routes, and convenient bus stop infrastructure for public transport users.

Structure of the strategic case

2.7. 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 fly under project would need to address and the elements of the RTF's toolkit we intend to apply in addressing the problems and issues;
- based on the problems and issues, define scheme objectives and measures of success for an intervention at Chalkers Corner, and look at options for achieving these objectives ;
- based on the option assessment, show how a mini-tunnel at Chalkers Corner would help towards solving some of the strategic challenges facing London, such as supporting the efficient functioning of the road network; and
- demonstrate how the proposed intervention would achieve a strong fit with policy at all spatial scales.

2.8. The Strategic Case will demonstrate a strong fit with policy at all spatial scales in Part G. It is structured into seven sections:

- Part A: The strategic issues and challenges affecting TLRN corridors;
- Part B: Objectives for action for improvements on TLRN corridors;
- Part C: Approach taken by the Roads Task Force to address TLRN challenges;
- Part D: The issues and challenges identified for the A316/A205 at Chalkers Corner;
- Part E: Objectives for A316/A205/A3003 Chalkers Corner and options Identified;
- Part F: How the Fly under addresses the issues and challenges; and
- Part G: Scheme fit against strategic and local policy, strategies, frameworks and objectives.

PART A: STRATEGIC ISSUES AND CHALLENGES IDENTIFIED AFFECTING TLRN CORRIDORS

Section Summary:

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

- London is a modern global economic success story
- London's population is forecast to grow from 8.6m people today to 10m by 2036 - with 1.4m more jobs over the same period
- As London grows, the level of congestion on its strategic road network is forecast to grow significantly, even with sustained investment in public transport capacity
- A growing city population will travel more, resulting in more congestion and crowding, and poorer air quality, reducing the overall quality of life
- London's congestion will have increasing costs and impacts - including in outer London and at a major junction such as Chalkers Corner
- Areas of outer London are currently more dependent on car-based travel for commuting to work
- South London has specific transport characteristics and faces specific economic challenges

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

- The Mayor's Roads Task Force establishes a strategic vision for London's roads and balances the functions of movement and place
- 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 as London's economic efficiency and success will suffer - but neither is taking away capacity without compensating investment in other modes
- Not improving London's road and wider transport networks could worsen the health and wellbeing of Londoners

The road tunnel schemes being considered are sub-regional or local schemes aimed at maintaining network capacity while also releasing the potential of specific areas on the TLRN

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

London is a modern global economic success story

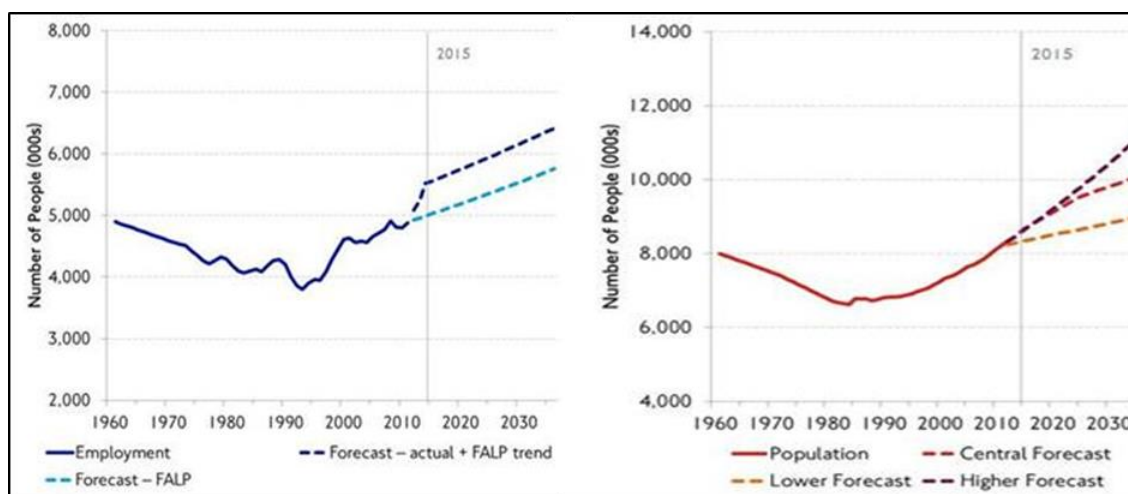
- 2.9. After reversing a steady period of decline London has been on a growth trajectory since the 1980s.

- 2.10. London today is an internationally competitive, highly productive and successful global city. Its success is underpinned by the world class clustering and agglomeration of businesses as a result of its unparalleled access to a large population of highly skilled workers drawn from across Greater London and the South East. This has driven very high rates of employment growth.

London's population is forecast to grow from 8.6m people today to 10m by 2036 - with 1.4m more jobs over the same period

- 2.11. London's population is forecast to grow from 8.6m people today to over 10m people by 2036. Figure 10 shows the spatial distribution of this growth. The number of jobs in London is expected to grow by 1.4m between 2011 and 2036.

Figure 10: Historic trends and projected growth in London's employment and population to 2036



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

- 2.12. For London to continue to succeed and prosper economically, it needs to address the challenges for transport arising from population and employment growth.
- 2.13. A higher employment base and higher population in London will result in increased demand for travel. This will generate a need for investment in improving the capacity of infrastructure networks including transport networks.

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

- 2.14. 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. 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.
- 2.15. A planned 70 per cent increase in rail capacity through Tube upgrades, Crossrail and Thameslink programmes is underway. Rail capacity on south west suburban services, including to and from Richmond, is set to be increased with 8-car trains

lengthened to 10 cars. 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.

- 2.16. Despite reductions in car mode share, and public transport mode share growing, future population growth means that the absolute volume of vehicular traffic using London's strategic road network is forecast to rise. The effect of increasing congestion will have increasing economic costs, and may result in skilled workers being less willing to work in London if no action is taken.
- 2.17. 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. Costs to businesses will increase including through freight movements and delivery windows becoming increasingly unreliable, affecting south London's economic performance.
- 2.18. This will result in some choosing to relocate to areas that offer a better quality of life or skilled workers choosing to work elsewhere, and businesses choosing to relocate, 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

London's congestion will have increasing costs and impacts - including in outer London and at Chalkers Corner

- 2.19. Road congestion cost the London economy £5.4bn in 2013 accounting for 41 per cent of costs to all of UK's large urban areas⁷. Without the flyunder scheme, delays are forecast to increase at Chalkers Corner by 30% in the Am peak and 50% in the PM peak; while the scheme would mitigate the total delay by reducing it by over 50% over the same time period⁸.

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

- 2.20. 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 London⁹.
- 2.21. The TLRN corridors play an important role in facilitating radial movements of cars, coaches and HGVs from areas of outer London into central London, and inter-Borough movements within outer London. In 2011, 75% of households in south London owned a car, compared with 69% of households in outer London and 43% of households living in central London. 35% of residents in south London drive to work by car, compared with 36% of outer London residents as a whole, and 13% in central London residents.

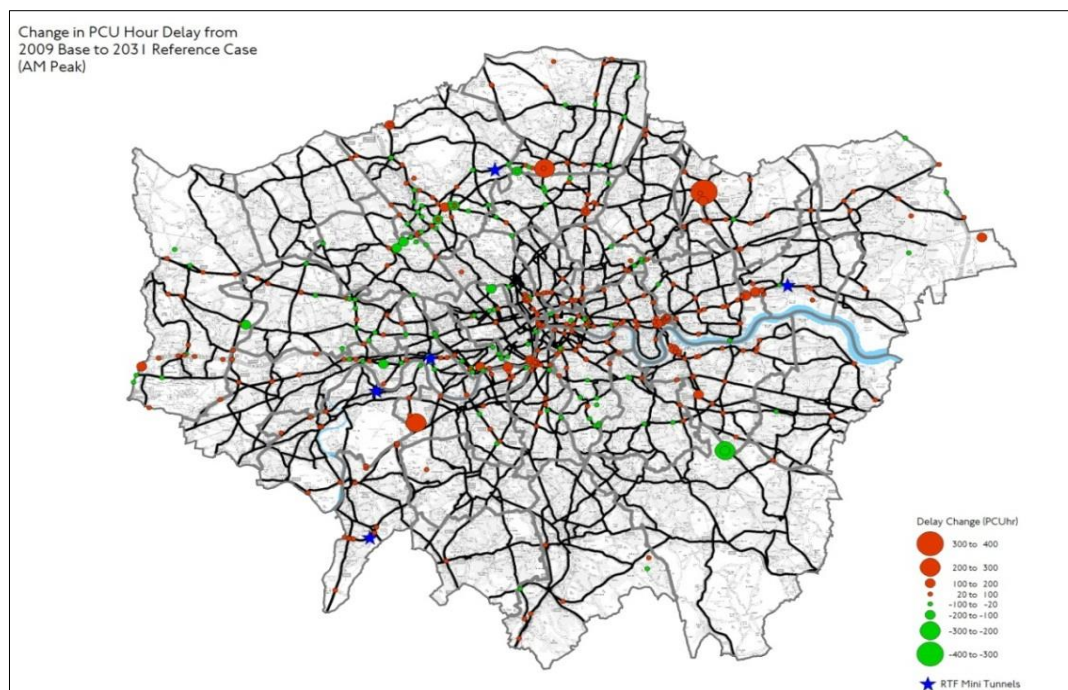
⁷ The future economic and environmental costs of gridlock in 2030, Centre for Economics and Business Research/INRIX, July 2014 http://www.cebr.com/wp-content/uploads/2014/10/INRIX_costs-of-congestion_Cebr-report_v5_FINAL.pdf

⁸ CH2M final report, 2016.

⁹ Based on percentage of average daily trips in three year period 2007/8 to 2009/10

- 2.22. 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 arterial 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 11.

Figure 11: Change in PCU hour delay, 2009 – 2031



- 2.23. In order to grow, London also requires the capacity of its transport network to grow with it, to meet a growing demand for travel without resulting in unacceptable levels of congestion and crowding.
- 2.24. Consequently there is also a need for London to improve the capacity of its' strategic road network, (known as the 'Transport for London Road Network' or 'TLRN') to help accommodate the additional, and increasingly diverse, trips generated from a growing population and freight requirements.

Key finding:

The pressures on London's roads are growing and there is a need for a major investment programme to improve the reliability of the road network

South London has specific transport characteristics and faces specific economic challenges

- 2.25. LB Richmond, and south London more broadly, face challenges specific to this area of London, including:
- It is very dependent on road network, national rail, buses and (London's only) tram network (only 10% of London's Underground reaches south London); and
 - Declining inner suburbs and isolated post-war estates.

- 2.26. The economic challenges facing south London sub-region are expected to manifest themselves in the following ways in the future:
- GLA projections show that the population of south London will grow by 12% from 2011 to 2030, and 16% to 2040. This growth in population will increase pressure on both the sub-regional and London wide transport networks.
 - Within LB Richmond specifically, population growth will be in the order of 8% to 2030 and 11% to 2040.
- 2.27. While the general economic picture for south London may be viewed as being broadly positive, to maintain this level of economic strength and prosperity in the future will require continued investment in the transport system, particularly in public transport, but also in the road network serving south London to ensure that the current level of economic success can be maintained and built upon into the future.
- 2.28. The challenges for south London, and LB Richmond as a whole, therefore mirror those for London as a whole – support economic efficiency and future success, so ensuring that future development and growth opportunities can be fully realised.

Key finding:

The economic challenges for the south London sub-region and for Richmond will become harder to address without sufficient investment in both public transport and highways, while those sectors of the economy strong in this part of London could be put at risk.

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

The Mayor's Roads Task Force (rtf) establishes a strategic vision for London's roads and balances the functions of movement and place

- 2.29. The road network in London serves a wide range of functions. At one end of the scale are core roads and main corridors that form the TLRN. These function as the principal routes for movement of vehicular traffic.
- 2.30. At the other end of the scale, streets with lower traffic flows often have a primary 'place' function. TfL and the London Borough of Richmond upon Thames need to work together to find the appropriate balance between the movement and place demands on roads and streets.
- 2.31. London's streets account for 80 per cent of public space in London and therefore schemes which are able to unlock key pinch points for traffic whilst providing a step change in public space on the surface are 'win-wins' in congestion, environment and health terms. A scheme at Chalkers Corner could deliver such
- 2.32. In 2013, the Mayor of London's independent Roads Task Force (RTF), comprising a diverse group of road users, developers and local authorities, helped to create the strategic direction for London's roads. This vision is designed to tackle congestion and improve quality of life in London.

- 2.33. The Roads Task Force report¹⁰, published in 2013, identifies nine typologies of road corridors or streets that reflect whether they play a strategic or local movement or place function, shown in Figure 12

Figure 12: Different typologies depending on highway function



- 2.34. Roads such as the A316 have a strategic movement function, which takes priority so have a “core road typology”. Other roads have to balance a clear movement function with an equally important place function.
- 2.35. 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 or stop to enjoy food, drink or take a break from work or shopping.
- 2.36. In some cases, the current typology or performance 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 12 discourages new residential development and lowers property prices.
- 2.37. With good planning and careful design, more emphasis can be given to the place function of a particular TLRN road corridor, in a way that does not compromise the strategic movement function role but which also facilitates the competing needs of the different types of road user which need to be accommodated.

Key findings:

- The Roads Task Force report¹¹ identifies nine typologies of road corridors or streets that reflect whether they play a strategic or local movement or place function.

¹⁰ Roads Task Force Report (July 2013) – <https://tfl.gov.uk/corporate/publications-and-reports/roads-task-force>

¹¹ Roads Task Force Report (July 2013) – <https://tfl.gov.uk/corporate/publications-and-reports/roads-task-force>

- Solutions which tackle the issue of congestion whilst reducing traffic impacts on communities around London's ring roads, gyratories and town centres must be found.

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

- 2.38. Road corridors possessing a strong 'movement' function present barriers that inhibit crossing movements by cyclists and pedestrians. If there is no provision in the form of at-grade crossings or over-bridges or subways at sufficient intervals, this can act as a deterrent to movement.
- 2.39. These severance impacts can 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.
- 2.40. 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.
- 2.41. If people find it more convenient to drive to access shops or services, then this can adversely affect the vitality of district or neighbourhood shopping areas and lead to their decline.
- 2.42. In order to stimulate more of a place function, or unlock regeneration opportunities there may be a need better balance movement and place functions of a particular road, to create more liveable streets.

Key Findings:

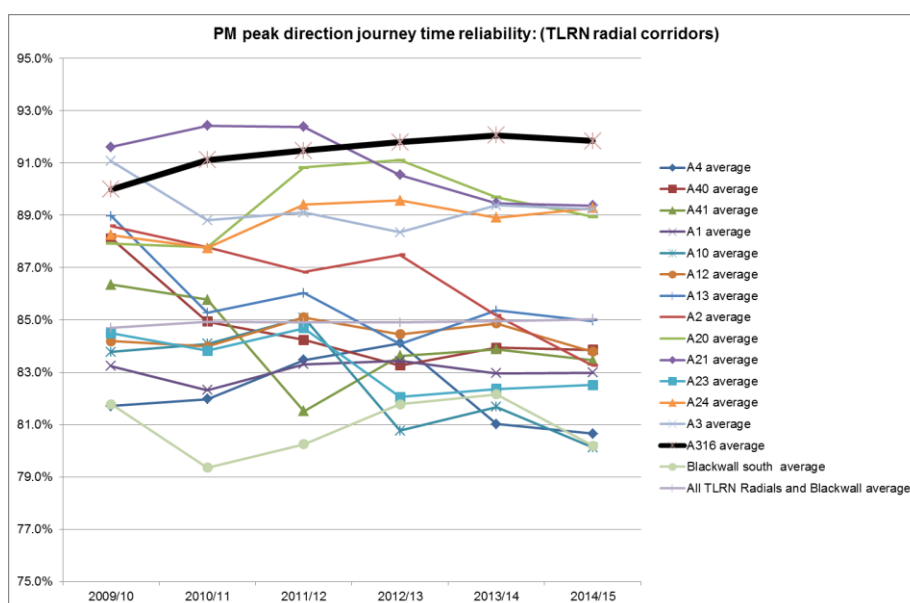
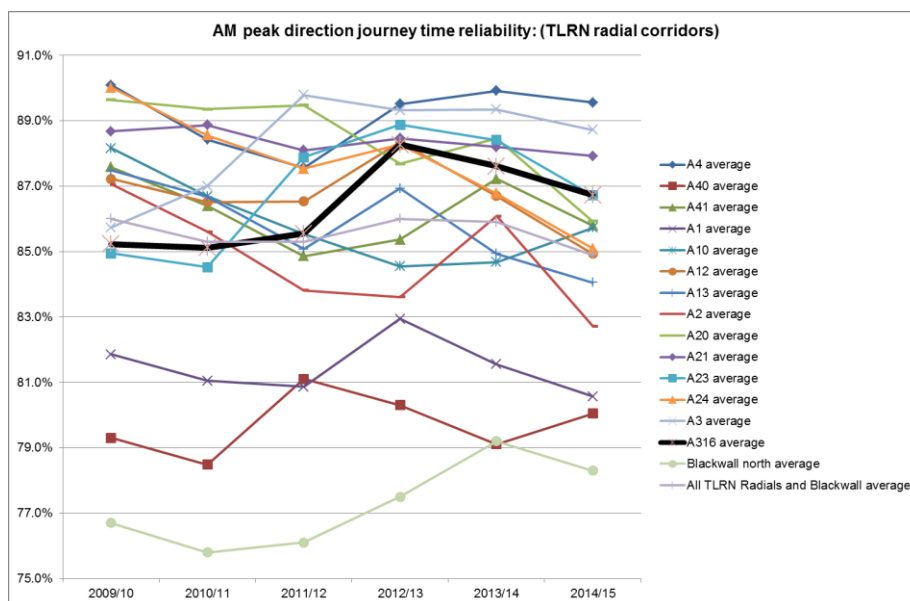
In many cases, severance effects result in households living nearby making less sustainable travel choices and having greater reliance on the private car.

Tunnels, over-decking or fly unders are one way to improve the place function without reducing the movement function of the strategic road.

Doing nothing to improve London's road network is not an option as London's economic efficiency and success will suffer - but neither is taking away capacity without compensating investment in other modes

- 2.43. If insufficient investment comes forward to manage London's road capacity to cope with increased levels of travel demand, then levels of highway congestion will rise, and bus services will become increasingly unreliable.
- 2.44. This will result in longer travel times and higher travel costs for commuters, residents and visitors. 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.
- 2.45. Figure 13 shows how TLRN reliability on key radials has changed over the period from 2009/10 to 2014/15, including for the A316. While the routes remains reliable at this time as opposed to other core radial routes, this cannot be taken for granted into the future given the population and other pressures highlighted above.

Figure 13: TLRN radial route reliability 2009/10 to 2014/15 AM peak direction and PM peak direction



Not improving London's road and wider transport networks could worsen the health and wellbeing of Londoners

- 2.46. Meanwhile, 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.
- 2.47. 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.

The road tunnel schemes being considered are sub-regional or local schemes aimed at maintaining network capacity while also releasing the potential of specific areas on the TLRN

2.48. Road tunnels, fly unders and decking schemes would do this in the following ways:

- provides companies with access to a larger and higher quality workforce, customers and suppliers, supporting the agglomeration economies associated with more reliable journey times by road
- unlocks space for development of housing and employment along the corridor which might have otherwise been constrained to a lower density.
- provides 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

Key Finding:

Investment in decking-over, tunnelling and fly under schemes on London's road network would help to enable regeneration and economic growth and protect network reliability.

PART B: OBJECTIVES FOR ACTION FOR IMPROVEMENT ON TLRN CORRIDORS

Section Summary:

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

- 2.49. 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.
- 2.50. These arise from two key sources, the Mayor's Transport Strategy and the Roads Task Force report 'Vision for London's Roads and Streets'¹².
- 2.51. 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.
- 2.52. 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;
 - 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.
- 2.53. The RTF vision identified that measures including fly unders, over-decking and tunnels have 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.

¹² Roads Task Force, July 2013

- 2.54. A scheme at Chalkers Corner could address the RTF's objectives for severance, congestion and enabling improvements for both sustainable modes and public realm on the surface, all of which apply to this important junction in south London.

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

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. Chalkers Corner is one of these five. Further feasibility work has since commenced on other scheme proposals.

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

- 2.55. 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.
- 2.56. 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'.
- 2.57. 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.
- 2.58. Since the recommendations of the Roads Task Force were published, TfL has been carrying out a number of strategic studies to understand the opportunities for roofing over or tunnelling under existing infrastructure at particular locations. 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);
 - Fly unders 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.

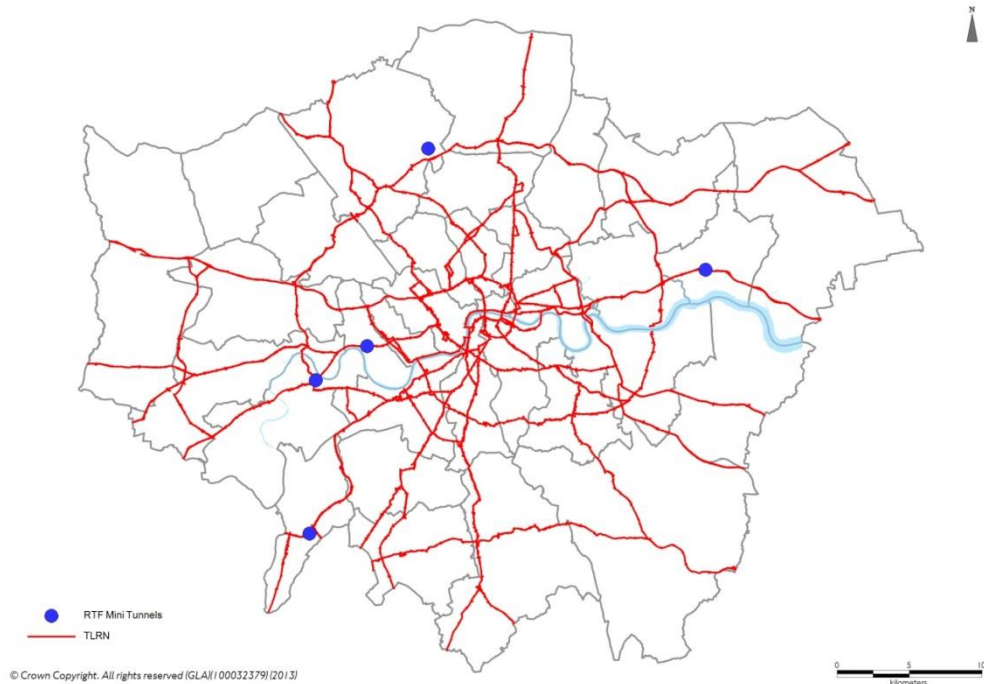
A process of prioritisation has been adopted, with a long list of 70 locations assessed using Multi-Criteria Analysis to identify which locations tunnel, fly under and decking solutions would deliver the greatest benefits

- 2.59. 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. A combined score was developed from SAF¹³ 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.

¹³ 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, five have been taken forward as a first tranche of projects for further feasibility work. Chalkers Corner is one of these five. Further feasibility work has since commenced on other scheme proposals

Figure 14: The TLRN with the five RTF tunnel schemes marked



2.60. As part of a rolling feasibility assessment programme, from the shortlist of fifteen sites, the following five locations are therefore being taken forward for further assessment, shown in Figure 14:

- A316, Chalkers Corner;
- A13, Barking Riverside;
- A4, Hammersmith;
- A406 North Circular Road, New Southgate; and
- A3, Tolworth.

2.61. TfL is now beginning to look at the options for the next tranche of shortlisted schemes in further detail.

PART D: THE ISSUES AND CHALLENGES IDENTIFIED FOR THE A316/A205/A3003 AT CHALKERS CORNER

Section Summary:

Chalkers Corner is a local centre dominated by the roads that pass by it. The A316 intersects with the A205 South Circular and A3003 Lower Richmond Road at two closely spaced junctions. These junctions struggle to cater for existing demand, leading to regular congestion and extended journey times through the area.

- A growing population in south London requires an efficient road network to enable access to employment
- Population and employment growth outside Richmond will also have a considerable impact on congestion at Chalkers Corner
- The A316 serves a key strategic movement function, which delivers substantial economic benefits
- But high levels of demand already result in congestion at Chalkers Corner
- The severance impacts caused by high traffic levels reduce connectivity, inhibiting walking and cycling movements
- Cycling and walking movements are inhibited by lack of crossing points and space but there is significant potential to increase cycling mode share on this commuter route
- Noise and poor air quality mean the A316/A205 and A316/A3003 junctions detract from the quality of environment at Chalkers Corner

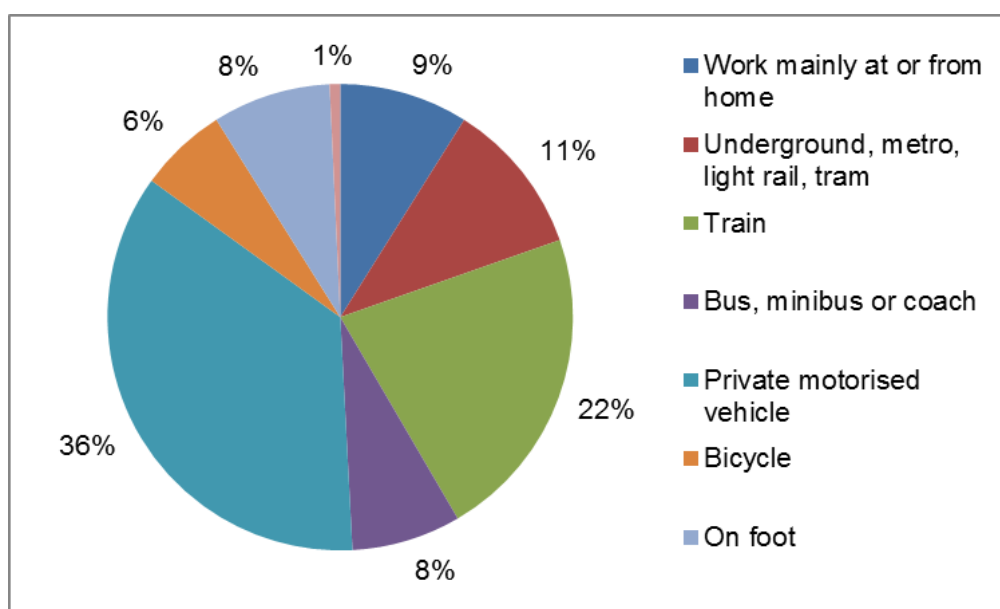
Chalkers Corner is a local centre dominated the roads that pass by it. The A316 intersects with the A205 South Circular and A3003 Lower Richmond Road at two closely spaced junctions. These junctions struggle to cater for existing demand, leading to regular congestion and extended journey times through the area.

- 2.62. Chalkers Corner has been highlighted as a congestion priority for many years and frequently features in traffic news. The two closely spaced junctions struggle to cater for the heavy traffic flows, resulting in regular congestion in the area and extended journey times.
- 2.63. Four bus routes, comprising daytime routes 190, 419 and R68, and night bus N22 serve Chalkers corner, with around 415 services per day. Freight flows through the junction are significant, with around 4% of movements being composed of HGV traffic. The Surface Transport Outcome Study for the A316 (2016) notes that the bus services are intensively used on the corridor.
- 2.64. For cyclists and pedestrians, there is little consistency in user experience along the A316 and A205. Several sections of these roads have already undergone improvements in recent years. However, the congestion, lack of space and lack dedicated facilities at Chalkers Corner have proved detrimental to the roads' use by cyclists and pedestrians.

A growing population in south London requires an efficient road network to enable access to employment

- 2.65. The population in south London is continuing to grow, and dramatically improved road provision at Chalkers Corner will be required to allow them to access work across the city.
- 2.66. From 2001 to 2011, the population of LB Richmond grew 9 per cent. Today the borough has an estimated population of 195,953. Employment in Richmond is also growing. The GLA predicts that between 2011 and 2036 10,600 more people will be employed in Richmond.¹⁴
- 2.67. The forecast population and employment growth in LB Richmond will place further pressure on the road network, particularly at key junctions like Chalkers Corner. However, as travel to work mode shares indicate, commuting by motorised vehicle remains the dominant choice in the borough and approximately 36 per cent of residents travel to work via private motorised mode, as shown in Figure 15.¹⁵

Figure 15: LB Richmond Travel to Work mode shares



- 2.68. For 47 per cent of working residents, the journey to work ends outside the borough, meaning residents are likely to use strategic routes such as the A316 to travel to work.
- 2.69. High levels of car availability suggest further reliance on private vehicles as part of daily life. Approximately 75 per cent of residents have access to one or more car or van. This is significantly higher than the London average of 58 per cent access and the average for south sub-region as a whole.¹⁶

¹⁴ London labour market projections, GLA, 2013.

¹⁵ QS701EW – Method of travel to work. Census 2011.

¹⁶ QS416EW – Car or van availability, Census 2011.

Population and employment growth outside Richmond will also have a considerable impact on congestion at Chalkers Corner

- 2.70. It is important to look beyond LB Richmond to understand the potential impact of growing population and employment on junctions such as Chalkers Corner. The travel patterns of LB Richmond are echoed across the south sub-region and are set to result in further congestion in future. Currently, 59 per cent of all trips are made by road in the south sub-region. With the number of jobs estimated to increase by 75,000 in this region between 2011 and 2031, an increase in car journeys can be expected.¹⁷
- 2.71. The growing number of people commuting into London from further afield is also likely to add to congestion on strategic routes such as the A316 in future years. In 2011, approximately 800,000 jobs were taken by commuters into London (equivalent to around 16 per cent of all jobs in the capital). This is an increase 100,000 over the last decade and is expected to rise.¹⁸

Key findings:

Many residents of LB Richmond are dependent on cars to travel to work. With population and employment set to rise, there is likely to be an increase in vehicular traffic at peak times. Any proposal to improve roads at Chalkers Corner must be able to improve the functioning of the road network in this area.

The essential roles of the A316 and A205 suggest that any scheme at Chalkers Corner should be designed in a way that helps to reduce journey times and delays for traffic movements to support the economic efficiency of south London.

The A316 serves a key strategic movement function, which delivers substantial economic benefits

- 2.72. The A316 forms part of the Transport for London Road Network (TLRN). The A316 is a key link in this network, providing a strategic route linking central London with the south west of London, Surrey and the M3 motorway corridor.
- 2.73. Figure 16 below shows the location of Chalkers Corner, while Figure 17 illustrates the extent of the junction in the context of the local area.

¹⁷ South London sub-regional transport plan update, TfL, 2014.

¹⁸ London labour market projections, GLA, 2013.

Figure 16: London wide location map

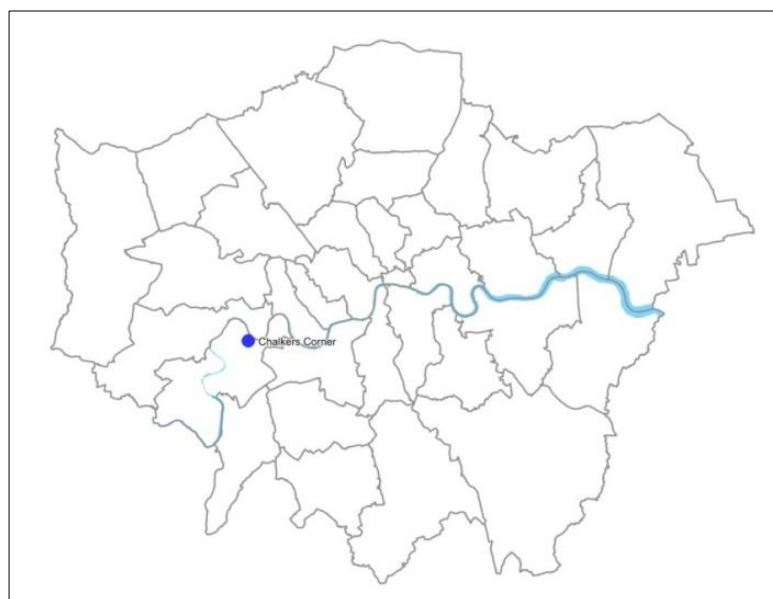
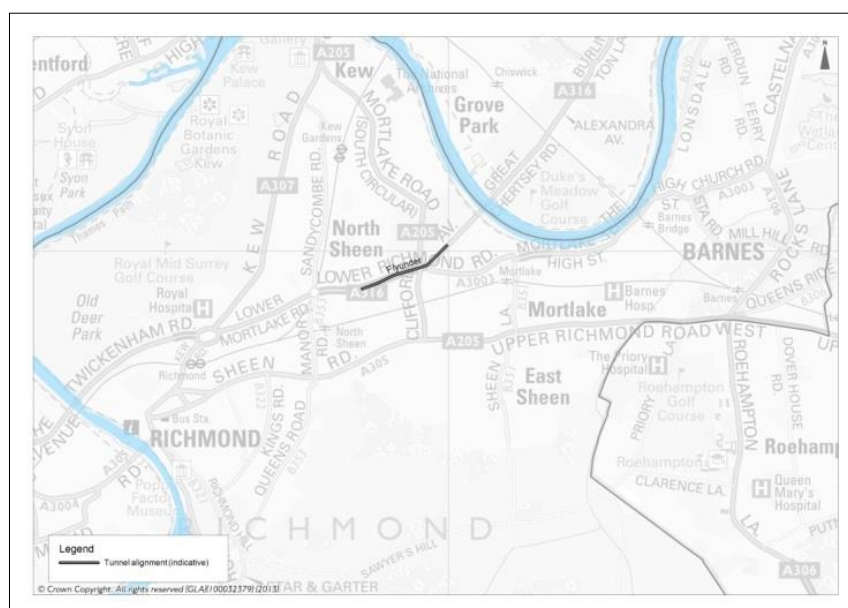


Figure 17: Chalkers Corner junction



- 2.74. Traffic data indicates the road consistently carries flows of 65,000 annual average daily traffic (AADT) of which 4 per cent is heavy vehicles. This strategic traffic flow is economically important to London as a whole. Connecting with the M3 to the west and central London in the east, the road acts as a key commuter route.

Key finding:

The A316 carries some of the highest traffic flows in south London and much of this traffic is economically important to west and central London.

But high levels of demand already result in congestion at Chalkers Corner

- 2.75. Despite investment in the transport network, historically road infrastructure has not kept at pace with the significant population and employment growth and as a

result, there has been a significant increase in demand on the existing network, particularly on strategic links such as the A316. Road users regularly experience delay and congestion at Chalkers Corner (Figure 18).

- 2.76. In future it is expected that such delays will increase at the junctions and in the surrounding area (Figure 19). For local residents, congestion results in a worsening of the public realm as the roads are around the junction contain stationary traffic, queuing and producing noise, reducing air quality and increasing severance at the two closely spaced junctions. For road users, congestion means unpredictable journey times through Chalkers Corner, which could negatively impact the working day or leisure time.
- 2.77. These increases in delays will also impact on bus journey reliability, with potential to prevent growth in patronage in the future. As set out earlier, increase in delays for freight traffic could negatively impact on the economic performance and growth of south London.

Key findings:

Any proposal to address the congestion and negative impacts of the A316 at Chalkers Corner must also maintain the important movement function of the road, including for bus users and freight traffic.

The essential roles of the A316 and A205 suggest that any scheme at Chalkers Corner should be designed in a way that helps to reduce journey times and delays for traffic movements to support the economic efficiency of south London while enabling better movement and reduced severance for pedestrians and cyclists.

Figure 18: PCU Hour Delay in 2009 Base

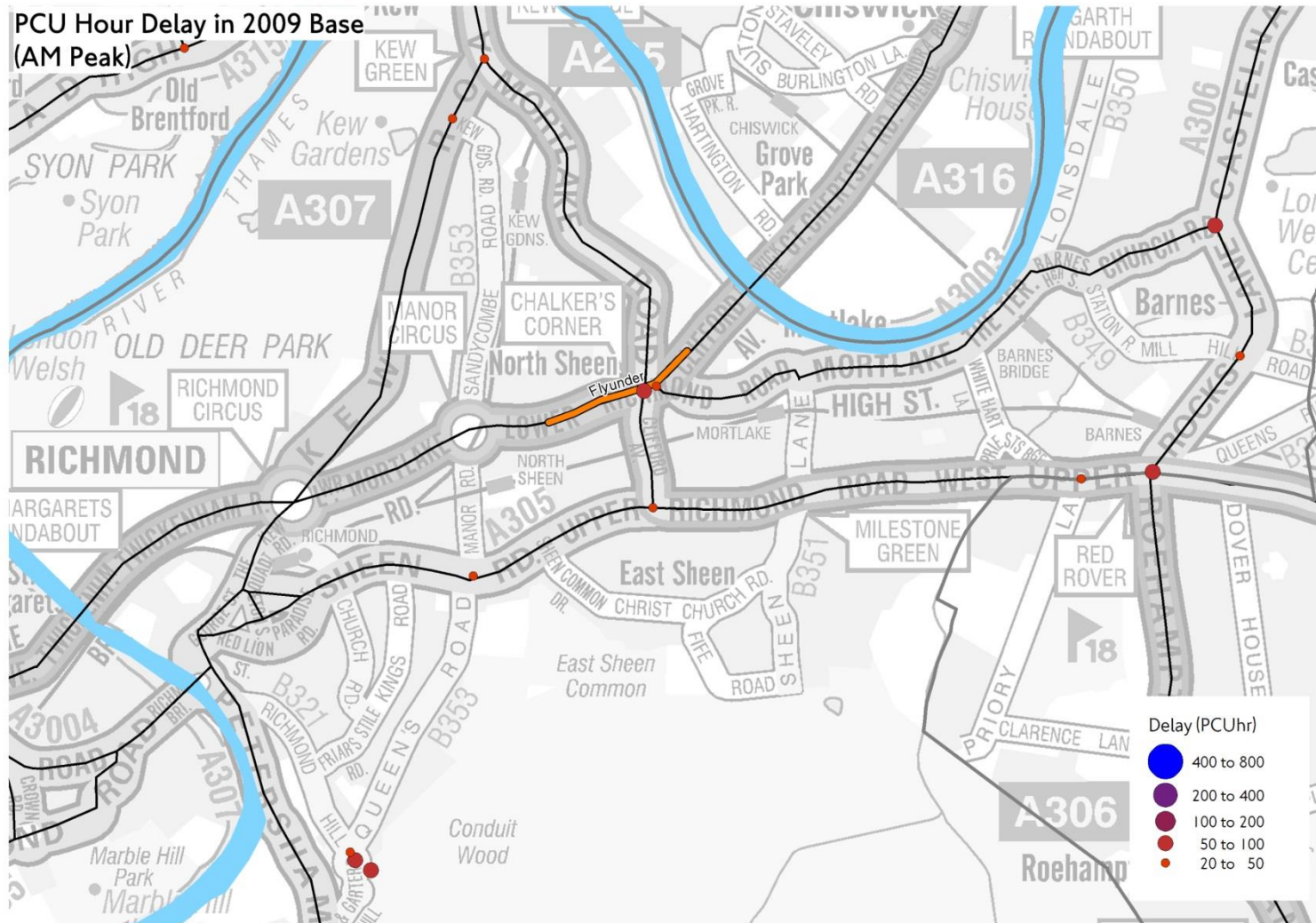
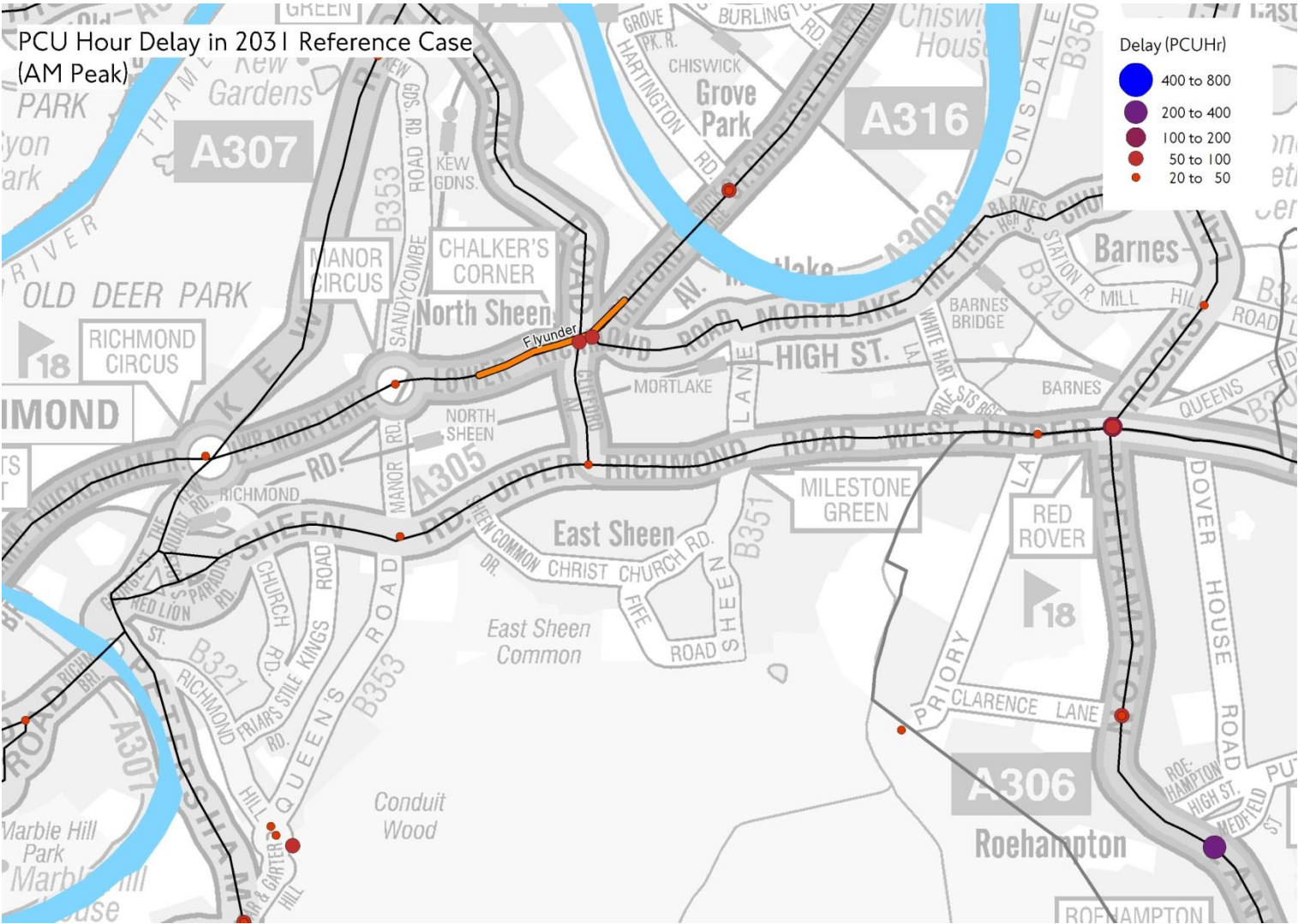


Figure 19: PCU Hour Delay in 2031 reference case



The severance impacts caused by high traffic levels reduce connectivity, inhibiting walking and cycling movements

2.78. The dominance of motorised traffic at Chalkers Corner exerts a negative impact on local connectivity for sustainable modes. The presence of 65,000 fast moving vehicles across multiple lanes limits the attractiveness of the public realm and causes both physical and perceptual severance (see Figure 20 and Figure 21).

2.79.

Figure 20: Chalkers Corner



Figure 21: Key issues of severance



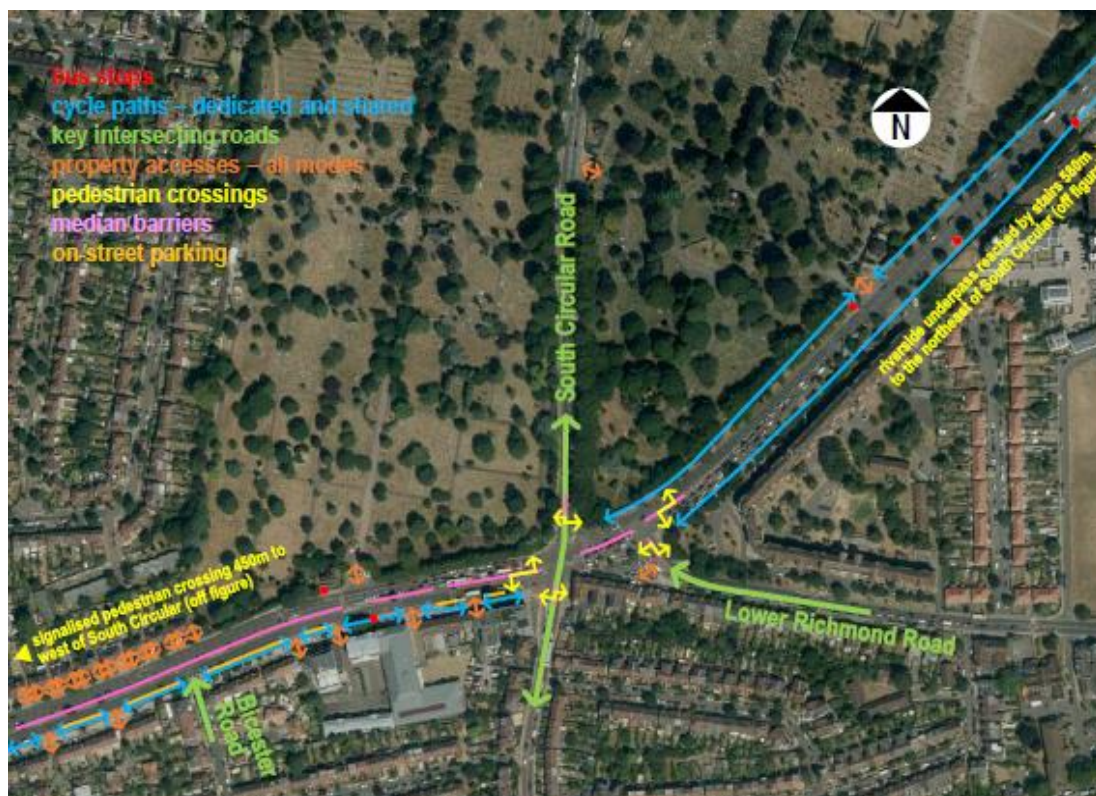
- 2.80. Approximately 200 cyclists travel through Chalkers Corner every weekday¹⁹. Given the A316's role in connecting the south west of London and Surrey with central London, there is potential for further cycling growth along this highway; LB Richmond recognises the potential of the road as a "commuter route" in their Mini-Holland bid. A lack of consistency and priority along the TLRN corridor undermines cyclists' sense of safety through Chalkers Corner and is a factor behind the low mode share for cycling.

Key finding:

There is a need to improve connectivity to promote further cycling and walking in the area, to connect residents and businesses across the junctions and to reduce the negative impact of the road on the public realm.

Cycling and walking movements are inhibited by lack of crossing points and space but there is significant potential to increase cycling mode share on this commuter route

Figure 22: Summary of road junctions and crossing points available in the vicinity of Chalkers Corner



- 2.81. Figure 22 shows that the A316 is a dual carriageway with two lanes south-west bound and three lanes north-east bound with a central reservation fitted with barriers. There is little consistency in cycling facilities along this busy road.
- 2.82. The level of pedestrian crossing provision is limited to a number of staggered at grade crossings, users of which face extended waiting times to negotiate. Aside from extending journey times, a lack of consistency and priority undermines the pedestrians' sense of safety through Chalkers Corner and is likely to reduce the

¹⁹ CH2M Two page summary report.

number traversing the area. This is likely to be to the detriment of local businesses and means fewer residents may opt to walk to nearby bus stops.

- 2.83. There is a need to improve connectivity to promote further cycling and walking in the area, to connect residents and businesses across the junctions and to reduce the negative impact of the road on the public realm.
- 2.84. Improvements to provision have been made to several road sections surrounding Chalkers Corner (2011-2014):
- A205 Upper Richmond Road West Junction with Clifford Avenue – general junction improvements;
 - A205 Clifford Avenue cycling improvements – relocation of toucan crossing to cyclist and pedestrian desire line;
 - A205 Rocks Lane to Kew cycle parking review (E2E) – improvements to cycle parking provision along route; and
 - A316 London Road roundabout cycle facilities – design of refuges across London Road.
- 2.85. The roads surrounding Chalkers Corner have been excluded from improvements to date. Local cyclist user groups have identified the two junctions at Chalkers Corner as particularly difficult for cyclists to navigate.
- 2.86. In 2014 TfL's Transport Design Engineering (TDE) team (Surface Transport) evaluated the cycle facilities at the junction and several recommendations were made to improve safety, ranging from pavement/cycleway widening and the realignment of kerb lines. The results of this evaluation would be taken into consideration in future schemes.
- 2.87. Through initiatives such as Smarter Travel, low-car developments and the road improvements to date, LB Richmond already has a cycling mode share above the London average at 4 per cent. There is scope to increase the number of cyclists that use the A316 each day (currently 200 cyclists). In its 'Mini-Holland' bid, LB Richmond identified the potential for the A316 to become a key commuter route for cyclists into central London. Any improvements to the junctions at Chalkers Corner must provide additional space for cyclists.

Key finding:

Any proposal to address congestion at Chalkers Corner must also improve connectivity by advancing walking and cycling facilities.

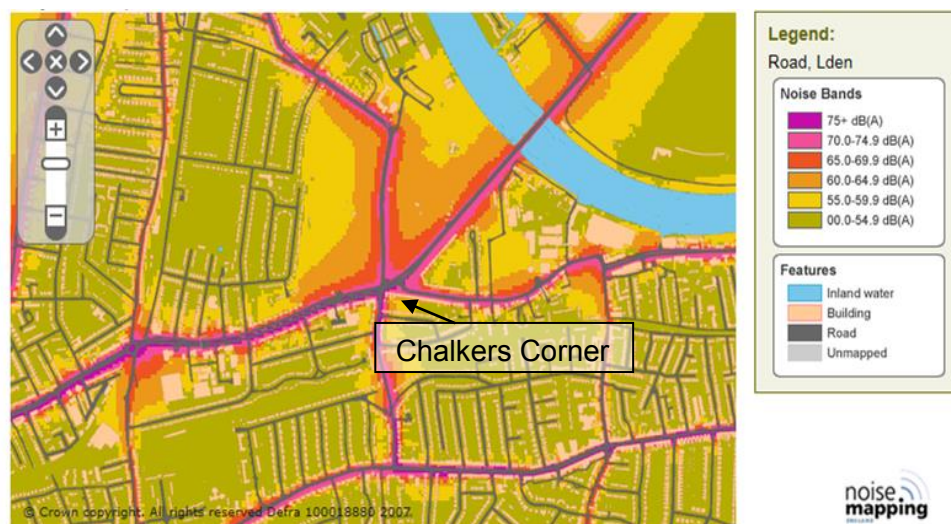
Noise and poor air quality mean the A316/A205 detract from the quality of environment at Chalkers Corner

- 2.88. The physical and perceptual severance caused by the road traffic, coupled with the subsequent noise, low air quality and visual impact means that the local public realm at Chalkers Corner is of low quality.
- 2.89. The A316 reaches the highest measured daily noise level for roads of 75+ decibels (Figure 23) The air pollution levels along the road have also been recorded as very high (Figure 24) This creates an unpleasant environment along the road and wider corridor, which is not conducive to residents choosing to spend time in the area.

Key finding:

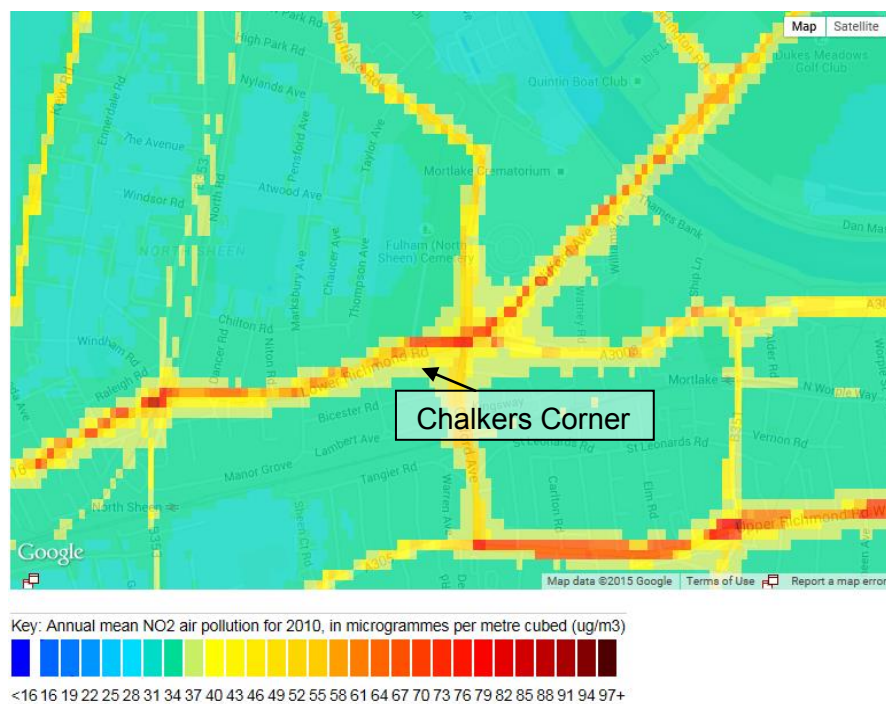
Any proposal to address congestion at Chalkers Corner must also improve noise and air quality levels.

Figure 23: Noise levels at Chalkers Corner²⁰



²⁰ DEFRA – Noise Mapping England. <http://services.defra.gov.uk/wps/portal/noise/>

Figure 24: NO₂ levels at Chalkers Corner²¹



²¹ <http://www.cleanerairforlondon.org.uk/londons-air/air-quality-data/london-emissions-laei/laei-personalised-view>

PART E: OBJECTIVES FOR THE A316/A205 AT CHALKERS CORNER AND OPTIONS IDENTIFIED

Section summary:

Objectives and measures of success for the A316/A205/A3003 fly under at Chalkers Corner have been defined.

Options have been identified for the A316/A205 and A316/A3003 junctions at Chalkers Corner’.

An A316 fly under (east-west) with two lanes in each direction emerged as the best option to investigate further.

- There are a number of constraints which may have a bearing on the fly under
- There are also a number of dependencies with other work streams that may affect the delivery and/or outcomes of the A316/A205/A3003 fly under scheme

Stakeholders would play a crucial role.

Objectives and measures of success for the A316/A205/A3003 fly under at Chalkers Corner have been defined

- 2.90. Based on the problems and issues identified in part D, TfL has set out the following objectives for any proposal at A316/A205/A3003 Chalkers Corner needs to address. These are to:

- Supporting and protecting the economic efficiency of south London;
- Reducing journey times and delays;
- Improving local environmental quality;
- Reducing severance and increase sustainable connectivity for all; and
- Enabling improvements for sustainable modes.

- 2.91. In order to ensure the specific project objectives outlined above are achieved the following high level measures of success have been identified. More specific measures and the associated monitoring strategy would be developed at a later stage.

- Local economic output grows and employment increased;
- Reduced journey times for motorised traffic;
- Better air quality and less noise;
- Growth in pedestrians and cyclists using the junction at the surface; and
- Enabling or delivering better walking and cycle routes, and convenient bus stop infrastructure for public transport users.

Key finding:

Through a process of problem identification and measurement, TfL has been able to define clearly defined scheme objectives and measure of success.

Options identified for the A316/A205 and A316/A3003 junctions at Chalkers Corner

- 2.92. A number of options were appraised to determine the best highway solution. On behalf of TfL, CH2M initially investigated five potential options:

1. **Surface only improvements**
2. **A205 fly under (north-south)**
3. **A316 fly under (east-west) with staggered portals**
4. **A316 fly under (east-west) with narrower cross section**
5. **A316 fly under (east-west)**

- 2.93. The first two options were discounted because they required substantial landtake and did not meet the RTF objectives as they resulted in worsening pedestrian/cyclist accessibility or were unacceptable on highway safety or resilience grounds.
- 2.94. The study concluded that grade-separation of some type would enable a step-change in layout and operation at Chalkers Corner. Whilst a fly under with one lane in each direction would have reduced required landtake, it could cause a bottle neck effect and reduce resilience for future demand.
- 2.95. The staggering of portals was also rejected as it could result in extended sections of severance with reduced opportunities to cross on the surface.

An A316 fly under (east-west) with two lanes in each direction emerged as the best option to investigate further

- 2.96. Through this process of elimination, an A316 fly under (east-west) with two lanes in each direction emerged as the best option to investigate further. This option could meet the RTF's core objectives, enabling people to move more effectively, a transformation in the environment for sustainable modes and dramatic improvements to the public realm.
- 2.97. As such, it was identified that an A316 east-west fly under would:
- address congestion at the two junctions;
 - free up road space for improved pedestrian, cyclist and public realm provision; and
 - result in noise and air quality improvements for users and nearby residents.
- 2.98. This fly under concept is also well supported by stakeholders and featured in the host boroughs' Mini-Holland bid. LB Richmond has confirmed they are satisfied at this stage with proposals and the alignment, subject to more detailed feasibility work and planning permission at the appropriate time.

Key finding:

A number of options were appraised to determine the best highway solution for Chalkers Corner. The A316/A205 fly under proposal was progressed for further appraisal as part of this business case.

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

- 2.99. Engineering feasibility work has been carried out the fly under proposal. This work has identified alignments and portal locations that are considered to be feasible, avoid key constraints on the route, and that minimise the requirement for occupied or protected land for worksites and operational infrastructure.
- 2.100. However, at this early stage of the design, some aspects carry a high risk and hence an optimism bias of 66 per cent for a non-standard civil engineering project has been applied. A Quantified Risk Assessment is currently being undertaken for the options, and once completed this will result in an agreed level of optimism bias for the scheme.
- 2.101. There are a number of constraints which may have a bearing on the fly under proposal under consideration (see Table 2). Suitable mitigation measures have been identified for each constraint and in some cases have been resolved. None of the constraints represent an insurmountable challenge. TfL is confident that they could be sufficiently addressed through suitable design.

Table 2: Constraints

Constraint	Type of constraint	Description / issue	Potential mitigation
Acquisition of properties	Land take	Scheme would involve temporary and permanent acquisition of residential and commercial properties to the south.	Working closely with LB Richmond to minimise impact on residents and those affected by the scheme.
Unmanageable construction traffic	Construction	Risk that disruption to traffic during construction is unmanageable as it would take place on the current road alignment.	An adequate level of service throughout the construction phase, with both was traffic and pedestrian access maintained throughout.
Limited footway widths along commercial and residential frontages	Design	Risk that footways generate would be minimal and limit the reduction in pedestrian severance.	Use best practice to understand innovative design. Working with LB Richmond to agree best way forward.
Proposed masterplan layout	Planning	No formal consent for number of dwellings/construction as outlined in masterplan.	Working closely with LB Richmond to agree way forward.

Constraint	Type of constraint	Description / issue	Potential mitigation
Reduction of residential amenity of Chertsey Court	Design	Service road would be constructed closer to property than existing A316 road.	New boundary wall and railings would be constructed. Generally, the environment would be better as noise reduced and air quality improved. The redesign of the green space surrounding Chertsey Court would create a stronger “garden” feel. Work with LB Richmond to agree a way forward for residents.

Key finding:

The design of the proposed fly under would need to address all the identified constraints but investigations so far suggest this would be the case.

There are also a number of dependencies with other work streams that may affect the delivery and/or outcomes of the A316/A205 fly under scheme

- 2.102. There are also a number of dependencies with other work streams that may affect the timely delivery and/or the outcomes of the proposed A316/A205/A3003 Chalkers Corner fly under scheme. These include:
- 2.103. There is a potential synergy between enhanced cycling infrastructure at Chalkers Corner and other cycling improvement schemes being progressed in the wider area.
- 2.104. For example, there are complementarities with planned works for a segregated cycle lane on the Chiswick Bridge footpath and better pedestrian access from the riverside which enhance the environment for cycling and walking in the area. There is also potential for Quietway 2 to follow the route of the A316 which would need to be accommodated in the surface elements of the fly under design.
- 2.105. There are complementarities with safety improvement work scheduled to take place at the A316 London Road/Chertsey Road roundabout in 2017 (located to the west of Chalkers Corner). This work is further to improvements made in 2003 to cycling and pedestrian provision.
- 2.106. Neighbouring borough RB Kingston was awarded ‘Mini-Holland’ funding to create a major cycle hub and high-quality cycle routes and LB Richmond will be given funding to invest in discrete pieces of cycling infrastructure. These improvements could form a synergy with the proposed Chalkers Corner fly under scheme, with all work contributing to a potential uplift in cycling rates in the south London sub-region.

Key finding:

The proposed fly under could successfully complement a number of different transport projects in LB Richmond and the wider south sub-region.

Stakeholders would play a crucial role

2.107. Table 3 outlines the main stakeholder groups that would be involved with or interested in the proposed A316/A205/A3003 Chalkers Corner fly under.

Table 3: Stakeholders

Stakeholder	Description
Affected borough: LB Richmond upon Thames	Local authority, protecting interests of residents and local businesses. Responsible for design review/approvals, and reviewing the impact on local residents
Adjoining boroughs: RB Kingston upon Thames, LB Hammersmith and Fulham	Local authority, protecting interests of residents and local businesses Likely to be concerned about congestion impacts
Borough councillors and MPs	Protecting policy and constituent interests
Business Groups	Umbrella organisations (e.g. London First) and employers within Hammersmith town centre
Greater London Authority (GLA)	Statutory planning authority, protecting interests of Londoners and policy interest
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

2.108. Subject to the scheme proceeding, there would be ongoing liaison with these stakeholders in relation to the project, and mapping of views and requirements and where these may conflict. Affected boroughs would continue to be updated regularly by the programme team.

2.109. If the scheme progresses, the scope of the stakeholders engaged would be likely to expand considerably, including the public. Accordingly, the Stakeholder Management Plan is subject to ongoing review.

PART F: HOW THE FLY UNDER ADDRESSES THE ISSUES AND CHALLENGES

Section Summary:

This section sets out how the fly under proposal addresses the problems identified in Part E for Chalkers Corner.

We are applying a best practice approach

- There would be positive impacts on congestion and the function of the road network
- There would be significant and positive impact on the quality of the public realm
- The fly under would enable a reduction in noise pollution

The fly under would enable improvements for sustainable modes and public realm on the surface

- The fly under would reduce levels of severance experienced by pedestrians and cyclists
- Removing strategic traffic from the surface would provide an opportunity to incorporate further improvements to the public realm through design
- The fly under would unlock potential to grow pedestrian and cycle usage
- Removing strategic traffic from the surface would provide an opportunity to incorporate further improvements to the public realm through design
- The fly under would unlock potential to grow pedestrian and cycle usage

The fly under would enable local regeneration to be unlocked

- The impact of not changing would be worsening traffic delays with significant economic and environmental consequences for the area

We are applying a best practice approach

- 2.110. 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 walk paths.
- 2.111. 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'.
- 2.112. An improved public realm delivered through reallocation of road space or capacity can also reduce severance for pedestrians and cyclists. This is particularly the case for heavily congested core road corridors such as the A316, where provision of public realm along the existing alignments can enable people to gain quicker and easier access to key amenities and rail stations in the vicinity.

Key Finding:

Solutions which tackle the issue of congestion whilst reducing traffic impacts on communities around London's ring roads, gyratories and town centres are increasingly important in dense and growing international cities.

There would be positive impacts on congestion and the function of the road network

- 2.113. Modelling has confirmed that the proposed fly under would provide relief to congestion and delays at Chalkers Corner and the surrounding area. The proposed fly under would bring about:
- a reduction in delay on the A316 at Chalkers Corner in both peak periods
 - On the A307 Kew Road (by over 100 PCUs in each peak period in both directions)
 - The greatest reduction of delay is forecast for the links approaching the M4 Junction 1 and Kew Bridge
- 2.114. The scheme would enable a direct east west link through two junctions, removing 1,600 peak hour traffic movements in both the busiest AM and PM hours around Chalkers Corner. This equates to approximately 30 per cent of traffic flows.
- 2.115. Despite these congestion benefits, it is important to note that the proposed fly under would attract additional traffic to the A316 corridor during both peaks periods:
- to the east of the scheme, an additional 350 PCUs are attracted during the AM peak and 440 in the PM peak.
 - to the west of the scheme, an additional 350 and 860 PCUs are attracted during respective peaks.
- 2.116. As a result:
- delays are also forecast to increase on the A316 approach to the Hogarth Roundabout (by up to 31 seconds in the AM and 24 seconds in the PM)
 - to the west at the A316/Sandycombe Road Junction (by up to 45 seconds travelling eastbound during the AM peak and up to 58 seconds southbound during the PM peak)
 - In addition, modelling suggests that there would be a traffic increase southbound on Mortlake Road (190 PCUs in the AM peak and 160 in the PM peak).
- 2.117. Although modelling was undertaken before changes were made to the proposed layout – which resulted in further development being identified to the south of the A316 – the overall effect of this new development at a strategic level would be negligible and not affect the modelling results. This is because the additional redevelopment is anticipated to take place on land already developed: therefore an associated trip generation and the quantum of development replacing it (assumed to be up to 48 flats or 28 flats with 12 mews houses) does not represent a major intensification.

There would be significant and positive impact on the quality of the public realm

- 2.118. Figure 25, Figure 26, and Figure 27 illustrate visualisations of proposed public realm improvements at Chalkers Corner and streets associated with the scheme.
- 2.119. Figure 26 shows the proposed fly under at Chalkers Corner as described in this business case. It would help reduce traffic congestion and delays at a key traffic signal controlled crossroads and reduce severance for pedestrian and cycle movements.

Figure 25: Urban realm improvements: Chalkers Corner



Figure 26: Potential public realm design



Figure 27: Potential public realm design (east Chalkers Corner)



The fly under would enable a reduction in noise pollution

- 2.120. Noise analysis (detailed in the Economic Case) has concluded the proposed fly under would enable a reduction in noise for dwellings immediately alongside the A316 at Chalkers Corner as the main strategic flow is removed from the surface. For dwellings further away, there would be some reduction in noise, although not to the same degree as those in the immediately surrounding area.
- 2.121. Although there would be a reduction in noise pollution at Chalkers Corner, it is important to note that it would not be removed entirely as surface roads would remain used by local traffic.

The fly under would enable improvements for sustainable modes and public realm on the surface

The fly under would reduce levels of severance experienced by pedestrians and cyclists

- 2.122. The proposed fly under would reduce the severance experienced by cyclists at the junction. Cyclists would be provided with additional space on the surface and there is further opportunity to integrate the changes recommended by TfL's TDE team, such as the realignment of kerb lines and removal of safety rails.
- 2.123. The fly under would also reduce the perceived and physical severance experienced by pedestrians. The removal of the main strategic traffic flow would open up space on the surface and there is further opportunity to provide more crossing points.
- 2.124. Although there would be a reduction in the severance experienced, it is important to note that it would not be removed entirely. As with the situation today, the

A316 would not have crossing provision away from the two junctions (due to the levels of the road on either side the surface level junctions).

Removing strategic traffic from the surface would provide an opportunity to incorporate further improvements to the public realm through design

- 2.125. There is an opportunity to improve and increase the public realm further through additional planting, street art, high quality paving and for pedestrian movements. These elements promote social well-being, the vitality of the retail area, improving the potential viability of new development in the area and generating a sense of place.
- 2.126. By removing the main heavy strategic traffic flow from the surface, the proposed fly under would have a positive impact on the public realm at Chalkers Corner, enabling a change in the way residents perceive and use the area. The unpleasant visual intrusion of heavy traffic and congestion would be removed. Although local traffic would continue to operate on the surface, space would be redefined, providing more space for sustainable modes with a reduction in pollution and greater safety.

The fly under would unlock potential to grow pedestrian and cycle usage

- 2.127. Approximately 200 cyclists travel through Chalkers Corner every weekday²². Given the A316's role in connecting the south west with central London, there is potential for further cycling growth along this highway; LB Richmond recognised the potential of the road as a "commuter route" in their Mini-Holland bid.
- 2.128. The improvement in public realm would provide both TfL and LB Richmond with an opportunity to promote more walking in the vicinity.

Key finding:

The proposal to remove of the main strategic traffic flow via fly under offers an opportunity to improve and redefine the public realm at Chalkers Corner, and to grow the usage of the junction by sustainable modes.

The fly under would enable local regeneration to be unlocked

- 2.129. The area surrounding Chalkers Corner is already well developed with residential property and some commercial property, meaning there is little space for further growth. The cemeteries to the north of the junction also limit the potential for further development at this location.
- 2.130. However there is some potential for local regeneration. CH2M evaluated the new development potential around the Chalkers Corner fly under. There would be some land that would need to be compulsorily purchased in order to facilitate the fly under construction. Some of this land would be needed on a temporary basis only and could subsequently be sold off. The development potential on this land is however immaterial for the purposes of project funding (up to 48 new dwellings). Preliminary estimates suggest a combination of borough CIL and stamp duty receipts on new development would raise in the region of £1m-£2m.

²² CH2M two page summary report, final report, 2016.

The impact of not changing would cause worsening traffic delays with significant economic and environmental consequences for the area

2.131. There is significant potential to reduce congestion and journey times through Chalkers Corner, whilst improving the offer for sustainable modes and the wider public realm. The following would occur if a decision was made not to progress with the fly under proposal:

- Chalkers Corner would remain a traffic congestion bottleneck on the TLRN. Delays and congestion would increase;
- Chalkers Corner would remain characterised by a poor urban realm and low environmental quality. Problems of severance, noise and poor air quality would continue and potentially worsen as people seek to avoid the area;
- The location would become unattractive to further investment, with traffic reducing the viability of any redevelopment or commercial enterprise; and
- Walking and cycling would be further discouraged as congestion would make the road increasingly difficult to navigate. This may limit success of potential sustainable travel initiatives in the wider area. Notably, the potential for the A316 to be a key cyclist commuter route could be lost.

2.132. On a London level, a decision not to progress with the fly under proposal would mean:

- A key section of the TLRN would be heavily congested. This would have a detrimental impact on people commuting to work across the city and vital road network efficiency for business and freight.

Key finding:

The fly under would deliver significant benefits to Chalkers Corner. Without its construction, Chalkers Corner would remain congested and unappealing to sustainable modes.

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

Section Summary:

This section describes how the fly under is supported by policy at all spatial scales.

Existing national, regional and local policies give general and specific support to the construction of a fly under at Chalkers Corner to address strategic and local needs to relieve congestion, reduce severance, improve the public realm and local connectivity, and promote walking and cycling.

- The proposed fly under would contribute towards DfT priorities 3, 4, 5 and 6
- By improving the public realm, the sustainable transport modes of walking, cycling and public transport would be made more attractive travel options in line with the National Planning Policy Framework
- The fly under scheme would represent reasonable endeavours and apply best practice set out in the National Policy Statement for National Networks
- The fly under would deliver against goals 1, 2 3, 4 and 5 of the Mayor's Transport Strategy (MTS): New road schemes would be considered where there is an overall net benefit against specific criteria
- The fly under would address the objectives of the London Plan (updated in March 2015) especially 1, 3 5 and 6
- The fly under address the movement and balance vision of the Mayor's Roads Task Force (RTF)
- The fly under helps contribute to the TfL Surface Transport Plan 2015/16 outcomes
- The fly under would meet the Mayor's aspirations for better network function set out in the London Infrastructure Plan 2050
- The proposals of the Mayor's Vision for Cycling (2013) are met
- London borough planning and transport policy and strategy is met

Existing national, regional and local policies give general and specific support to the A316/A205/A3003 Chalkers Corner fly under proposal to address strategic and local needs to relieve congestion and reduce delay, reduce severance, improve public realm and local connectivity, and promote walking and cycling

2.133. The national, sub-regional and local policy context is described in the sections below.

National policy context

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

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

The proposed fly under would contribute towards DfT priorities 3, 4, 5 and 6

- 2.135. It would improve the safety of pedestrians and cyclists by reducing the severance effects of the A316. It would also encourage greater use of these lower carbon modes by improving the public realm and improving provision.
- 2.136. The National Planning Policy Framework (NPPF) published in 2010 sets out a policy framework for how the land-use planning system should function.
- 2.137. The NPPF seeks to secure 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.

By improving the public realm, the sustainable transport modes of walking, cycling and public transport would be made more attractive travel options in line with the National Planning Policy Framework

- 2.138. 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.
- 2.139. 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.
- 2.140. The NPPF says that the planning system should contribute to and enhance the natural, local and historic environment. The proposed fly under scheme would help support the vitality of the local area. By improving the public realm and reducing severance, the sustainable transport modes of walking, cycling and public transport would be made more attractive travel options. The improved air

quality could encourage an improved retail offer in the local area, making it more liveable.

The fly under scheme would represent reasonable endeavours and apply best practice set out in the National Policy Statement for National Networks

- 2.141. The National Policy Statement (NPS) for the National Road and Rail Networks published in December 2014 states,

'The national road and rail networks that connect our cities, regions and international gateways play a significant part in supporting economic growth, as well as existing economic activity and productivity and in facilitating passenger, business and leisure journeys across the country. Well-connected and high-performing networks with sufficient capacity are vital to meet the country's long-term needs and support a prosperous economy.'

- 2.142. The NPS also states that,

'Improved and new transport links can facilitate economic growth by bringing businesses closer to their workers, their markets and each other.'

- 2.143. By inference there is a risk that insufficient investment in these transport connections and not increasing capacity of road and rail networks would act as a major barrier to and brake on economic growth.

- 2.144. The pressure on the road network is forecast to increase with economic growth, substantial increases in population and a fall in the cost of car travel from fuel efficiency improvements. The NPS states that 2014 DfT traffic forecasts predict that by 2040, a quarter of travel time would be spent delayed in traffic.

- 2.145. It suggests that without improving national road networks, including its performance, it would be difficult to support further economic development, employment and housing and this would impede economic growth and reduce people's quality of life. It is reasonable to argue that the same rationale applies to the TfL Road Network.

Key finding:

The A316/A205 fly under scheme demonstrates a close fit with national policy goals, including the DfT's nine transport priorities, the NPPF, and the NPS for the National Road and Rail Networks.

The fly under would deliver against goals 1, 2 3, 4 and 5 of the Mayor's Transport Strategy (MTS)

- 2.146. 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.'

- 2.147. Alongside this vision, the MTS identifies six strategic goals for London's transport system:

- 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;
- Support delivery of the London 2012 Olympic and Paralympic Games and its legacy.

2.148. London's road network provides arteries for the movement of people and goods to help Londoners and those from surrounding areas to access employment, education, retail, and leisure opportunities. A well-functioning and efficient highway network is essential for the development and proper functioning of the London economy and to maintain the quality of life of the residents of the city.

2.149. The proposed fly under project would contribute towards goals 1, 2, 3, 4 and 5. Removing the main strategic traffic flow from the surface would not only reduce congestion on this route, but allow for improvements to the public realm, reduce noise pollution and offer more space and security for sustainable modes on the surface.

2.150. Improvements to streetscapes and the public realm would help to create safer, more walkable neighbourhoods, support place-shaping and regeneration and attract investment. Improvements to traffic management would help to make the TfL and Borough road network more resilient.

New road schemes will be considered where there is an overall net benefit against specific criteria

2.151. This includes a contribution to improved connectivity, and contribution to improvements in conditions for pedestrians and cyclists. The key policies relating to the proposed fly under scheme are set out in Table 4.

Table 4: Relevant MTS policy

Policy no.	Policy description	How the Chalkers Corner fly under conforms with policy
2	The Mayor, through TfL, and working with the DfT, government agencies, Network Rail, train operating companies, London boroughs, coach operators and other transport stakeholders, will support sustainable capacity enhancements to interregional, national and international rail and coach services, high-speed rail hubs and the strategic road network serving London.	The fly under will relieve congestion at Chalkers Corner by providing a through route towards and away from central London.

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.	By placing the A316 strategic road underground, pedestrians and cyclists are better connected on the surface.
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 fly under will improve capacity and connectivity for south London residents (and beyond). This will improve access to jobs and business to business access.
6	The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other transport stakeholders, will seek to provide appropriate connectivity and capacity on radial transport corridors into current and potential metropolitan town centres and to Strategic Outer London Development Centres.	The fly under will improve capacity on the A316 towards Hammersmith, Richmond and beyond.
8	The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other transport stakeholders, will support a range of transport improvements within metropolitan town centres for people and freight that help improve connectivity and promote the vitality and viability of town centres, and that provide enhanced travel facilities for pedestrians and cyclists.	The improved connectivity and road capacity provided by the fly under will help road users to travel along the strategic route more easily, providing a direct route. On the surface, enhanced facilities for pedestrians and cyclists can be provided owing to less traffic and more space.
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 fly under will encourage some modal shift from private vehicle by providing improved cycling facilities that tie in with improvements previously proposed along the A316 by TfL. It must also be noted however, that improvements to the road may also attract more private vehicle users.
13	The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other stakeholders, will expand the capacity and quality of public transport services, improve passenger comfort and customer satisfaction, reduce crowding, and improve road user satisfaction.	Road user (private vehicles, taxis, buses, cyclists) satisfaction will be improved as peak hour congestion is reduced by the fly under.
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.	Residents near the fly under will experience a slight reduction in noise caused by transport.

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 fly under will reduce severance as strategic traffic is removed from the surface. This will enable previously discouraged pedestrians and cyclists to use Chalkers Corner.
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 fly under will reduce community severance by providing surface routes with strategic traffic removed. As significant traffic is removed from the surface at Chalkers Corner, the urban realm will be enhanced, with reduced noise pollution and air pollution and more greenery.
30	The Mayor, and TfL, will make the case to Government for long-term investment in the transport network to secure the outcomes set out in this strategy.	This business case sets out the case for investment in improving part of the strategic road network.
36	The Mayor, and TfL, will work with the London boroughs and other stakeholders, to seek to secure further investment from a variety of sources that help improve the quality and range of transport services available to Londoners.	The Financial Case for this project has considered a range of sources of funding that could be utilised to enable the delivery of the scheme.

Key finding:

The A316/A205/A3003 fly under proposal contributes to MTS goals 1, 2 3, 4 and 5.

The fly under would address the objectives of the London Plan (updated in March 2015) especially 1, 3 5 and 6

2.152. The London Plan (updated in March 2015), sets out the strategic spatial planning framework for London as a whole. The London Plan sets out 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.’

2.153. This high level, over-arching vision is supported by six detailed objectives that 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.

2.154. The proposed fly under would contribute to objective 5 by reducing surface pollution as fewer motorised vehicles would be sat in congestion. As more residents would be encouraged to use sustainable modes through junction improvements, there is also a potential to reduce local pollution more generally.

2.155. The proposed fly under would also contribute to objective 6 as it would make the remaining surface junctions easier (and therefore safer) to navigate for walkers and cyclists. Relieving congestion and delay on the A316 would also enable easier access to jobs and opportunities in central London.

Key finding:

The A316/A205 fly under proposal contributes towards London Plan objectives 1, 3, 5 and 6.

The fly under address the movement and balance vision of the Mayor's Roads Task Force (RTF)

2.156. The fly under would address all three of the key core aims set out by the RTF.

- 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

Key finding:

The A316/A205 fly under project contributes to all three core aims of the RTF, and is a key area identified in the report.

TfL Surface Transport Plan 2015/16 outcomes are addressed by the fly under

2.157. This includes TfL's bus, taxi, coach and river networks, freight deliveries, the Santander cycle hire, Congestion Charge and Low Emission Zone schemes and the approach towards the management of the TfL Road Network (TLRN).

2.158. 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'.

2.159. The Plan has identified ten outcomes for surface transport in London. Table 5 summarises how this project supports several of these outcomes.

Table 5: Surface Outcome

Surface Outcome	Strategic fit of scheme
Reliable roads: Ensuring a reliable and resilient road network for all of London by managing congestion and improving connectivity.	The fly under would result in reduced journey times on the A316, as through traffic would be removed from the two junctions and would not be held during pedestrian crossing phases.

Surface Outcome	Strategic fit of scheme
Improving the environment: Continuing to deliver environmental improvements, by reducing pollutants from ground based transport and enhancing the natural environment.	By removing cars (that would often previously sit in congestion) from the surface, there would be improved air quality above ground.
More and safer cycling: Enabling more people to cycle, more safely, more often.	The removal of the busy A316 from the surface at Chalkers Corner would reduce surface severance and improve the experience 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.	The fly under would reduce surface severance and achieve a higher quality public realm, helping to improve the pedestrian environment, generating more walking trips.
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.	The fly under would result in reduced journey times on the A316 and surrounding roads for public and private road users.

Key finding:

The A316/A205 proposal supports several Surface Outcomes, as set out in Table 5.

The fly under would meet the Mayor's aspirations for better network function set out in the London Infrastructure Plan 2050²³

- 2.160. The London Infrastructure Plan 2050 sets out the Mayor's long-term aspirations for the infrastructure to support London's future growth. The Plan provides a direction for TfL to pursue in order to meet London's long term aims beyond the next decade.
- 2.161. The central projection is a 37 per cent increase in population from 2011 to 2050. It notes that the road network caters for 80 per cent of people's journeys and 90 per cent of freight journeys and is vital for the continued economic success and functioning of the city.
- 2.162. The Transport Supporting Paper of the London Infrastructure Plan 2050 sets out the Capital's infrastructure requirements and how best to deliver them. The document sets out the following transport requirements that are relevant to this business case:

10: A congestion-busting programme to support network functioning for essential journeys

12: A new inner orbital tolled tunnel and series of mini-tunnels and decking over to help transform places across the city

²³ The London Infrastructure Plan, GLA, 2014 -

https://www.london.gov.uk/sites/default/files/LIP%202050%20update%20report%20March%202015_0.pdf

23: A comprehensive network of high quality cycle and pedestrian routes

- 2.163. The A316 scheme would enable TfL to meet the requirements 10, 12 and 23 outlined above, ensuring London's continued success and that the city keeps moving.

Key finding:

The fly under would deliver against transport requirements 10, 12 and 23 in the London Infrastructure Plan 2050

The scheme supports delivery of the Mayor's Vision for Cycling (2013) proposals

- 2.164. The Mayor's Vision for Cycling (2013) contains proposals for promoting cycling as an integral part of the transport network in London:
- A Tube network for the bike – makes reference to the need to create a direct, high capacity, joined-up cycle track in London with segregated lanes.
 - Safer streets for the bike – refer to making streets places where cyclists feel safe and note the need to improve the worst junctions with radical measures.
 - More people travelling by bike – discusses the need to normalise cycling by making it an activity people feel comfortable doing throughout Greater London.
 - Better places for everyone – new bike routes are a step towards the Mayor's vision of a 'village in the city', creating green corridors, with more tree-plantings, more space for pedestrians and less traffic.
- 2.165. The construction of a new fly under at Chalkers Corner would contribute to each objective. New purpose built cycling infrastructure on the surface of the A316 would dramatically improve the existing junction, ensuring existing cyclists stay safe and encouraging others to try the sustainable mode. Placing the heavily trafficked A316 route underground would provide more green space for pedestrians and cyclists on the surface. Such improvements would directly link to other cycling improvements in the wider south London area, including the "Mini-Holland" scheme in RB Kingston.

Key finding:

The proposed fly under successfully meets the objectives of the Mayor's Cycling Vision

London borough planning and transport policy and strategy is met

- 2.166. References to specific project drivers of change or other relevant policies in local planning documents are summarised in Table 6.
- 2.167. It should be noted that whilst the proposed fly under is located in LB Richmond, it closely neighbours LB Hammersmith and Fulham and RB Kingston upon Thames.
- 2.168. LB Richmond is supportive of the principle of delivering improvements to the A316, subject to concerns about local impacts

Table 6: Local planning and transport policy

Local authority	Core Strategy
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Local authority	Core Strategy
LB Richmond (host borough)	
Core strategy, 2009 ²⁴	Core Strategy policy 5C states that the borough will promote a well designed cycling and walking network across the borough. This includes the development of new cycle links to the existing network.
	Core Strategy policy 5E centres on reducing the impact of congestion and pollution in the borough. The borough will seek to undertake traffic management measures to reduce the impact of traffic in Richmond town centre, the district and local centres, residential areas and streets unsuitable for through traffic.
Second Local Implementation Plan, 2011-2014 ²⁵	The Second Local Implementation Plan (LIP) prioritises improving safety for all road users. Objective 3 centres on not only improving surfacing, but 'removing barriers that segregate communities'. This includes supporting changes that will promote cycling and walking in the borough.
	Objective 4 of the LIP sets out the borough's desire to enhance travel choice and reduce congestion. It states that by improving travel, access and reducing congestion, the business environment can be enhanced. The council supports smoothing traffic flow and improving journey time reliability through effective management of congestion and delay.
LB Hammersmith and Fulham (neighbouring borough)	
Core strategy, 2011 ²⁶	Core Strategy policy T1 states that the borough will seek localised improvements to the highway network, particularly to reduce north-south congestion.
Second Local Implementation Plan, 2011-2031 ²⁷	The Second Local Implementation Plan identifies road congestion as one of the borough's biggest transport problems. The council state improving the efficiency of the road network as a priority (Objective 2).
RB Kingston (neighbouring borough)	
Core strategy, 2012-2027 ²⁸	Policy SBI identifies the need to promote sustainable methods of travel and public transport services to improve movement through the Neighbourhood, while reducing traffic congestion and associated air pollution.

Key finding:

The proposed fly under successfully meets the requirements of relevant local planning and transport policies, in particular LB Richmond Core Strategy 5C.

The proposed fly under would also complement any future Mini-Holland bud from LB Richmond.

²⁴ Core Strategy, LB Richmond, 2009.

²⁵ Second Local Implementation Plan, LB Richmond, 2011.

²⁶ Core Strategy, LB Hammersmith and Fulham, 2011.

²⁷ Second Local Implementation Plan, LB Hammersmith and Fulham, 2011.

²⁸ Core Strategy, RB Kingston, 2012.

STRATEGIC CASE SUMMARY

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

- The proposed scheme would address the regular and severe congestion experienced at Chalkers Corner, a key traffic bottleneck in south London, enabling reduced delays for strategic road users.
- The proposed scheme would combat the negative impacts of heavy traffic flows at Chalkers Corner by removing a significant proportion of the A316 east to west traffic flow from the surface. This would allow for a transformation in the quality of the public realm.
- The scheme would also enable more space to be dedicated to sustainable modes such as cycling, providing an opportunity to match the provision offered elsewhere in LB Richmond and along the A316.
- The experience for pedestrians would be improved as the main heavy flow of strategic traffic is removed from the surface, improving perceptions of safety and space.
- Overall there would be a powerful opportunity to increase walking and cycling levels in this part of south London

3. Economic Case

Section summary:

This section outlines the economic analysis regarding the fly under 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.

This section explores both road user and non-road user benefits in terms of travel time savings. The urban realm benefits generated in the scheme area are also examined.

Option appraised

- 3.1. Chalkers Corner is a local centre dominated by the roads that pass through it. Three bus services (and one night bus) stop on the A316, connecting residents to London and south-west London. The A316 is a key artery in the road network of Greater London, connecting with the M3 in the west and central London in the east. The AADT for the A316 at Chalkers Corner is 65,000 with 4% being heavy goods vehicles.
- 3.2. Congestion on the two closely spaced junctions at peak times extends journey times through the area and creates a poor urban realm. The dominance of private vehicles creates severance for sustainable modes such as walking and cycling.
- 3.3. This economic case sets out the appraisal for the proposed A316/A205/A3003 fly under scheme.

Modelling Approach & Assumptions

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

- 3.4. 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 scheme to form a Benefit to Cost Ratio (BCR) which quantifies the benefit received to the economy for every £1 invested in the scheme.
- 3.5. TUBA is a DfT modelling appraisal tool used to compute an appraisal of road transport schemes. Comparing the base (or do nothing scenario) to the scheme, TUBA assesses the difference in costs and travel time by journey purpose as well as change in fuel costs and CO₂ emissions. The demand matrices used for this analysis are consistent with the LTS forecasts of transport growth, which assumes zero percentage growth in traffic.
- 3.6. WebTAG also outlines approaches to social and environmental aspects of an appraisal. This includes aspects such as severance, journey quality, and noise and air quality. For the Chalkers Corner fly under scheme, analysis has been carried out to assess the impact of the scheme on noise and severance.

TUBA Analysis

Purpose of this section:

- 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.

- 3.7. 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.
- 3.8. General assumptions for the fly under scheme are as follows
- Scheme opening year: 2030
 - Appraisal period, 60 years
 - Model years: 2031 and 2041
 - 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 demand matrix held constant in 2041
 - Road demand growth: 0% in line with TfL LTS low-car scenario
 - Construction start date: 2023
- 3.9. The impact of construction has not been taken into account in terms of disruption costs, the costs used for the PVC below relate only to the construction cost. Results of the TUBA analysis are shown in Table 7. The Present value of benefits (PVB) is estimated to be £138m in 2010 prices (£184m using TfL VoT) and the Present value costs (PVC) is expected to be £146m. This results in a positive net present value as the PVB is greater than the PVC. Two separate Values of Time (VoT) have been used to calculate the monetary benefits of time savings based on DfT WebTAG and TfL BCDM²⁹.
- 3.10. The costs of the schemes include land acquisition costs for the tunnel which are assumed to occur in the year before start of construction. There is a CPO land take requirement in respect of land required to the south of the A316. Please note that the cost figures used do not include the costs of disruption to traffic as a result of construction.

²⁹ TfL London Values of Time (VoT) apply 39.1% uplift to DfT WebTAG VoTs for all work time purposes (including LGV/OGV) and a 29.3% uplift to all out-of-work time purposes.

Table 7: TUBA headline results

	2010 prices and values (£'000s)	
	DfT VoT	London VoT
Economic Efficiency: Consumer Users (Commuting)	23,607	32,210
Economic Efficiency: Consumer Users (Other)	47,574	60,855
Economic Efficiency: Business Users and Providers	69,403	93,962
Wider Public Finances (Indirect Taxation Revenues)	-2,929	-2,929
Present Value Benefits (PVB) ³⁰	137,655	184,098
Present Value Costs (PVC)	146,258	146,258
Net Present Value (NPV)	-8,603	37,840
Benefit Cost Ratio (BCR)	0.94	1.26

- 3.11. A BCR of 1.0:1 shows a project 'break-even' point where for every £1 invested in the scheme, £1 of benefit is achieved. Therefore any BCR above 1.0:1 shows value for money in terms of receiving higher benefit for every £1 of invested cost.
- 3.12. Table 7 shows a BCR of **1.26** which suggests that the scheme is poor value for money. Using a DfT VoT shows a BCR of **0.94**, suggesting the scheme is low value for money.
- 3.13. TUBA results can be analysed in terms of the distribution of time saved. The distribution of time savings by time saved per trip is displayed in Table 8. A total of 87% of positive time benefits are for savings of between zero and two minutes and benefits of time savings greater than 2 minutes account for 12% of the benefits, suggesting the scheme does not impact time journey time savings significantly.

Table 8: Distribution of Time Savings by User Class³¹

	Time benefits £'000s					
	<-5 mins	-5 to -2 mins	-2 to 0 mins	0 to 2 mins	2 to 5 mins	>5 mins
Car- business	-1,594	-21,365	-110,858	145,459	19,331	1,286
Car – commuting	-973	-7,540	-56,447	81,704	11,781	880
Car – other	-952	-8,157	-64,343	94,719	13,510	1,261
LGV	-1,240	-7,058	-54,996	76,652	9,423	1,615
OGV	-202	-1,244	-13,386	16,806	2,840	79
Total	-4,961	-45,364	-300,030	415,340	56,885	5,121
Percentage of total	1%	13%	86%	87%	12%	1%
	100% (increases in journey time)			100% (reductions in journey time)		

- 3.14. Table 9 shows the distribution of time savings by distance travelled and user class.

³⁰ 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.

³¹ The time savings benefits illustrated in this table are not in discounted prices

Table 9: 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	-1,377	-6,231	2,061	9,755	6,955	11,031	4,795	5,268
Car – commuting	-107	1,517	3,048	6,717	4,450	7,010	3,314	3,456
Car – other	-77	1,603	4,179	8,247	5,502	8,565	4,037	3,980
LGV	315	-426	4,422	4,897	3,246	4,264	3,938	3,741
OGV	24	100	590	1,046	1,020	1,019	386	706
Total	-1,222	-3,437	14,300	30,662	21,173	31,889	16,470	17,151
Percentage of total	26%	74%	11%	23%	16%	24%	13%	13%
	100% (increases in journey time)		100% (reductions in journey time)					

- 3.15. Table 9 suggests that it is strategic traffic which benefits most, rather than local traffic (those travelling less than 10km) as the higher proportions of benefits are attributed to those longer journeys.

Key finding:

The TUBA results show that overall the scheme is 'low' value for money with a BCR of 1.26 using London Values of Time. However, there are likely to be benefits to walking and cycling, and possibly complementing schemes in the vicinity that deliver growth that may deliver health and growth related benefits not captured in the current analysis.

Summary of TUBA benefit analyses

- 3.16. The TUBA results show that overall the scheme is low value for money with a BCR of 1.26 using London Values of Time. Strategic east-west (and vice versa) traffic see most of the journey time saving benefits, especially those whose journey is greater than 20km.
- 3.17. Whilst journey times are reduced at Chalkers Corner, some additional delay is introduced at junctions downstream – Hogarth for eastbound traffic and junctions in Richmond for westbound traffic.
- 3.18. The scheme alters the surface junction by narrowing the road for motorised traffic to allow more space for pedestrians and cyclists, causing disbenefits to motorised transport as traffic increases at the surface junction from the additional capacity. The benefits attributed to the strategic east-west traffic flows are offset by this rationalisation of the existing surface junctions at Chalkers Corner (with the A205 and A3003), resulting in the overall 'low' value for money categorisation for the scheme.

Table 10: Appraisal summary Table

Appraisal Summary Table			Date produced:		6	11	2015	Contact:	
Name of scheme:		Chalkers Corner Flyunder						Name	
Description of scheme:		Replacing Chalkers Corner Junction (A316 with A205 and A3003) by sinking the A316 and constructing a tunnel so strategic A316 traffic can fly-under the heavily congested junction.						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	Business users benefit from the time savings, however most time savings are small: within the 0-2min category	Value of journey time changes(£)		£62,813,000		positive benefit	£68,082,000	
	Net journey time changes (£)								
	0 to 2min	2 to 5min	> 5min						
			£60,813,000	£2,105,000	-£105,000				
	Reliability impact on Business users	The scheme is likely to increase reliability for strategic traffic between Greater and Central London as the inconsistency of stop-start leading up to the current traffic light controlled junction will be eliminated for this stretch of the journey					N/A		
	Regeneration	There is no net increase in jobs or homes provided by the scheme. All displaced residents and businesses as a result of the scheme will be re-located elsewhere					N/A		
	Wider Impacts	This scheme is expected to have no wider impacts					N/A		
Environmental	Noise	The scheme will have a beneficial impact on the noise levels for residents around the Chalkers Corner Junction. By realigning the road layout to have traffic passing through a tunnel rather than on surface roads will reduce noise pollution from the heavily A316. The impact of the noise level has been estimated using a basic noise level calculation. The reduction in noise provided by the tunnel is considered to be 10dB for dwellings close to the A316 and 5dB for dwellings further away.	The scheme will lead to a reduction in noise from traffic (including HGVs)			slight beneficial	£1,308,996		
	Air Quality	An environmental assessment has not been carried out, however, the scheme is not expected to impact air quality levels.				neutral	N/A		
	Greenhouse gases	Not able to estimate as TUBA is only run for peak periods and not for all 8760 hours of the year. The scheme is likely to have a slight beneficial impact given less stop-start queuing which increases fuel usage	Change in non-traded carbon over 60y			neutral	N/A		
	Change in traded carbon over 60y (CO2e)								
	Landscape	The scheme will complement the current pattern of the landscape, being an urban strategic route. It incorporates measures to ensure the scheme is not visually intrusive and will bring slight positive benefits to the current level of tranquility				neutral	N/A		
	Townscape	The scheme fits well with the current layout and appearance of the townscape at Chalkers Corner. The scheme incorporates environmental design measures on the decking to ensure an enhanced townscape character				slight positive beneficial	N/A		
	Historic Environment	The scheme does not impact on historic landscape				neutral	N/A		
	Biodiversity	The scheme does not really impact biodiversity - it may help slightly with the park planned on top of the decking but effects are likely to be minimal				neutral	N/A		
	Water Environment	This scheme does not impact the water environment				neutral	N/A		
Social	Commuting and Other users	Commuters users benefit from the time savings, however most time savings are small: within the 0-2min category	Value of journey time changes(£)		£67,330,000		positive benefit	£69,312,000	
	Net journey time changes (£)								
	0 to 2min	2 to 5min	> 5min						
			£57,362,000	£9,832,000	£136,000				
	Reliability impact on Commuting and Other users	The scheme is likely to increase reliability for stratgeic traffic between Greater and Central London as the inconsistency of stop-start leading up to the current traffic light controlled junction will be eliminated for this stretch of the journey				slight beneficial	N/A		
	Physical activity	The scheme will not impact on physical activity to a large extent. It may encourage more walkers and cyclists as the journey will be more plesant and safer				neutral	N/A		
	Journey quality	The scheme is expected to bring either neutral/slightly beneficial benefits in terms of journey quality. A reduction in queuing times will reduce driver stress. Decking over the tunnel will improve the quality of journey for non-motorised transport				neutral/slight beneficial	N/A		
	Accidents	It would be expetced that the impact on accidents would be positive - with a more free-flow of traffic with the reduction in queuing, it would be expected that rear shunts would become less frequent. On expection of accident data, however, it seems that accidents do not seem to be a problem in the LOSAs around Chalkers Corner with zero accidents according to the latest LSOA atlas data				neutral	N/A		
	Security	This scheme is not expected to have security impacts				neutral	N/A		
	Access to services	This scheme is not expected to impact access to services - with the deckingit will be easier for residents south of the A316 to access the cemetary, however this impact is expected to be minimal				neutral	N/A		
Affordability	This scheme is not expected to have affordability impacts				neutral	N/A			
Severance	The scheme is expected to have a neutral impact on severance. This is because the crossing point remains the same, albeit a nicer environment for pedestrians given the heavy strategic traffic flows will pass under the junction. Severance is a particular issue where the population affected are dependents: those being under the age of 16 or over the age of 65, given the vulnerability this group of people sometimes feel. The total population who live around Chalkers Corner and who will see a reduction in severance is 4,657, of which 34% are of dependent age	4,657 residents located in and around Chalkers Corner are expected to experience reduced severance, of which 1,592 are of dependent age.			neutral	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						£146,258,000		
	Indirect Tax Revenues						-£2,929,000		

Supplementary Analysis

Noise impacts

- 3.19. A high level WebTAG compliant noise appraisal has been carried out to assess the benefits of the tunnel on the local residents. The noise levels have been calculated from a Basic Noise Level (BNL) as described in the Calculation of Road Traffic Noise (CRTN) and the calculated noise levels have been corrected for distance, angle of view and screening. The angle of view correction has been based on the percentage of the route that has been covered by decking and not covered by decking (for the 'with scheme' scenario only).
- 3.20. The reduction in noise provided by the covered area is considered to be 10dB for dwellings close to the A316 and 5dB for dwellings further from the A316. The number of dwellings adjudged to be affected by the scheme is based on a combination of distance from the road and screening. Only the traffic using the A316 was considered as the noise source and the same flow of traffic has been assumed for the opening and 15th year.
- 3.21. The noise analysis concluded that the covered area of the road network would cause a slight reduction in noise for those dwellings immediately alongside the A316 with the quantified results shown in Table 11. Overall the scheme is expected to reduce the number of people annoyed by 20 for the fly under, producing a net present value of £1.3 million³² (2010 discounted prices). Including this noise analysis into the benefit cost ratio increases the BCR to 1.27.

Table 11: Estimated noise appraisal results

Parameter	Value
Estimated population annoyed (base)	93
Estimate population annoyed (with-scheme)	73
Net noise annoyance change in 15 th year after opening (number of people)	-20
Net present value (60 year period)	£1,308,996

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

- 3.22. For dwellings further away, there would be some reduction in noise although not to the same degree as those residing near the fly under. It is expected that night-time changes in noise would be similar to that of the daytime.

Severance Impacts

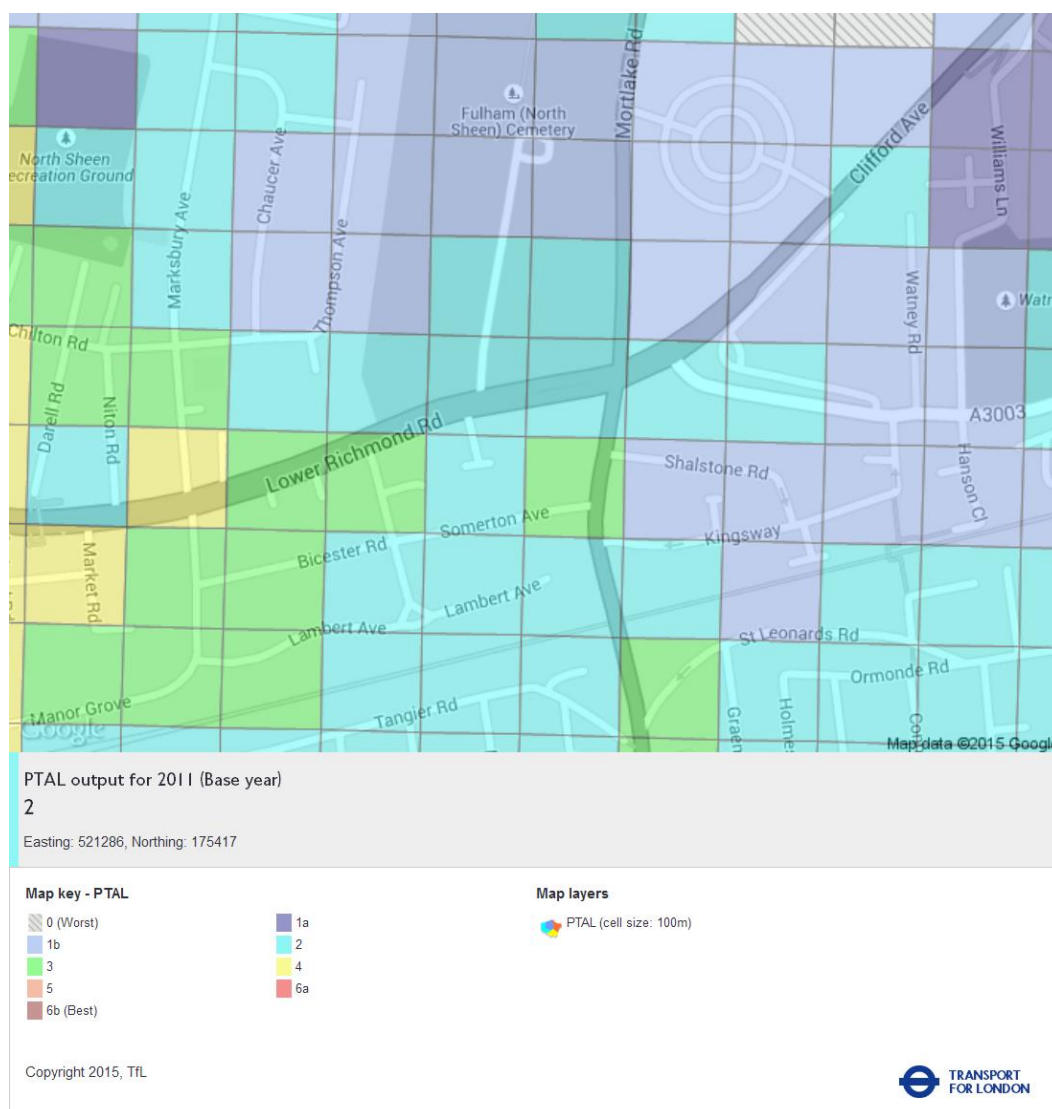
- 3.23. Severance is defined in WebTAG unit A4.1 section 5 as 'the separation of residents from facilities and services they use within their community caused by substantial changes in transport infrastructure or by changes in traffic flows'. Severance is an issue where traffic flows impede pedestrian movement or when infrastructure presents a physical barrier to movement.
- 3.24. At present the A316 causes severe severance as it is difficult for pedestrians and cyclists to cross this road. The A316 is a dual carriageway with two lanes south-bound and three lanes north-bound with a central reservation. Being a strategic radial artery of the road network connecting several Boroughs in south west London and beyond with Central London, the A316 is very busy with an average annual daily traffic (AADT) flow of around 65,000, of which 4% are heavy goods

³² Please note the NPV from the noise appraisal WebTAG spreadsheet has been adjusted to incorporate income (GDHI) differences between the UK and LB Richmond, as outlined on page 11 of WebTAG Unit A3.

vehicles. There is no dedicated cycle path thus making cycling unpleasant with the large flows of traffic. On both sides of the dual carriageway there is a pedestrian footpath, which is narrow. There is a pedestrian footbridge south of Chalkers Corner at around a 10 minute walk from the junction. Therefore, those currently living on either side of the A316 must walk up to the Chalkers Corner junction to cross the A316 at the traffic-light controlled junction or walk up to 10 minutes south to cross over the footbridge, potentially increasing journey times. This is important for those accessing bus stops along the A316 or for those visiting the cemetery to the north of the A316. The A316 is served by four bus routes and one of which is a night service.

- 3.25. The public accessibility level (PTAL) rating shows a score of the connectivity (how frequent public transport services are) and accessibility (how close public transport services are) of the local public transport. The latest PTAL score (2011), shown in Figure 28, shows a rating at Chalkers Corner junction of 2. Southbound along the A316 the PTAL rating increases to 3 and then 4 as the next junction approaches. On a scale of nine points, a rating of 2 is low.

Figure 28: PTAL rating around Chalkers Corner Junction, 2011



Source: TFL WebCAT output for the Chalkers Corner area

- 3.26. Severance is a particular issue where the population affected are dependents: those being under the age of 16 or over the age of 65, given the vulnerability this group of people. Chalkers Corner junction itself is where three wards in Richmond Borough meet: Mortlake and Barnes Common, Kew and North Richmond. There are three lower super output areas (LSOA) around the Chalkers Corner junction; these are the smallest geographical areas available for analysis. The two LSOA's which border the junction to the north (in Kew ward) show that in 2012, 1,067 people, nearly 40% of the population, are dependent age. The LSOA just south of Chalkers Corner (in North Richmond ward) has at slightly lower share of dependents at 29% (525 people) of the population living there. The total number of residents who would benefit from reduced severance as a result of this decking scheme is quantified at 4,657 (the sum of all three LSOA populations).
- 3.27. With the scheme sinking the current A316 to pass under the junction and decking over the junction severance would become less of an issue, although it would still be apparent. The decking would allow pedestrians to cross the A316 safely at the junction making it more pedestrian and cycle friendly without the heavy flows of strategic traffic to negotiate. However, pedestrians would not be able to cross the A316 with the scheme due to the portals of the fly under. Therefore it is expected that this scheme would not largely impact severance giving a neutral result overall.

ECONOMIC CASE SUMMARY

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

- Cost estimates suggest Option 1 would cost £126m to construct with additional compulsory land purchase costs to the south of the A316.
- The scheme would deliver a benefit to cost ratio of 1.26:1 using TfL values of time discounted to 2010 prices
- The reduction in noise provided by the covered area is considered to be 10dB for dwellings close to the A316 and 5dB for dwellings further from the A316
- The scheme is expected to reduce the number of people annoyed by 20 for the fly under, producing a net present value of £1.3 million; including these benefits would slightly increase the BCR to 1.27:1
- The scheme is expected to largely have a neutral impact on severance though scheme design should ensure a safer and more pleasant experience for pedestrians and cyclists at the junction.

4. Financial Case

Section summary:

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

- Due to the early stage of the project it is not possible to present an Estimated Final Cost (EFC) at this stage. Latest cost estimates suggest the fly under would cost approximately £126m (2015 prices) to construct.
- There is no significant development associated with the fly under scheme and funding from non-grant funding sources was not identified.

Project costs

Cost estimates suggest the project would cost around £126m to construct.

- 4.1. Indicative cost estimates (capital and operational) have been produced for the fly under. The cost estimates set out below were developed by CH2M Hill based on engineering assessments.
- 4.2. Due to the early stage of the project, and the fact that some costs (such as for powers and procurement) remain unknown, it is not possible to present an Estimated Final Cost for the project at this stage.
- 4.3. All prices are factored to 2015 prices by applying an 'ALLCON - All Construction Tender Price Index' conversion³³.
- 4.4. The total construction cost for the fly under, including 66 per cent optimism bias, is approximately £126m, although further design work undertaken in future may see this figure revised. This figure includes design and supervision of works, concrete structures, excavation, and utilities, and a risk allowance of 15 per cent of total physical works. There would be additional costs of £65m for land acquisition.
- 4.5. These figures do not include costs of traffic disruption as a result of construction of the Chalkers Corner improvements to the rest of the A316, A205 and A3003.
- 4.6. The operational cost is estimated to be approximately £0.74 m per annum, made up of routine and reactive maintenance costs. It should be noted that this also includes £0.29m to be spent on lifecycle costs only every 10 years.

Risk Allowance and Optimism Bias

Engineering assessments have informed the development of the fly under

- 4.7. Engineering assessments have informed the development of the fly under. The costs presented outline an estimate for construction including concrete structures, road works, excavation and utilities. 15 per cent of total works and design and supervision costs is allocated as a risk contingency.

³³ Note that 2014/15 indexes are not yet available

- 4.8. Optimism Bias has been applied to all constructions costs at a rate of 66 per cent given the early stage of project development. This rate is expected to reduce as the schemes are taken forward and become better defined.
- 4.9. Detailed cost estimates would follow in future stages of the project when more detailed modelling and engineering work had been undertaken.

Spend profile

- 4.10. The fly under scheme is too early in the development process to provide a breakdown and timeframe for costs and spending.
- 4.11. As the project developed further, a more detailed estimate of construction programme and spend profile, to be used in future business case work, would be prepared.

Funding

No significant funding from new development is expected to come forward. More traditional means of covering the fly under costs, such as government funding, would need to be considered

- 4.12. The following funding sources for this scheme have been considered:
- Funding from taxes on new development (incremental Borough Community Infrastructure Levy, business rates and stamp duty);
 - Funding from developing land directly on the schemes and additional land purchased around them;
 - Funding from potential road user charges or taxation, building on TfL's congestion charge;
 - Funding from taxes on existing residential development (council tax).
- 4.13. CH2M evaluated the new development potential around the Chalkers Corner fly under. There would be some land that would need to be compulsorily purchased in order to facilitate the fly under construction. Some of this land would be needed on a temporary basis only and could subsequently be sold off. The development potential on this land is however immaterial for the purposes of project funding (up to 48 new dwellings). Preliminary estimates suggest a combination of borough CIL and stamp duty receipts on new development would raise in the region of £1m-£2m only.
- 4.14. Other funding sources that TfL could consider are road user charging and council tax precept. At present however, these funding sources are not thought to be feasible, given the significant level of resistance that is likely to be shown by local residents and road users towards their implementation. It is possible however, that with time, feasibility of these funding options could alter.

Financing

- 4.15. Financing options for the project could range from a TfL Business Plan allocation, following the normal business planning round, to grant funding, to public sector borrowing.
- 4.16. An alternative could be using a privately financed solution, where the private sector takes 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.

FINANCIAL CASE SUMMARY

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

- Cost estimates suggest the Chalkers Corner fly under would cost around £126m to construct
- No material funding from local sources has been identified given low levels of associated development
- Grant funding is going to be required

5. Commercial Case

Section summary:

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

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

Procurement strategy and sourcing options

Design

- 5.1. The scheme is being promoted by TfL and would be developed through close working with LB Richmond who are closely engaged with the project, should the fly under be progressed.
- 5.2. TfL is responsible for the Transport for London Road Network (TLRN), which the A316 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.

TfL has substantial experience of delivering complex highway and tunnelling projects, which we would apply to the procurement, funding and financing of the Chalkers Corner fly under

- 5.3. 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).
- 5.4. The procurement and construction of major infrastructure projects, including rail tunnels, 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.

TfL can achieve efficiencies by delivering the Chalkers Corner scheme within a wider programme of tunnel projects and link into a wider highway capital investment programme

- 5.5. TfL is undertaking and proposing a range of large capital infrastructure projects that involve procurement of skills and services that would all be highly relevant to approaches that would need to be adopted for the A316/A205 fly under. For example, Crossrail and the Northern Line Extension have led to an increase in skills associated with deep bored tunnel design and construction procurement, whilst the Cycle Superhighways and Better Junctions programmes have led to an increase in skills associated with large-scale highway engineering and construction traffic management.

- 5.6. The fly under is being proposed as part of a wider programme of Roads Task Force (RTF) tunnels and decking over 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 fly under.
- 5.7. There is also an opportunity to build on the experience TfL is developing through delivering the Silvertown Tunnel, applying this to other highway tunnelling projects, such as Chalkers Corner flyunder.
- 5.8. TfL would 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 would be required to support future scheme development and consents process.

- 5.9. It is anticipated that consultancy support would 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 fly under are determined, a procurement strategy would be developed which could 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 would be a consideration in the approach taken to procuring both construction and operational and maintenance of the new tunnel.
- 5.11. The Silvertown tunnel river crossing project would have provided a contemporary example of a tunnelled road scheme in inner London, and hence would provide an important benchmark that TfL and the market can use to determine that the risks are tolerable and generate appetite from the market. Capacity of the market would need to be monitored given there are other potential tunnelled road schemes, such as the Lower Thames Crossing, that may overlap.
- 5.12. 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.

- 5.13. At this time it is expected that the construction of the project would be led by Transport for London, who are experienced in road construction projects. The final procurement strategy for this stage of the project would be developed in due course.

Methods for the mitigation of construction impacts would be investigated, including the option of keeping part of the road open during construction.

- 5.14. TfL has extensive experience of developing and delivering Traffic Management Plans. As part of the TLRN, the A316 would continue to ultimately be managed by TfL, acting as the client on any subsequent procurement of operations and maintenance contracts that could be let.
- 5.15. Further consideration would need to be given to the management of the new open space and public realm, the day to day management of which could be passed to the relevant boroughs.
- 5.16. 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.
- 5.17. Throughout a procurement process for both construction, and operations and 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.
- 5.18. 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
- 5.19. In compliance with the Mayor's responsible procurement policy, all potential suppliers would 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 would be subject to a supplier performance plan.

TfL utilises supply chains from across the UK – work for a tunnel would support many jobs outside of London

- 5.20. Although TfL undertakes procurement for projects implemented in the capital, the wider benefit to the UK is extensive, with over 60,000 jobs estimated to be supported by services TfL procures from outside of London. The construction of the Hammersmith tunnel would add to the pipeline of capital investment that supports jobs across the UK.
- 5.21. The procurement strategy for this stage of the project would be refined and improved as the scheme is further developed.

COMMERCIAL CASE SUMMARY

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

TfL has substantial experience of delivery of complex highway and tunnelling projects, which we would apply to the procurement, funding and financing of the Hammersmith tunnel

- **TfL can achieve efficiencies by delivering the Chalkers Corner scheme within a wider programme of tunnel projects and link into a wider highway capital investment programme**
- **TfL utilises supply chains from across the UK – work for a tunnel 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.

- Major road schemes developed, promoted and implemented by TfL in recent years include cycle super highways, and significant improvements to a number of major road junctions, such as at Elephant and Castle and Euston Road
- Chalkers Corner has a specific link and interrelationship with the planned delivery of cycling infrastructure improvements along the A316 although the projects are not interdependent
- As the scheme was further developed, more detailed plans would be developed and would be subject to further assurance and project controls, including a Quantified Risk Assessment to further improve forecast costs and the economic appraisal
- TfL considers the scheme relatively standard given the company's extensive experience of planning, procuring and constructing large-scale infrastructure projects
- TfL would develop programme controls supported by robust reporting processes

Introduction

- 6.1. TfL has extensive experience in developing, promoting and implementing significant road infrastructure projects. This ranges from minor modifications to existing infrastructure (such as Hammersmith flyover refurbishment) to major schemes.

Evidence of similar projects

- 6.2. Major road schemes developed, promoted and implemented by TfL in recent years include cycle super highways, and significant improvements to a number of major road junctions, such as at Elephant and Castle and Euston Road.
- 6.3. TfL has significant relevant experience in developing these types of schemes and securing necessary consents required by the Town and Country Planning Act (1990). With a range of highway and public realm improvements identified within the current Business Plan, this experience would have been furthered by the time consent stage for the project is reached and would 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.

Linkages

The A316/A206 scheme has a link with the delivery of infrastructure improvements along the A316

- 6.4. It has been identified that the fly under at Chalkers Corner has a specific link and interrelationship with the planned delivery of cycling infrastructure improvements along the A316.
- 6.5. The projects are not interdependent to one another and could take place separately, but to avoid abortive or unnecessary work and to ensure the programmes complement one another, close coordination is required between the relevant business areas within TfL.

Key assumptions

- 6.6. 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 the Financial Case. This scheme has the potential to be funded via TfL Business Plan. Further work is ongoing to identify the optimal funding solution for the scheme.
- 6.7. It is assumed that the land for the proposed route can be acquired through the Planning and Compulsory Purchase Act 2004.

Project risk

- 6.8. As the scheme further developed, more detailed plans would be developed and would be subject to further assurance and project controls, including a Quantified Risk Assessment to further improve forecast costs and the economic appraisal.
- 6.9. 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 submission of this business case, TfL would liaise with the Treasury / DfT to update the forecast costs following the completion of the QRA, and to agree a new working assumption on the level of optimism bias to continue to apply in future scheme appraisal.

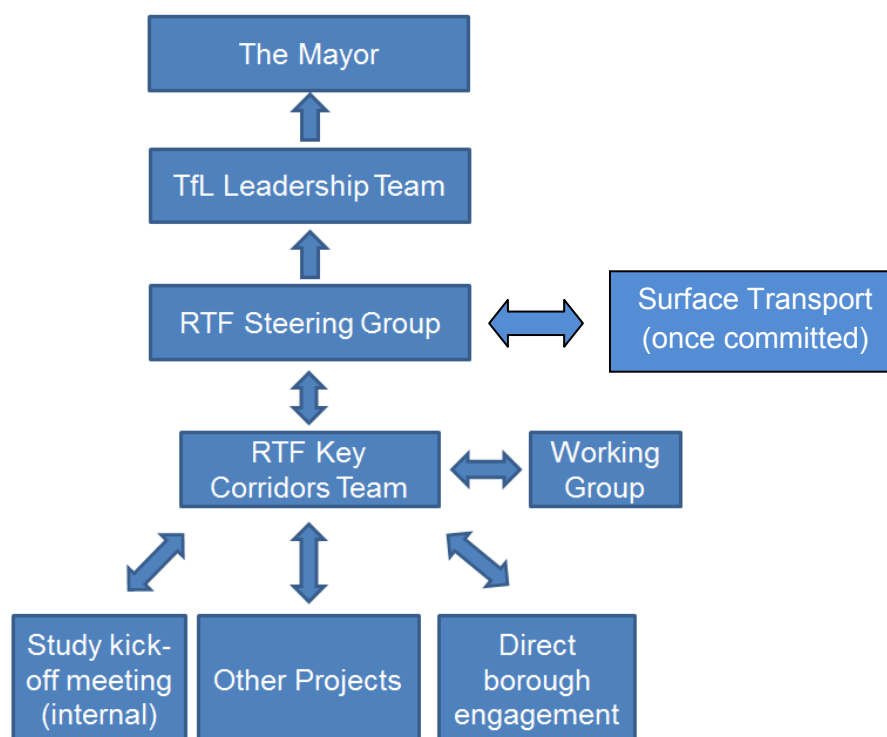
In general, TfL considers the scheme relatively standard given the company's extensive experience

- 6.10. In general, TfL considers the scheme relatively standard given the company's extensive experience of planning, procuring and constructing large-scale infrastructure projects, such as the Cycle Superhighways, the Northern line extension and Crossrail. Their design and construction has provided a wealth of contemporary and relevant comparators against which to benchmark, helping to guide proposed construction approaches for the Chalkers Corner fly under scheme.

Governance, organisational structure and roles

Internal governance

- 6.11. The construction of an A316/A205/A3003 Chalkers Corner fly under is part of the Roads Task Force Key Corridor Intervention Programme. 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 would be overseen by TfL Surface Transport.



Independent Peer Review Group

- 6.12. As part of future scheme development, an Independent Peer Review Group (IPRG) would be established to provide independent expert scrutiny of the Chalkers Corner project, initially regarding the selection of a preferred tunnel option. 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.

Programme/Project Plan

- 6.13. Key future milestones for the project are shown in Table 12.

Table 12: Key future milestones

Milestone Description	Date
Planning, design, approval and procurement	2016-2021
Construction	2021-2023

Assurance and approvals plan

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

- 6.14. The assurance and approvals process would follow TfL's established project assurance procedures which include assurance at three levels: internal, Programme Management Office (PMO) and external.
- 6.15. Internal assurance is provided through Pathway (TfL's project management methodology) project stage gates and/or peer reviews staffed by the sponsor and delivery personnel either from within the project or from a peer project. 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.
- 6.16. 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.
- 6.17. 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. 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 would 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 Chalkers Corner 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 plan provides a brief on the objectives of the stakeholder engagement, target audience and methodology. This plan is under ongoing review and would be updated and expanded as necessary.

- 6.28. Stakeholder engagement has already been undertaken and there is strong support for the scheme from the LB Richmond. A future programme of stakeholder engagement as the scheme progresses 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. TfL would develop programme controls supported by robust reporting processes that 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 which form part of the reporting process as the forum where performance issues are raised, possible mitigation is discussed and key decisions required are made; and
 - Project reporting requirements would be fully defined, together with content requirements, target audience and timing.

MANAGEMENT CASE SUMMARY

- 5.23. The key points arising from the Financial 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 would provide close scrutiny and challenge of risk management and decision-making throughout the project

7. Conclusions

7.1. The key points of the Strategic Case can be summarised as:

- The proposed scheme would address the regular and severe congestion experienced at Chalkers Corner, a key traffic bottleneck in south London, enabling reduced delays for strategic road users.
- The proposed scheme would combat the negative impacts of heavy traffic flows at Chalkers Corner by removing the majority of the traffic flow from the surface. This would allow for a transformation in the quality of the public realm.
- The scheme would also enable more space to be dedicated to sustainable modes such as cycling, providing an opportunity to match the provision offered elsewhere in LB Richmond and along the A316 including through enabling implementation of Quietway 2.
- The experience for pedestrians would be improved as the main heavy flow of strategic traffic is removed from the surface, improving perceptions of safety and space.
- Overall there would be a powerful opportunity to increase walking and cycling levels in this part of south London

Overall conclusion: There are compelling transport user benefits from the A316/A205 fly under project and TfL should continue to progress and develop this scheme

94. The A316/A205/A3003 Chalkers Corner fly under SOBC demonstrates that across the Five Case Model:

- There is a clear robust **case for change** for the Chalkers Corner fly under to mitigate growing congestion costs, to provide surface space for pedestrians and cyclists, to tackle issues of poor public realm and environmental quality and to cater for the needs of future population and economic growth. This ‘strategic case’ is closely related to national, London-wide and local road policy objectives, with a particular reference to the London Plan and the Mayor’s Transport Strategy.
- The analysis demonstrates that the scheme would deliver **direct economic benefits** for London, particularly south London through transport user benefits. With a NPV of £137.655m at 2010 prices, the scheme has a BCR of 1.26 with London values of time. Along with reductions in journey time through the junction, the scheme would facilitate a reduction in noise experienced by nearby residents and improvements to the public realm.
- The scheme may however enable deliver of more **indirect economic benefits** which could warrant further investigation, such as reduction in travel time elsewhere in the local network.
- This scheme would require grant funding.

- The scheme is **commercially viable**. The business case sets out the procurement, commercial structure and proposed allocation of risk and payment mechanisms for the project.
- The fly under is **achievable**. 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 work takes place to investigate the proposed option

95. While the Strategic Outline Business Case has reported on the majority of likely impacts of the scheme, further work is required on the air quality, noise, health and urban realm impacts in any future Outline and/or Full Business Case. This work would be undertaken prior to any future statutory consultation.
96. Given the strong case for the fly under scheme, TfL is proposing the following to facilitate its delivery:
 - Prepare a more detailed schedule of the alternatives considered to the scheme described in this document;
 - Undertake more detailed study of pedestrian and cyclists flows and desire lines to inform more detailed design of the decking element of the fly under
97. Subject to the acceptance of this Business Case, we propose to:
 - Investigate obtaining Powers to compulsorily purchase the land beyond highway boundary required to deliver the scheme on the southern side of the A316;
 - As part of the financial and commercial cases, prepare a plan to return non-required land back to the private sector upon scheme completion, to maximise return on scheme investment;
 - Investigate a loan facility to enable early land acquisition to secure value uplifts arising from a tunnel; and
 - Commit to ongoing use of the tunnelling expertise and supply chains which have been developed for other TfL projects to reduce infrastructure provision costs.
 -