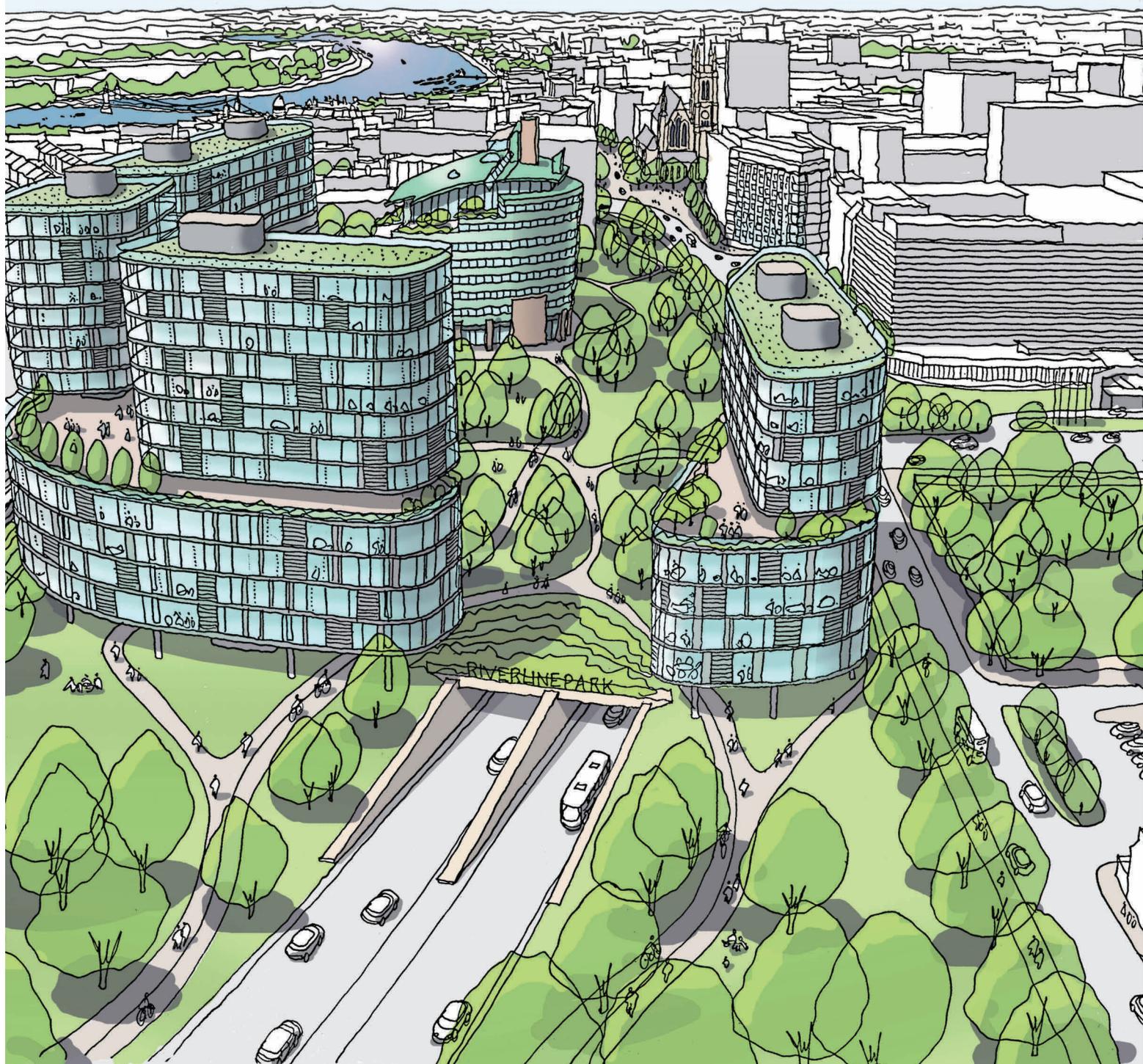


Hammersmith LONDON

COVER REPORT OF THE STRATEGIC IMPACT ASSESSMENT
FOR THE HAMMERSMITH

"FLYUNDER"



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1. BACKGROUND

- 1.1 The Hammersmith flyover is a very important part of Hammersmith town centre and the Hammersmith London Business Improvement District (BID) territory. Apart from being a key transport artery that provides western access from the M4 into central London for nearly 90,000 vehicles a day, its underside has served as a crime hotspot, a grot spot area and a place for homeless sleeping. Its very presence has been like a Berlin Wall that has divided Hammersmith town centre.
- 1.2 This flyover has been fully or partially closed to traffic for several months since 2012, with disruptions likely to continue until the summer of 2015. The closure of the flyover, the cost of the repair works and the limited extension that the works provide to the asset's life have led to a public debate as to whether the structure should be replaced with a tunnelled by-pass popularly referred to as the 'flyunder'.
- 1.3 Given its background as a partner in the Mayor's Economic Development Strategy and through its promotion of sustainable transport and environmental initiatives, Hammersmith London has become involved in attempting to resolve this problem. Not only has the BID participated in the ensuing debates, but also in facilitating discussions and panels to understand the options.
- 1.4 However, we are also conscious of the fact that any option that impacts the transport system has to be examined carefully from several perspectives as it can have significant and very long-lived social, economic and environmental impact. Given this, Hammersmith London commissioned Halcrow to undertake a Strategic Impact Assessment report to understand the impact of the Hammersmith flyover remedial works and the proposed replacement of the flyover with a tunnelled by-pass.
- 1.5 We hope that the findings of the Strategic Impact Assessment, together with Halcrow's feasibility study, commissioned by the London Borough of Hammersmith and Fulham, will help inform the discussion and the case for flyover replacement that is being presented to Transport for London. The feasibility study considers the tunnelled by-pass proposal from an engineering and geotechnical standpoint and the master plan looks at reimagining the area with a flyunder.



2. ABOUT HAMMERSMITHLONDON BID

- 2.1 HammersmithLondon BID is a democratically elected, business-led and business-funded body, formed to improve a defined commercial area. First established in 2006, it is one of the oldest Business Improvement Districts (BIDs) in the country, which also successfully renewed its mandate in March 2011. Led by member businesses, the BID represents 381 hereditaments (i.e. number of voters) and c. 336 businesses with rateable value over £40,000. Since 2006, the BID has already invested over £3.7m in Hammersmith town centre and plans to invest another £3.7m over the next five years.
- 2.2 The team at HammersmithLondon work in close partnership with various public and community organisations including Hammersmith and Fulham Council, Metropolitan Police and Transport for London. HammersmithLondon is a partner in the Mayor's Economic Development Strategy for London, which places much importance on the BID to 'place-shape' local town centres in partnership with business. Appendix 1 provides an overview of the number and type of businesses in Hammersmith town centre along with a list of the major stakeholders and the area covered by the BID.
- 2.3 The BID is a key stakeholder with a group of nine local architect's practices, known as West London Link, who have been trying to achieve the replacement of the flyover since the summer of 2012. HammersmithLondon BID has been involved in supporting and leading the discussion of a replacement option for the Hammersmith flyover since it first experienced technical problems in 2012. The following section details HammersmithLondon's involvement in this project.

3. FLYUNDER - HAMMERSMITHLONDON TIMELINE

HammersmithLondon is delighted that one of its fledgling projects has culminated in the Mayor of London, Boris Johnson backing a £400m tunnelling development in Hammersmith.



DECEMBER 2011 The Hammersmith Flyover is dramatically closed just days before Christmas as engineers from Transport for London discover eroding cables in the structure. As a vital trunk route into the capital, questions are immediately raised as to whether it would be safe to use in time for the London 2012 Olympic Games.



EARLY 2012 As a lane opens in each direction, traffic remains diverted onto Hammersmith's local roads, affecting businesses and residents alike.



SUMMER 2012 HammersmithLondon supported a group of local architects unveil their vision for a Hammersmith Flyunder at the London Festival of Architecture. HammersmithLondon sponsored and helped the architects organise the festival in Lyric Square which prompted world tunnelling experts and Hammersmith business, Halcrow, to get involved and produce this visionary image. Although ambitious, the simple image of a tunnel emerging from the A4 perfectly captures the mood for change in the area.

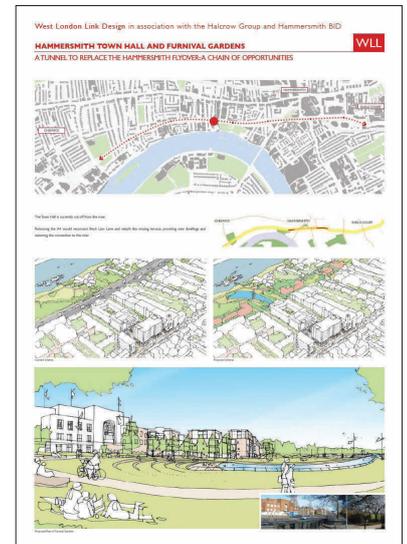


AUTUMN 2012 Support for the Flyunder swells and HammersmithLondon and nine local architect firms form West London Link. The group immediately begin looking at how replacing the flyover would present an opportunity to build for the economic, social and cultural benefit of all and how tunnelling has transformed other cities around the world. Transport for London return to the flyover to complete its strengthening repair work.

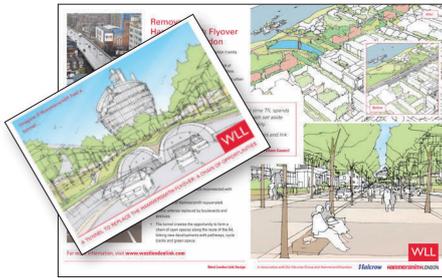


EARLY 2013 HammersmithLondon begin to lobby Transport for London and Hammersmith and Fulham Council. TfL are initially dismissive after announcing it will invest a further £60m into the project, taking its total cost for repair work to £150m and extending its finite life by another 15-29 years. The council is receptive to the idea and task West London Link with organising a public exhibition to further gauge reaction.

APRIL 2013 The BID organise an evening exhibition at Hammersmith Town Hall, where the architects unveil 15 boards which show in great detail just how Hammersmith Town Centre could be radically changed by the removal of the flyover. Attended by more than 150 people, the event is an unmitigated success and Labour MP for Hammersmith, Andy Slaughter publicly declares his support for the project and promises cross party backing for the scheme, which he claims is compelling and important for the town.



The Hammersmith Flyunder Project has garnered national attention for its innovative vision and the BID has been active in its involvement since the very beginning. Here is a timeline of events:



SUMMER 2013 HammersmithLondon produces a video and leaflet on the flyunder project which it distributes and shows at further public exhibitions, held in The Broadway Centre and Lyric Square. The BID use the exhibitions to encourage the public to register their interest in the scheme to the council. The BID attends the unveiling of Transport for London's radical Roads Task Force report, which outlines an innovative future for the capital's roads, including the option of tunnelling.

SEPTEMBER 2013 The Council announce that it will publish a feasibility study on the scheme, which will look at whether 'it could, or even, should' build a tunnel under Hammersmith. The council liaise with the BID to discuss the economic impact on the town and appoint them to the Flyunder Steering Group, which will meet monthly while the report is being compiled.



OCTOBER 2013 The BID commission an economic study into the project which will be undertaken by world engineering experts and Hammersmith business, Halcrow. This will be presented to TfL alongside the council's feasibility study in March 2013. Both reports are discussed at a public meeting held at the Town Hall where 89% of attendees back the scheme.

JANUARY 2014 The BID organise a flyunder workshop for businesses to gauge opinion and to have their say on the future development of the town.



FEBRUARY 2014 Mayor of London Boris Johnson publicly backs the Hammersmith Flyunder project, saying it is a fantastic scheme and he has been impressed with the work of the partners behind it. The BID discusses the project at a TfL Roads Task Force event, and is well received by the organisation and its partners.

MARCH 2014 - The BID and Hammersmith and Fulham Council present the economic and feasibility study to Transport for London for consideration.



4. ASSESSEMENT: SCOPE & METHODOLOGY

4.1 SCOPE

- a. The Strategic Impact Assessment provides a qualitative strategic overview of the impacts of the remedial works and maintenance of the flyover, as well as the proposed tunnelled by-pass, on the local business community.
- b. The scope of the study is strictly limited to a high-level qualitative socio-economic analysis of the impacts of the flyunder, due to the fact that consideration of this option is in its infancy and there is a paucity of available data for quantifying the potential impacts.

4.2 METHODOLOGY

- a. The study starts out with identifying the baseline economic profile for Hammersmith and provides the baseline facts for the flyover remedial works and for the proposed tunnelled by-pass.
- b. It then analyses the remedial flyover works with respect to: scope, timeline, affected areas, traffic management and cost.
- c. For the tunnelled by-pass, it assesses three major options with two sub-options each related to the presence/absence of the North/South connection. Here it provides an overview of the cost, construction timeframe, traffic disruptions and location of main disruptions for each of the options.
- d. It then goes on to use the methodology developed by the Department for Transport (DfT) for providing a qualitative assessment of the socio-economic impacts of both these options.
- e. The likely impacts can be summarised in the following categories:

SOCIAL	ECONOMIC	ENVIRONMENTAL
PHYSICAL ACTIVITY	INVESTMENT IN THE PUBLIC REALM LAND RELEASE & DEVELOPMENT BUSINESS INVESTMENT EMPLOYMENT AREA REGENERATION	NOISE POLLUTION AIR QUALITY

- f. These findings are then substantiated by case studies of similar developments across the world. These include: A3 Hindhead Improvement, Alaskan Way Viaduct, Seattle, Heart of the City, Sheffield Town Centre, Bjorvika Tunnel, Oslo.

5. KEY FINDINGS

5.1 REMEDIAL WORKS V/S FLYUNDER

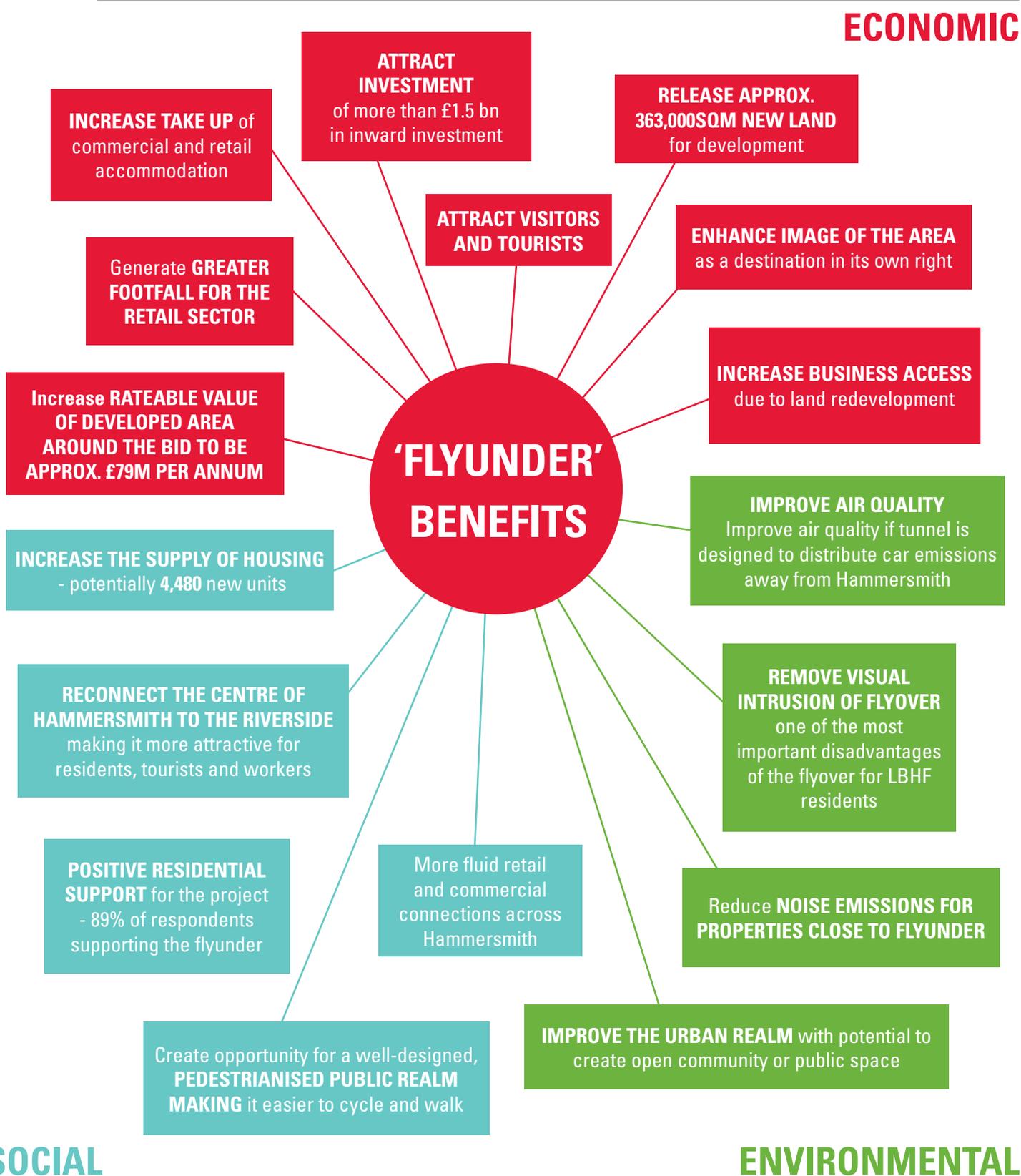
- a. Overall: The findings suggest that while the socio-economic impacts of the remedial works on the BID study area are negligible the socio-economic impact of the tunneled by-pass is very high.
- b. Remedial Works: The main socio-economic benefits from remedial works would be generated by construction employment – if sourced locally and local retail spend by the construction work force. However, given the fact that most remedial works are typically only undertaken at night the contribution would be negligible.
- c. Flyunder: The socio-economic benefits from the tunnelled by-pass cover a broad range of compelling economic, social and environmental benefits. Moreover, the land released underneath and around the flyover has developmental potential that would increase property values, which in turn could help fund the development itself. These benefits of the tunnelled by-pass are separately catalogued in section 4.2.



5.2 BENEFITS OF THE FLYUNDER

Replacing the Hammersmith flyover with a tunnelled by-pass will not only provide traffic improvements but may also have a great number of social, economic and environmental benefits for the local area and the local business environment.

The figure below shows some of the benefits of the Flyunder.



5.3 VIEWS ABOUT THE “FLYUNDER” OPTION

a. **HammersmithLondon BID:**

HammersmithLondon BID has been involved in supporting and leading the discussion of a replacement option for the Hammersmith flyover ever since it began to have structural problems in early 2012. As a timeline in section 3 shows, HammersmithLondon BID has supported the development of the architects’ vision for a Hammersmith flyunder, lobbied with Transport for London (TfL) and LBHF, organised and conducted exhibitions, produced videos and leaflets and then at the appropriate time, commissioned a Strategic Assessment of a tunnelled by-pass.

The BID has also conducted several workshops to educate and garner support for the flyunder. In June 2012, the BID supported London Festival of Architecture event held at Lyric Square to showcase initial ideas and precedents from around the world. This was followed up with another event in summer 2013 to showcase BID-funded visuals of how the reclaimed land could be used – an event that went a long way in fuelling public imagination and garnering support for the tunnelled by-pass. These events were followed up with workshops and forums to inform and collect views from local businesses.

b. **LBHF:**

Hammersmith and Fulham Council are supportive of the idea of a tunnelled by-pass. They have held a number of regeneration meetings to discuss the options with local residents and to collect their views. According to the council, the Hammersmith tunnelled by-pass scheme received substantial support from the local residents, with over 89% of respondents to a council poll backing some sort of tunnel replacement. More recently the council have submitted the preliminary plans to Transport for London for consideration.

c. **Press:**

There has been a lot of positive publicity in the press for the tunnelled by-pass option. More recently, the Mayor of London has also branded the plans for the flyunder as a brilliant idea. On LBC radio on 3rd March 2014, Boris Johnson spoke about his views on the Hammersmith flyunder saying:

“We’ve been listening to this for months and months thinking, ‘come off it this is never going to work’, and actually it is brilliant. It adds up. It’s a most fantastic scheme. We’re going to tunnelise the flyover.

What was interesting was even the hardened TFL engineers looked at all this - they’ve been very skeptical - and they thought it was a great scheme.”

6. CONCLUSION

- 6.1 The preliminary analysis suggests that the proposed tunneled by-pass has a high-level socio-economic impact with the potential for transforming the Hammersmith town centre and the BID area into a vibrant social and economic centre with a very positive impact on the environment. The total development floor space released by the 'flyunder' is estimated to be 363,000 square metres with the potential to bring in over £1 billion in net returns. Moreover, with the current vision of using approximately 50% of the land for residential development with the other 50% split between office, retail, leisure and community uses – would allow LBHF to offer its residents and businesses more opportunities, a better and a well-connected urban space.
- 6.2 The estimated revenues from land re-use have the potential to generate significant increases in rates and rents from increased land and property values. This in turn would help fund the development itself while creating a more integrated and pleasing public realm that would be more likely to attract visitors and tourists thus increasing spend in the area and generally invigorate the town centre.
- 6.3 The project also meets the key aims and core functions of the Roads Task Force (RTF) that is implementing The Mayor of London's Transport Strategy. It will deliver the three key aims of the RTF:
- i. Enable people and vehicles to move more efficiently
 - ii. Transform the environment for cycling, walking and public transport
 - iii. Improve the public realm and provide better and safer places for all activities that take place on the city's streets and provide an enhanced quality of life
- 6.4 Given the potential benefits of the proposed structure and substantial repair costs of the current flyover, Hammersmith London BID has been an active supporter of the tunnelled by-pass, working with local businesses and LBHF Council to push the project forward with TfL.

7. RECOMMENDATIONS

- 7.1 The Hammersmith flyover's unique location in the heart of a socially and economically thriving town centre makes its redevelopment an important social and economic decision.
- 7.2 The tunneled by-pass seems to be the perfect option for replacing the flyover as it meets all the key RTF objectives as well as the key Department of Transport 's evaluation criterion. It also releases very valuable land in the middle of an important town centre that provides stunning opportunities as well as a few complexities if the stakeholder engagement is not well managed.
- 7.3 Given the locational importance of the Hammersmith flyover, considerable liaison with the workers, visitors and residents in the town centre would be required to ensure smooth project delivery, which could otherwise get mired in endless problems.
- 7.4 HammersmithLondon BID is uniquely positioned to help both TfL and LBHF with the stakeholder management given its ties with the local businesses, its role as the town centre manager and its work with West London Link.
- 7.5 The Council and TfL could consider making the BID a strategic partner to:
 - Liaise with the various government agencies, contractors and the businesses
 - Serve as a platform to engage and inform businesses of the project progress
 - Serve as the voice of businesses to represent their concerns to LBHF and TfL

APPENDIX 1: QUICK OVERVIEW OF HAMMERSMITHLONDON

TERM

5 years from 1st April 2011 (Renewed)

First term: 2006-2011

MEMBERSHIP

381 Hereditaments

336 businesses with RV's greater than £40,000

BUSINESS TYPES

Offices : 60%

Retail : 26%

Leisure : 10%

F and B : 3%

Hotel : 1%

FINANCES:

Levy: 0.8% (year 1), 0.9% (year 2), 1% (year 3), 1.03% (year 4), 1.06% (year 5).

Annual Budget: c. £750,000

MAJOR STAKEHOLDERS

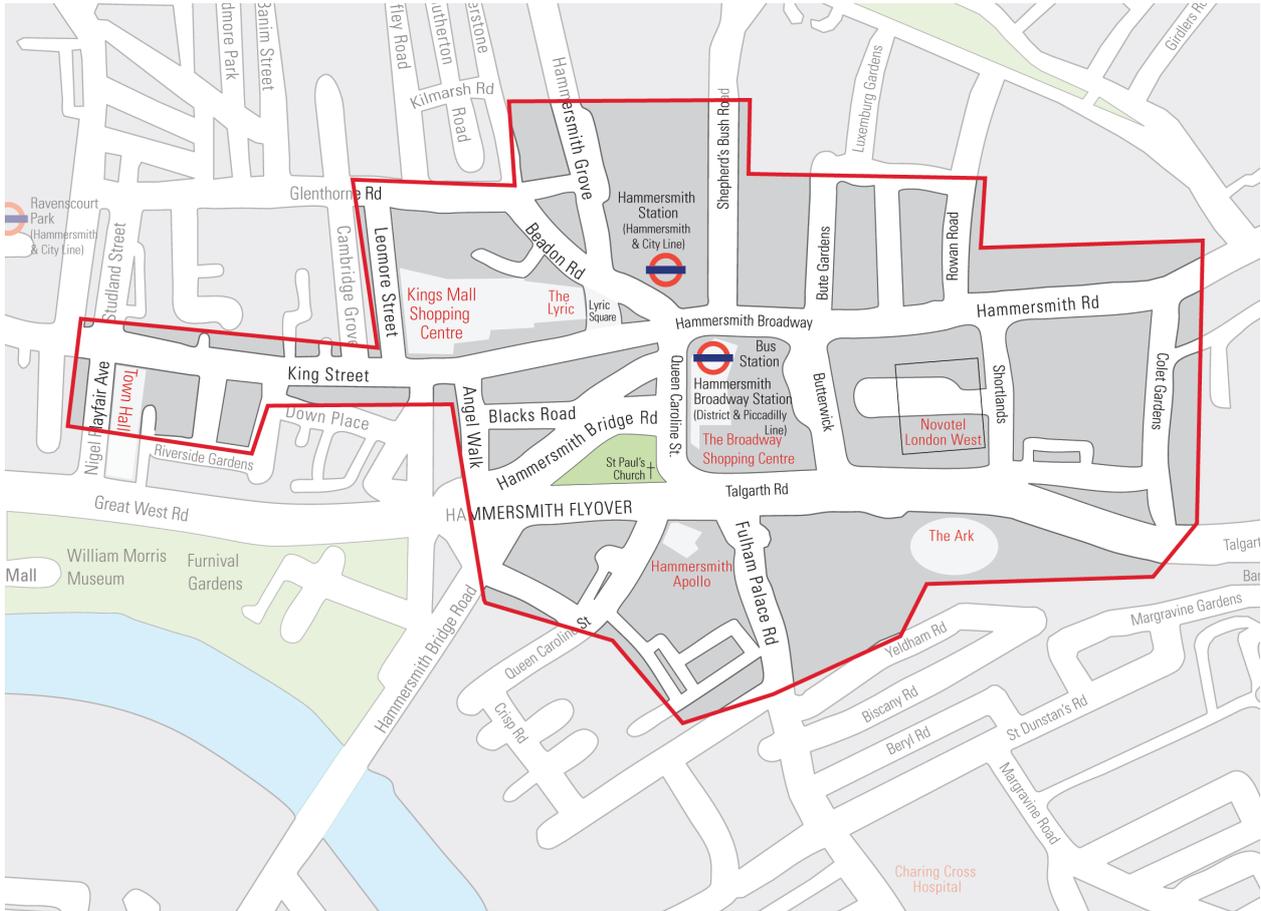
TOP 10 BUSINESSES

1. The Walt Disney Company
2. General Electric Company
3. L'Oreal
4. Novotel
5. Coca Cola
6. Bechtel Ltd
7. Harper Collins Publishers Ltd
8. Prudential Assurance
9. Haymarket Publishing
10. Winton Capital

NON-BUSINESS ORGANISATIONS

1. LBHF
2. Metropolitan Police
3. TfL
4. Lyric Hammersmith
5. Works 4 U
6. Hammersmith Society
7. Brackenbury Residents Association
8. HAFAD
9. HAFPAC

AREA MAP OF HAMMERSMITH LONDON BID



All or parts of the following streets are included the BID area:

- | | |
|-------------------------|-----------------------|
| Angel Walk | Hammersmith Road |
| Beadon Road | King Street |
| Blacks Road | Leamore Street |
| Bute Gardens | Lyric Square |
| Butterwick Street | Nigel Playfair Avenue |
| Chalkhill Road | Queen Caroline Street |
| Fulham Palace Road | Rowan Road |
| Glenthorpe Road | Shepherds Bush Road |
| Great Church Lane | Shortlands |
| Hammersmith Bridge Road | Sussex Place |
| Hammersmith Broadway | Talgarth Road |
| Hammersmith Grove | Wolverton Gardens |
| | Worldidge Street |

**APPENDIX 2:
STRATEGIC IMPACT ASSESSMENT REPORT**

Final Report

Strategic Impact Assessment

Prepared for
HammersmithLondon BID

March 2014

CH2MHILL®

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Acronyms and Abbreviations

BID – Business Improvement District

BRES – Business Register and Employment Survey

DfT – Department for Transport

GLA – Greater London Authority

H&F – Hammersmith and Fulham

LBH&F – London Borough of Hammersmith and Fulham

LSOA – Lower Layer Super Output Area

MSOA – Medium Layer Super Output Area

ONS – Office for National Statistics

RBKC – Royal Borough of Kensington and Chelsea

RTF – Roads Task Force

SOA – Super Output Area

TfL – Transport for London

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Executive Summary

Introduction and Background

- This qualitative Strategic Impact Assessment of the Hammersmith flyover remedial works and the proposed replacement of the flyover with a road tunnel, commonly referred to as the Hammersmith “Flyunder”, was commissioned from CH2M HILL by Hammersmith London Business Improvement District (BID).
- The Hammersmith flyover is a key part of the Transport for London Road Network. It provides access between the M4 and Central London for nearly 90,000 vehicles a day. The closure of the flyover to facilitate repairs is highly disruptive to London traffic and to Hammersmith town centre and adjacent areas.
- The closure of the flyover, the cost of the repair works and the limited extension that the works provide to the asset’s life have led to a public debate as to whether the structure should be replaced with a tunnel. This report contributes to the debate by providing a qualitative assessment of the impact of tunnel options on the Hammersmith town centre.
- Replacing the Hammersmith flyover with a tunnel may provide not only traffic improvements but also additional economic benefits for the local area and local business environment. The scheme may provide an opportunity to:
 - reconnect the centre of Hammersmith with the riverside;
 - redevelop the land directly underneath and around the flyover for commercial, retail, residential and community use;
 - improve Hammersmith’s urban realm, increase the supply of housing and attract more visitors to the area
- These benefits have the potential to generate higher economic growth, stimulate job creation and increase footfall for the retail sector.

Baseline economic conditions in the Hammersmith BID area

- The Hammersmith BID area and the Town Centre are strategically important to the London Borough of Hammersmith and Fulham (LBH&F), contributing an estimated 28% of the Borough’s total Gross Value Added (GVA). The GVA of the Town Centre alone is approximately £1.5bn.
- Each employee in the town centre is estimated to have a GVA that is 25% higher than employees elsewhere in the Borough.
- Job density in LBH&F (the number of available jobs in the borough as a ratio of the working age population) is high, with the Borough ranked 19th nationally and 9th in London.
- LBH&F has a very high business density (the number of businesses per thousand residents) ranking 20th nationally and 7th highest in London. The local economy is predominantly service led. Businesses tend to be small and comparatively young and include high gross value added firms in emerging sectors such as knowledge based industries, creative arts and financial services.
- Average weekly earnings in the BID area are 25% higher than the LBH&F average and 21% and 54% above the London and the national figures respectively.
- The unemployment rate in the Borough is 9%, above that for London (8.7%) and Great Britain (7.7%).
- Hammersmith property prices are amongst the most expensive in London and year-on-year growth rates in property prices are high. This, combined with the fact that the total resident population of

Hammersmith Broadway represents only about 5% of the total resident population of the Borough, suggests that there is much value to be gained from developing some of the land underneath the flyover for residential use.

- The Hammersmith BID is a vibrant centre and a major transportation hub. King Street recorded 3.2 million visitors in 2012 while 37.2 million entered and exited Hammersmith Underground Stations in 2012.
- The BID area has strong potential to realise high returns from investment in the business environment and the public realm. It has the advantage of:
 - a captive footfall from a high commuter base;
 - an active business profile that would benefit from investment in the surrounding environment; and
 - a nearby population that earn above average incomes and are an excellent potential customer base if investment is made in the commercial and retail environment of the BID.

Remedial Flyover works

- Work to repair the flyover will take some time to complete, it is expected to continue throughout 2014 and until summer 2015.
- Road works will take place at off-peak times whenever possible to limit disruption.
- Total projected cost of the remedial works is £77m.

Tunnel Proposal

- The table below summarises the identified tunnel scheme options, preliminary estimated costs and the expected duration of disruption.

Tunnel Options Summary Table

Option	Definition	Construction Method	Cost (£m)	Duration	% of East-West Traffic likely to use the tunnel	Traffic Disruptions	Location of Main Disruption
Option 1a	Online Cut and Cover replacement for the Flyover including portals	Cut and Cover	£212	3 years	100%	Option 1: 18 months; Major disruptions as the flyover will most likely need to be decommissioned and demolished	Hammersmith Town Centre
Option 1b	As Option 1a with additional North/South connections with Shepherds Bush Road and Fulham Palace road	Cut and Cover	£369	4 years	-		
Option 2a	Bored Tunnel between North End Road and the A4 Sutton Court Road (two lanes per tunnel)	Tunnel Boring Machine	£1,210	2-3 years	60%	Option 2&3:12/18 months; Traffic restrictions will apply due to lanes' closure in both direction; the flyover, however, will remain fully operational	Portal Locations and Drive Site
Option 2b	Bored Tunnel between North End Road and the A4 Sutton Court Road (with junctions – three lanes per tunnel)	Tunnel Boring Machine	£1,702	3-4 years	-		
Option 3a	Bored Tunnel between Earl's Court and the A4 Sutton Court Road (two lanes per tunnel)	Tunnel Boring Machine	£1,297	2-3 years	50%		
Option 3b	Bored Tunnel between Earl's Court and the A4 Sutton Court Road (With junctions - 3 lanes per tunnel)	Tunnel Boring Machine	£1,758	3-4 years			

- Option 1 will have the greatest impact on the Hammersmith BID area since the construction work will occur within the boundaries of the BID. This means the area will bear most of the disruption associated with the scheme including traffic congestion, travel delays and noise.
- The Hammersmith tunnel (irrespective of which of the above options is selected) has substantial support from local residents, with over 80% of respondents to a council poll backing some form of tunnel replacement. The local business community is also supportive of the opportunity to release land from underneath the flyover for development and to improve connectivity with the river and also between Hammersmith's existing commercial centre and office facilities.

Potential socio-economic impacts of the tunnel scheme

- The release of land from underneath the flyover for development has significant economic potential. The total development floorspace to be released is currently estimated to be 363,000m². It is envisaged that approximately 50% of the new floorspace created could be used for residential development, with the other 50% split between office, retail, leisure and community uses.

- LBH&F and the Greater London Authority have made some preliminary and high-level estimations of the potential value of the developed property. They calculated that the 363,000m² of floorspace would translate into 4,840 residential units at an average unit size of 75m². Net returns from this development are assumed to be between £0.95bn and £1.06bn.
- Similarly, a high-level preliminary estimation of the potential rateable value of retail and commercial development in the BID area can be made. Using the initial assumption that 50% of the released floorspace would be split between office, retail, leisure and community uses we estimate that the increase in the rateable value of the developed area around the BID to be approximately £79m per annum.
- Investment in the public realm¹ can stimulate the local economy and generate above average private-sector returns.
- Environmental and social impacts include:
 - The reconnection of Hammersmith Town Centre with the river, creating an opportunity to invest in new public space, making the area more attractive for local residents, tourists, visitors and people who work in the area.
 - Developing a part of the land released as open community or public space could furthermore provide an essential safety valve for relieving the stress of urban living.
 - The benefit from the reduced severance also includes more fluid retail and commercial connections across the parts of Hammersmith currently severed by the flyover as well as easier and safer movement for pedestrians and cyclists.
 - A reduction in noise for properties close to the flyover and the potential positive effect this could thus have on property prices;
 - The potential improvement in air quality if the tunnel is designed to effectively distribute car emissions away from Hammersmith;
 - An increase in physical activity for the local community if the land released from beneath the flyover is developed with pedestrians and cyclists in mind.
- Evidence from similar schemes, as described in a selection of case studies in section 5.2, suggests that there are cogent benefits of developing the land released by the scheme for residential, retail, commercial, office and community uses and of investing in the business environment and in the public realm.

¹ Public realm is defined as any publicly owned streets, pathways, right of ways, parks, publicly accessible open spaces and any public and civic building and facilities.

1. Introduction

Hammersmith London Business Improvement District (BID) commissioned CH2M HILL to develop a qualitative strategic impact assessment of the Hammersmith flyover remedial works and the proposed replacement of the flyover with a road tunnel, commonly referred to as the Hammersmith “Flyunder”. This report provides the strategic impact assessment.

1.1 Background

The Hammersmith flyover, opened in 1961, is a key part of the Transport for London Road Network. It comprises four lanes of the A4 arterial road over the Hammersmith gyratory and provides access between the M4 and Central London for nearly 90,000 vehicles a day.

The closure of the flyover to facilitate repairs is highly disruptive to London traffic and to Hammersmith town centre and adjacent areas. The flyover was fully closed for emergency repairs in January and February 2012 and partially closed until May 2012. Partial closures were again necessary from October 2013 with disruption likely to continue until the summer of 2015.

The closure of the flyover, the cost of the repair works and the limited extension that the works provide to the asset’s life have led to a public debate as to whether the structure should be replaced with a tunnel². This report contributes to the debate by providing a qualitative assessment of the impact of tunnel options on the Hammersmith town centre.

1.2 Policy Context

The Mayor of London’s Transport Strategy outlines plans and actions for maintaining and improving the transport network in London. Improvements to the road network are being made through the Mayor’s Roads Task Force (RTF). The RTF requires delivery of three key aims³:

- 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 activities that take place on the city’s streets, and provide an enhanced quality of life.

To meet these aims, London’s roads require nearly £30bn of investment over the next 20 years.

The core functions of the task force include⁴:

- Improving accessibility, connectivity and quality of areas earmarked for major growth;
- Improving safety and reducing collisions;
- Providing welcoming and inclusive places for all to support economic and social development;
- Ensuring essential deliveries and servicing; and
- Reducing emissions and supporting greener, quieter streets.

²BBC (2014): Hammersmith ‘Flyunder’ Plans Views Sought, <http://www.bbc.co.uk/news/uk-england-london-25897081> ; and

LBH&F (2013): Flyunder Summit arranged as tunnel experts appointed, (http://www.lbhf.gov.uk/Directory/News/Flyunder_Summit-arranged_as_tunnel_experts_appointed.asp)

³Roads Task Force (2013): The Vision and Direction for London’s streets and Roads, <http://www.tfl.gov.uk/assets/downloads/corporate/rtf-report-executive-summary.pdf>

⁴Ibid.

A specific area of consideration for the RTF is that of tunnels, which have the potential to meet the above stated aims and functions.

1.3 The Tunnel option

Replacing the Hammersmith flyover with a tunnel may provide not only traffic improvements but also additional economic benefits for the local area and local business environment. The scheme would provide an opportunity to reconnect the centre of Hammersmith with the riverside. In addition the land directly underneath and around the flyover could be developed for commercial, retail, residential and community use, improving Hammersmith's urban realm, increasing the supply of housing and attracting more visitors to the area, all of which have the potential to generate higher economic growth, stimulate job creation and increase footfall for the retail sector.

The Hammersmith flyover bisects the town centre, cutting off access to the river and inhibiting pedestrian and cycle movement. A tunnel would provide an opportunity to reconnect the centre of Hammersmith with the riverside, creating an opportunity to invest in new public space and making the area more attractive for tourists, people who work in the area and local residents.

Given the potential benefits of a tunnel and substantial repair costs of the current flyover, HammersmithLondon, together with the London Borough of Hammersmith and Fulham (LBH&F), has been an active supporter of the tunnel, working with local residents and CH2M HILL to push the project forward.

For HammersmithLondon, the Business Improvement District for Hammersmith, it is crucial to be informed about the potential impacts that the remedial works as well as the proposed tunnel would have on the Hammersmith BID area and its constituents. This qualitative strategic impact assessment has been commissioned by HammersmithLondon to identify such potential impacts and to facilitate a robust dialog between HammersmithLondon, its constituents and other stakeholders.

This Strategic Impact Assessment, together with the preliminary geotechnical feasibility study⁵ for the provision of a new tunnel and tunnel options prepared by CH2M HILL for LBH&F, will contribute towards a wider case for the flyover replacement that LBH&F is preparing to submit to TfL in March 2014.

1.4 Scope of the Study

This Strategic Impact Assessment provides a qualitative strategic overview of the impacts of the remedial works and maintenance of the flyover, as well as the proposed tunnel, on the local business community in the centre of Hammersmith.

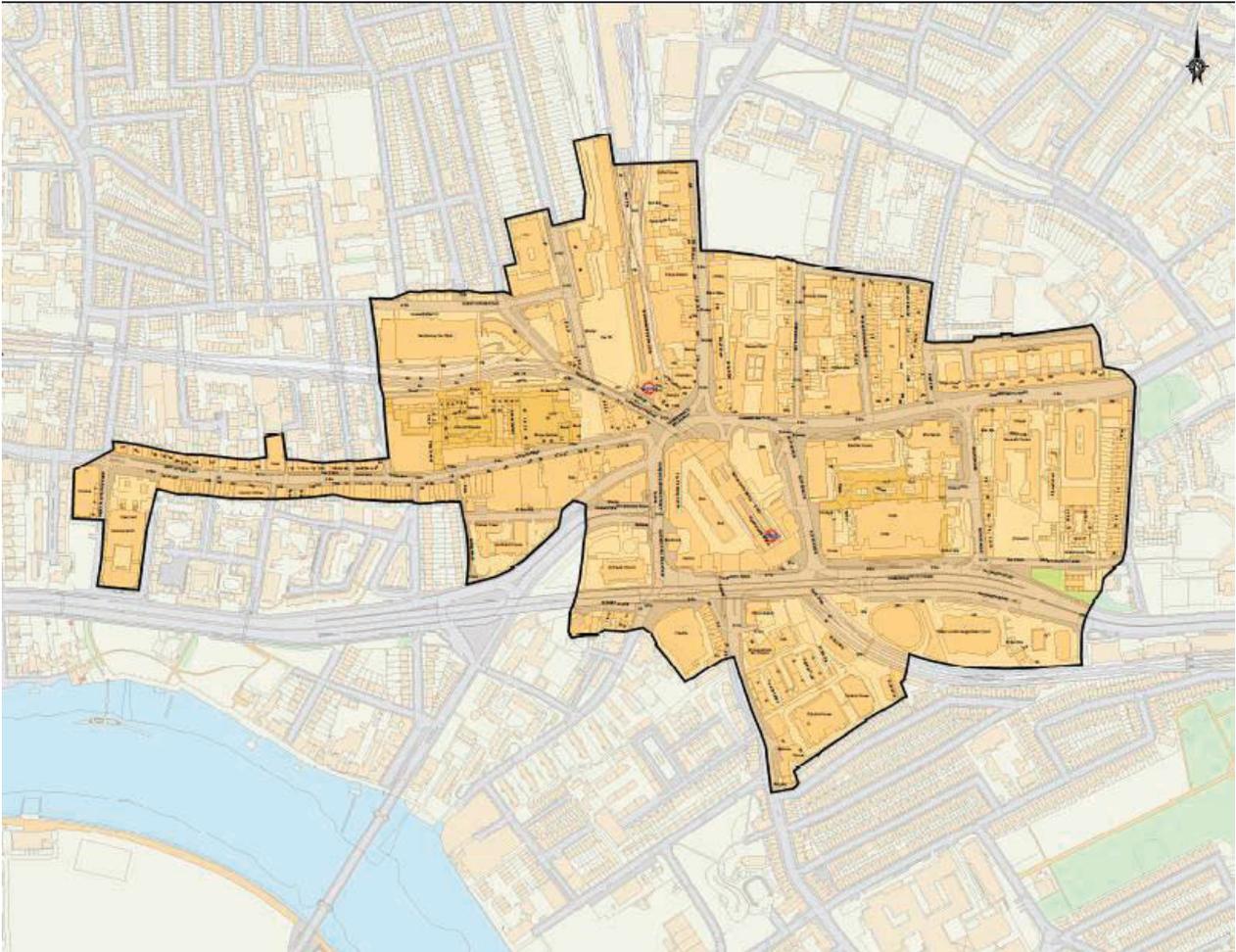
The scope of this study is strictly limited to a high-level qualitative socio-economic analysis due to the fact that consideration of this option is in its infancy and there is a paucity of available data for quantifying the potential impacts. It is outside the scope of the study to quantify in monetary terms the potential impacts of the tunnel identified during the course of the assessment.

Estimates of the costs and durations of the remedial works and the proposed tunnel have been provided based on the official statements by TfL, LBH&F, and the feasibility study undertaken by the CH2M HILL geotechnical team, which coincided with the development of this assessment.

1.4.1 Study area

The study is focused on assessing the impacts of the remedial works and the tunnel specifically on the Hammersmith BID area. The map of the BID area is presented in Figure 1.

⁵ CH2M HILL (2013): Hammersmith Flyunder Tunnel Feasibility Study – Tunnel and Geotechnical Engineering.

Figure 1: Hammersmith BID Area

Source: HammersmithLondon BID

1.4.2 Structure of the report

The remainder of this report is structured as follows:

- Section 2 identifies the baseline economic profile for Hammersmith;
- Section 3 provides baseline facts regarding the flyover remedial works;
- Section 4 provides baseline facts regarding the proposed tunnel;
- Section 5 sets out a high level qualitative assessment of the socio-economic impacts of both the remedial works and the tunnel, and provides case studies of similar developments; and
- Section 6 provides concluding comments.

2. The baseline economic profile of the Hammersmith BID

The Hammersmith BID area (as shown in Figure 1) is a strategically important part of LBH&F, because it serves as a major commercial, retail, arts, cultural and entertainment centre. It incorporates the Town Centre, which alone generates 28% of the total Gross Value Added (GVA) in the Borough⁶. The BID area includes major retail destinations such as the Hammersmith Broadway shopping centre and King's Mall shopping centre, as well as major Hammersmith landmarks including the Hammersmith Library, Hammersmith and Fulham Town Hall, Hammersmith Apollo, Lyric Hammersmith, St Paul's Church and St Paul's Green and the Ark.

The Hammersmith London BID is a business-led partnership of business rate-payers who have voted to fund improvements to the BID area that are additional to those delivered by LBH&F.

In order to appreciate the potential impacts of the remedial works and of the proposed tunnel, it is necessary to set out the baseline economic structure of the local business environment. By drawing on economic data provided by the ONS and the LBH&F, this section sets out a comprehensive baseline profile for the Hammersmith BID area.

2.1 The Study Area

Data to inform the baseline economic profile for Hammersmith includes summary statistics for LBH&F; the Council's draft local economic assessment⁷; the Annual Population Survey and UK Business Counts datasets, which are publicly available on the ONS website, as well as the ONS's Business Register and Employment Survey (BRES).

The BRES data package provides employment data split by Super Output Areas (SOAs), which are a set of geographical areas that were developed by the ONS to improve the reporting of small area statistics.

The data is available for two types of SOAs – the Lower Layer and the Medium Layer super-output areas (MSOAs and LSOAs), defined by population size, with a range of between 1,000 to 3,000 and 5,000 to 15,000 respectively. To build a baseline profile, the boundaries of five relevant LSOAs were used to create a relevant and measurable area. These have been overlaid on the map of the Hammersmith BID as shown in Figure 2.

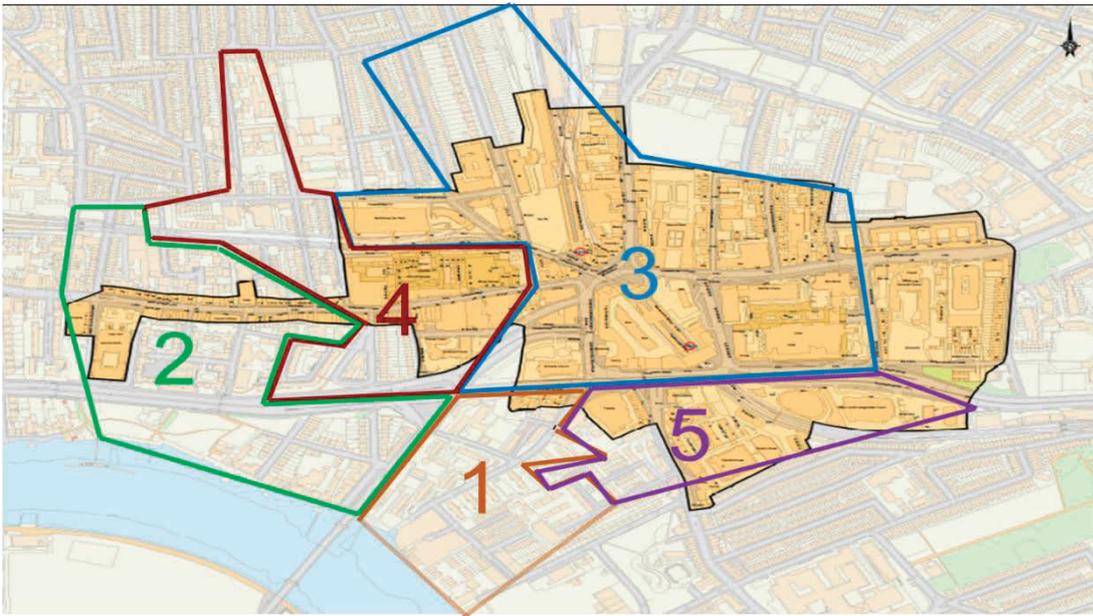
The combined area of these five LSOAs form a Middle Layer Super Output Area (MSOA) that can be referred to as the Hammersmith Broadway area; this MSOA has been used as a proxy for Hammersmith BID throughout the analysis.

Given limited data availability for some statistics, data for the LBH&F was used in instances where statistics were not available for the Super Output Area.

⁶ LBH&F (2013) Draft Local Economic Assessment: http://www.lbhf.gov.uk/Directory/Council_and_Democracy/Plans_performance_-_and_statistics/Local_strategies_and_plans/Borough_strategies/184442_Draft_Local_Economic_Assessment.asp

⁷ Ibid.

Figure 2: Hammersmith BID area split by the ONS LSOAs



Source: Hammersmith BID.

The Lower Layer Super Output Areas included in the analysis were:

- Area 1: This LSOA covers the area between Fulham Palace Road and Hammersmith Bridge;
- Area 2: This area includes the west side of King Street and the LBH&F town hall;
- Area 3: This was the key area for our analysis in that it contains the largest proportion of the BID and the major retail and commercial centre around Hammersmith Broadway;
- Area 4: This area in Hammersmith includes the east side King Street and Kings Mall Shopping and is a major retail centre for Hammersmith; and
- Area 5: This is the area to the south of the current flyover. It includes a commercial district and some key local landmarks including the Ark, HMV Hammersmith Apollo and West London Magistrates Court.

2.2 Baseline Profile

Hammersmith's local economy is predominantly service led. Businesses tend to be small and comparatively young but include high gross value added firms in emerging sectors such as knowledge based industries, creative arts and financial services. The Borough has a very high business density (the number of businesses per thousand residents), ranking 20th nationally and 7th highest in London. This in turn creates a high job density (the number of available jobs in the borough as a ratio of the working age population) with the Borough ranked 19th nationally and 9th in London⁸.

⁸ LBH&F (2013): Draft Local Economic Assessment, http://www.lbhf.gov.uk/Directory/Council_and_Democracy/Plans_performance_and_statistics/Local_strategies_and_plans/Borough_strategies/184442_Draft_Local_Economic_Assessment.asp

The GVA of the Borough, a measure used as a proxy for local Gross Domestic Product (GDP), is estimated to be approximately £9.3bn⁹, with each employee contributing on average £73k. Specific sectors driving the Borough's GVA are real estate and business services, which together contribute almost one third of GVA (£3bn); personal services contribute nearly £2bn, with whole sale and retail contributing £608m.

Using basic prices, and national level GVA data, TBR estimates that the Hammersmith Town Centre has a GVA of £1.5bn (or 28% of the Borough total)¹⁰, despite having a smaller proportion of employees and making up only 7% of the actual land area of the Borough. Each employee in the town centre is estimated to have a GVA that is 25% higher than employees elsewhere in the Borough¹¹.

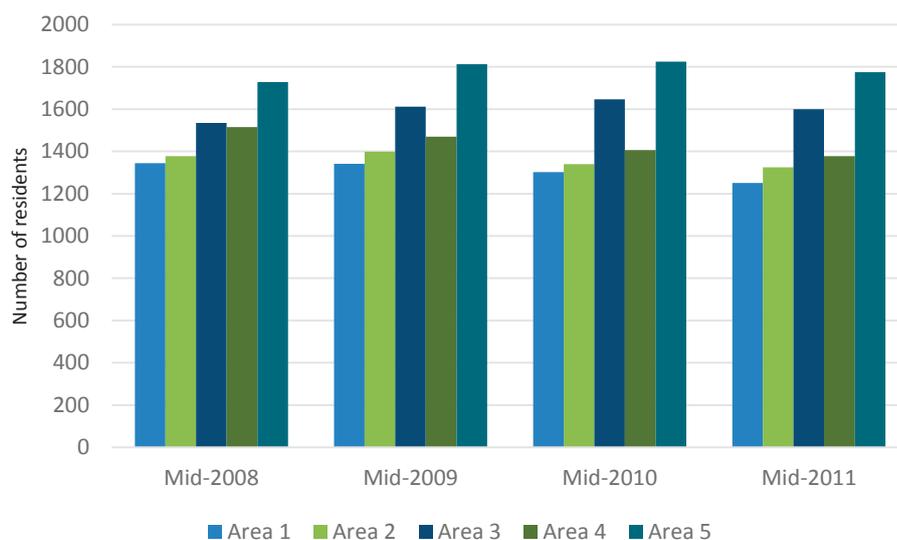
The Borough is an attractive place to live. The rate of house sales is high and house prices are currently at their highest since records began, having recovered well in the post-recession period. Residents report high rates of satisfaction with the Borough as a place to live and high levels of social cohesion. Affordability of housing however remains a significant issue in the Borough, with LBH&F recognizing that it needs to balance the need for affordable housing against employment land – particularly in Hammersmith Town Centre¹².

2.2.1 Population

In 2011 the total resident population of the Hammersmith Broadway (MSOA) was estimated at 7,300 which represents approximately 4% of the total resident population of the Borough.

Population figures for the LSOAs analysed are presented below in Figure 3.

Figure 3: Local resident population split by the ONS LSOAs



Source: ONS¹³.

⁹ TBR Consultants (2009): research commissioned by LBH&F cited in LBH&F (2013): Draft Local Economic Assessment.

¹⁰ TBR Consultants (2009): research commissioned by LBH&F cited in LBH&F (2013): Draft Local Economic Assessment.

¹¹ Ibid.

¹² Ibid.

¹³ ONS(2012): Revised Mid-2002 to Mid-2010 Population Estimates for Lower Layer Super Output Areas in England and Wales by Single Year of Age

Historic data for the five LSOAs shows Area 5 and Area 3 as having the largest number of residents (1,700 and 1,600 respectively in 2011). The total population for the five areas has remained relatively stable over the period 2008 to 2011.

2.2.2 Income

Total average weekly household income for the Hammersmith Broadway MSOA is estimated at £800, with net income estimated at £580¹⁴. Average weekly earnings in the BID are on average 25% higher than the LBH&F average and 21% and 54% above the London and the national figures respectively¹⁵.

2.2.3 Economic Activity and Unemployment

Given limited data availability for the BID area specifically, economic activity and unemployment have been analysed at the Borough level.

2.2.3.1 Economic Activity

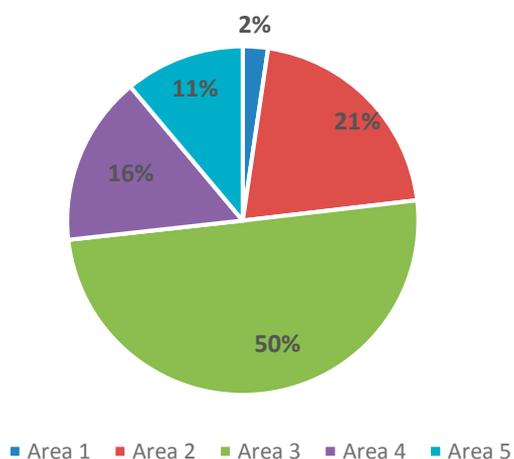
Based on the ONS Annual Population Survey, the number of economically active residents in the LBH&F was estimated to be 96,000 or 76.3% of the Borough's working age population. The figure is marginally below the corresponding economic activity rate for London, as well as below the average for Great Britain.

2.2.3.2 Employment

The total number of jobs in the MSOA Hammersmith Area was approximately 25,000 in 2012¹⁶.

Figure 4 below shows total employment split across the five LSOAs analysed. Area 3 (Hammersmith Broadway) is by far the largest employment location, accounting for approximately 12,000 jobs, nearly 50% of the total jobs in the BID area. Area 1 has the lowest employment level, 500, which represents only 2% of total number of jobs in the BID area.

Figure 4: Employment by area



Source: ONS¹⁷.

¹⁴ONS (2011): Small Area Income Estimates, <http://www.neighbourhood.statistics.gov.uk/HTMLDocs/incomeestimates.html>

¹⁵ONS (2013): Labour Market Profile for Hammersmith and Fulham, <https://www.nomisweb.co.uk/reports/lmp/la/1946157249/report.aspx>

¹⁶ Ibid.

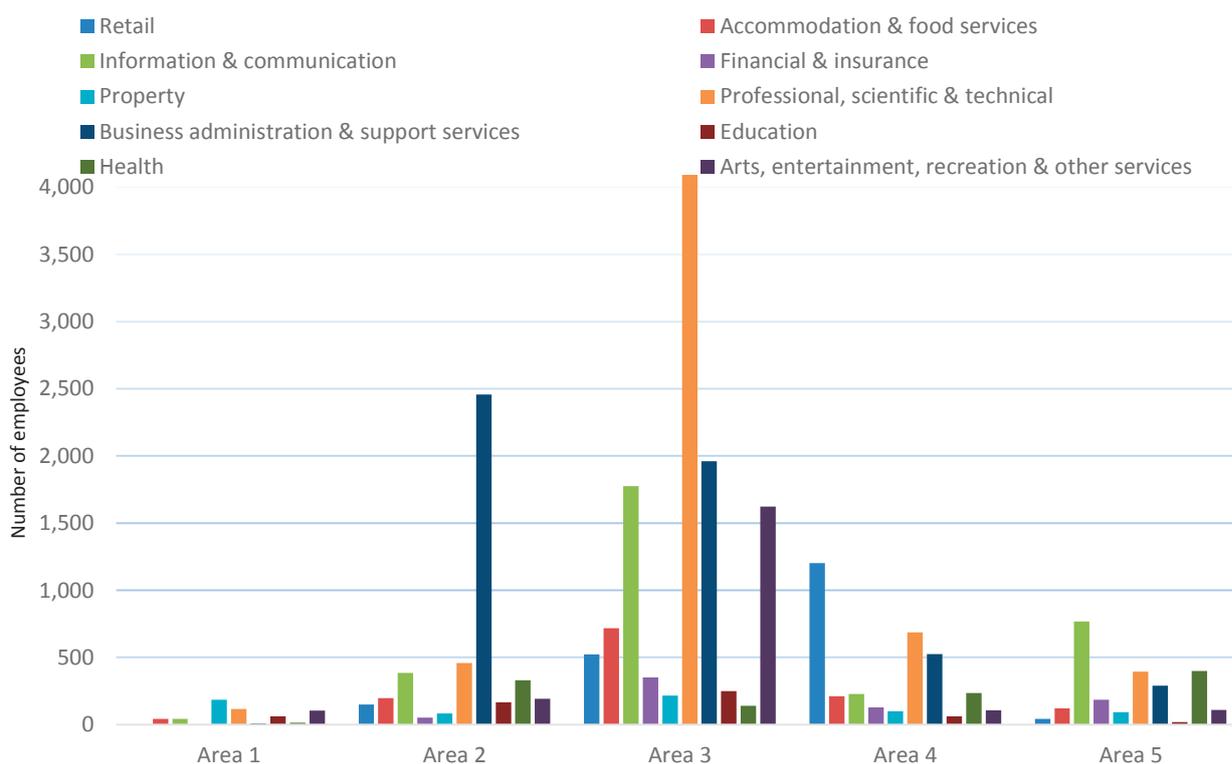
¹⁷ ONS (2012): Business Register and Employment Survey www.nomisweb.co.uk

The total number of registered businesses in the Hammersmith Broadway MSOA, measured from VAT registration details, was estimated to be 9,450 in 2007. The largest sectors by number of enterprises and employment include:

- Professional, Scientific and Technical;
- Business Administration & Support Services;
- Information and Communication;
- Arts, Entertainment, Recreation and Other services; and
- Retail.

Figure 5 shows the employment split by industry sector for the five LSOAs.

Figure 5: Industry sector employment split by the ONS LSOA



Source: ONS¹⁸.

In Area 3 (Hammersmith Broadway) the Professional, Scientific and Technical sector accounts for 4,094 jobs, over a third of the total 12,000 jobs in this LSOA. The Information and Communication sector provides 13% of the jobs, the Business Administration and Support Services sector 15% and the Arts, Entertainment and Recreation sector 12%.

Retail is the largest employer in Area 4 (west end of King Street) providing 1,202 jobs, 30% of the total 4,000 jobs in this LSOA. The Professional, Scientific and Technical sector is the second largest employer with over 650 jobs, 17% of the total.

Employment in Area 2 is concentrated in Business Administration and Support Services, which supports 2,457 jobs (48% of the total for Area 2). The next largest employer is the Professional, Scientific and Technical sector with 643 jobs.

¹⁸ ONS (2012): Business Register and Employment Survey, www.nomisweb.co.uk

Area 5 has a total of 2,546 jobs, of which 768 (30%) are in the Information and Communications sector, 401 (16%) in the Health sector and 395 (16%) in the Professional Scientific and Technical sector.

The unemployment rate in LBH&F is 9%, which is above that for London (8.7%) and Great Britain (7.7%)¹⁹.

2.2.4 Property values

Hammersmith house prices are amongst the most expensive in London, after Kensington and Chelsea, City of Westminster and Camden. The latest data for LBH&F shows that in 2013 the average price of residential property was estimated at £659,798 and had increased by 15.3% year-on-year²⁰.

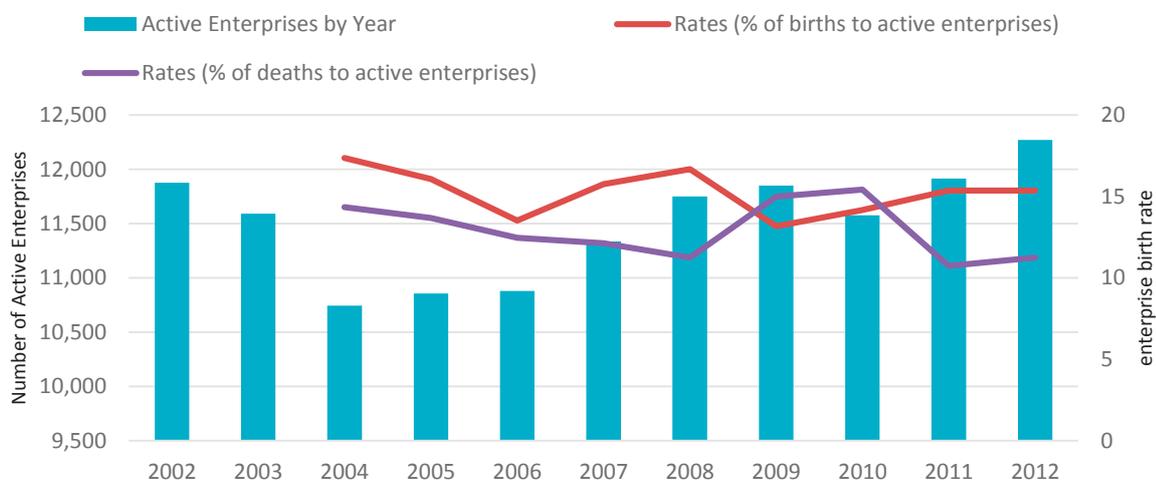
The average house price exceeds that in adjacent west London boroughs such as Richmond upon Thames, Wandsworth, Hounslow, Ealing and Brent by an average of 60%²¹.

2.2.5 Business Environment

2.2.5.1 Business Activity

LBH&F is an active and vibrant business centre as illustrated by 20% higher than average business start-up and closure rates compared to the rest of London²². Figure 6 below shows the number of active enterprises per year and the rates of business start-ups and closures. The data shows that, on average, each year around 15% of total enterprises in the Borough are newly formed enterprises.

Figure 6: Number of active enterprises, enterprise birth and death rates; LBH&F



Source: ONS²³.

¹⁹ ONS (2012-2013): Annual population survey, <https://www.nomisweb.co.uk/reports/lmp/la/1946157249/report.aspx#tabempunemp>

²⁰ Land Registry (2013): House Price Index, http://www.landregistry.gov.uk/data/assets/pdf_file/0020/71192/HPIReport20140122.pdf

²¹ Ibid.

²² LBH&F (2010): Borough profile 2010, http://www.lbhf.gov.uk/Images/Borough%20profile%202010_tcm21-143348.pdf

²³ ONS (2012): Business Demography 2012, <http://data.london.gov.uk/datastore/package/business-demographics-and-survival-rates-borough>

2.2.5.2 Business Mix

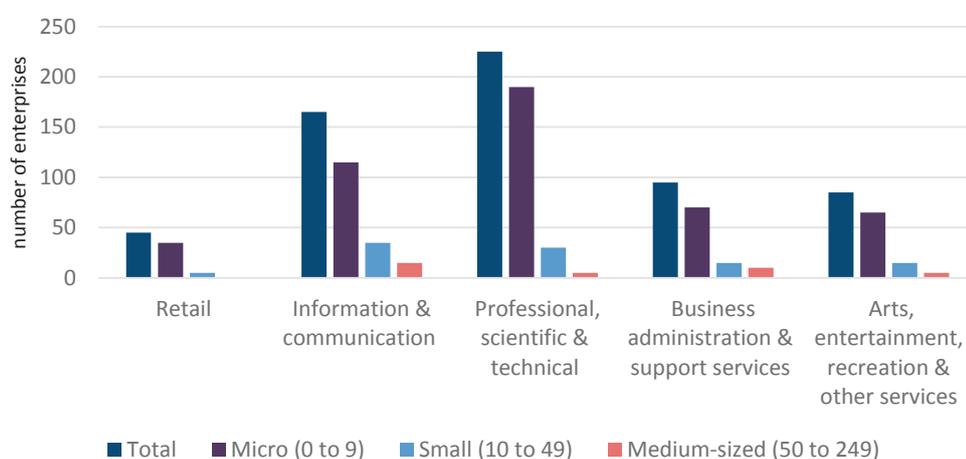
The five largest sectors by number of enterprises in the BID area include:

- Professional, Scientific and Technical;
- Business Administration & Support Services;
- Information and Communication;
- Arts, Entertainment, Recreation and Other services; and
- Retail.

Figure 7 shows the split of enterprises by size, Micro (1 to 9 employees); Small (10-49 employees) and Medium (50-249 employees) for each of the five sectors.

The data was provided by the ONS UK Business Counts dataset and does not include large enterprises with number of employees greater than 250.

Figure 7: Number of sector enterprises for Hammersmith Broadway MSOA by enterprise size.



Source: ONS²⁴.

Over 200 businesses in the Hammersmith MSOA operate in the Professional, Scientific and Technical sector, of which approximately 80% are micro enterprises with 1 to 9 employees. The remaining sectors analysed also show the prevalence of micro and small enterprises. The highest concentration of medium-sized enterprises is in the Information and Communication sector, with 15 Medium sized enterprises.

For each of the five large business sectors in each of the LSOA's we looked at the employment provided by enterprise size²⁵. Enterprise size is defined as follows:

- Micro (1 to 9 employees);
- Small (10-49 employees);
- Medium (50-249 employees); and
- Large enterprises (250+).

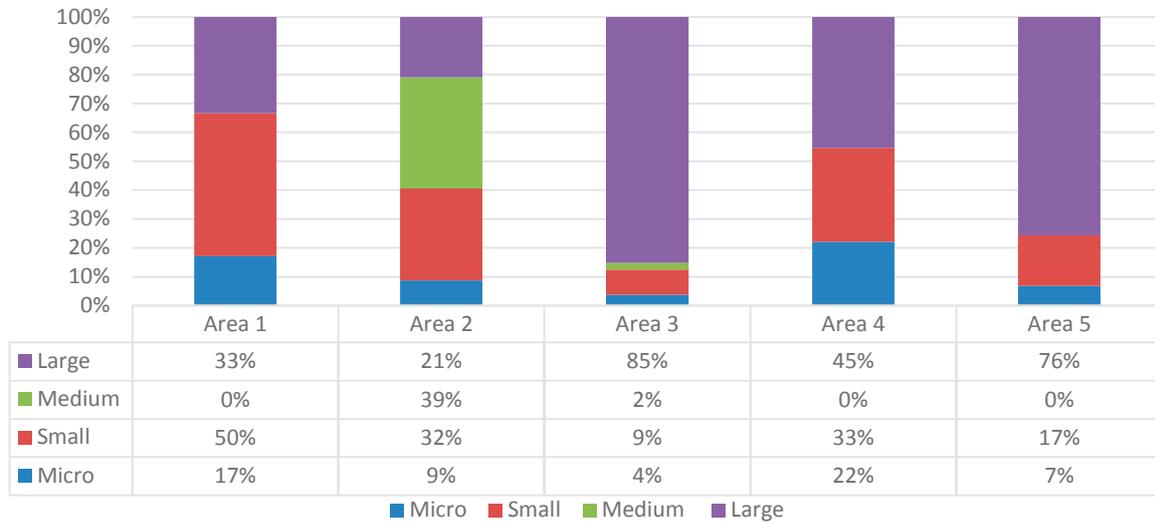
²⁴ ONS (2011): UK Business Counts, www.nomisweb.co.uk

²⁵ ONS (2012): Business Register and Employment Survey, www.nomisweb.co.uk

Professional, Scientific and Technical

The Professional, Scientific and Technical sector employs approximately 5,700 people or 22% of the total BID workforce. Figure 8 shows the proportion of employment for each size of enterprise.

Figure 8: Employment by size of enterprise in each LSOA by the Professional, Scientific and Technical sector



Source: ONS²⁶.

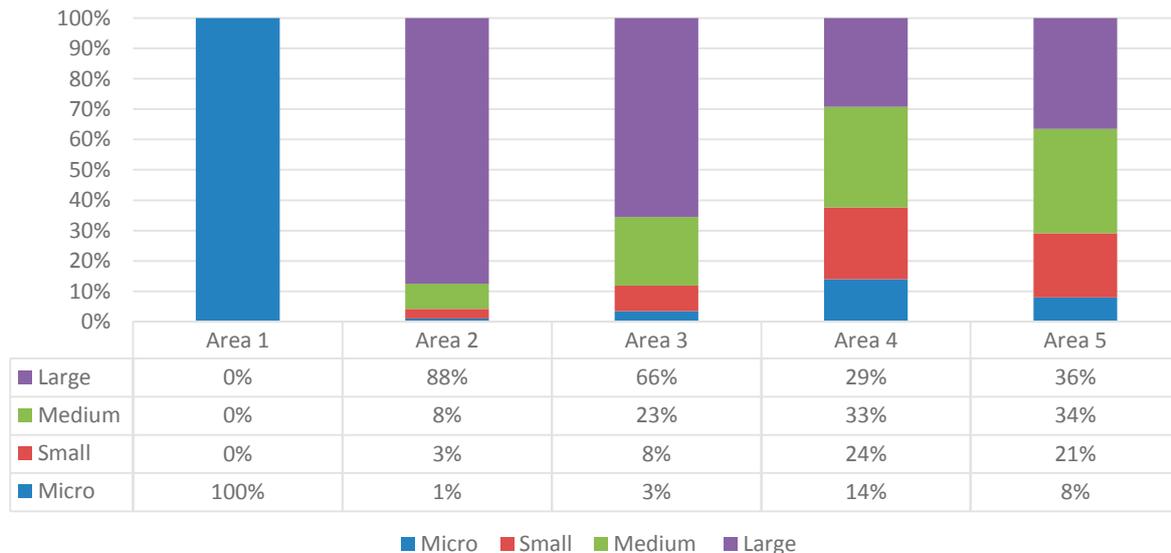
Areas 3, 4 and 5 have the highest proportion of sector employment provided by large enterprises. Small and medium sized enterprises are dominant in Areas 1 and 2.

Business Administration & Support Services

The Business Administration & Support Services sector contributes 20% to total employment in the BID, which is approximately equal to 5,300 employees.

Figure 9 shows the proportion of employment for each size of enterprise.

Figure 9: Employment by the size of enterprise in each LSOA by the Business Administration & Support Services sector



Source: ONS²⁷.

²⁶ ONS (2012): Business Register and Employment Survey, www.nomisweb.co.uk

²⁷ Ibid.

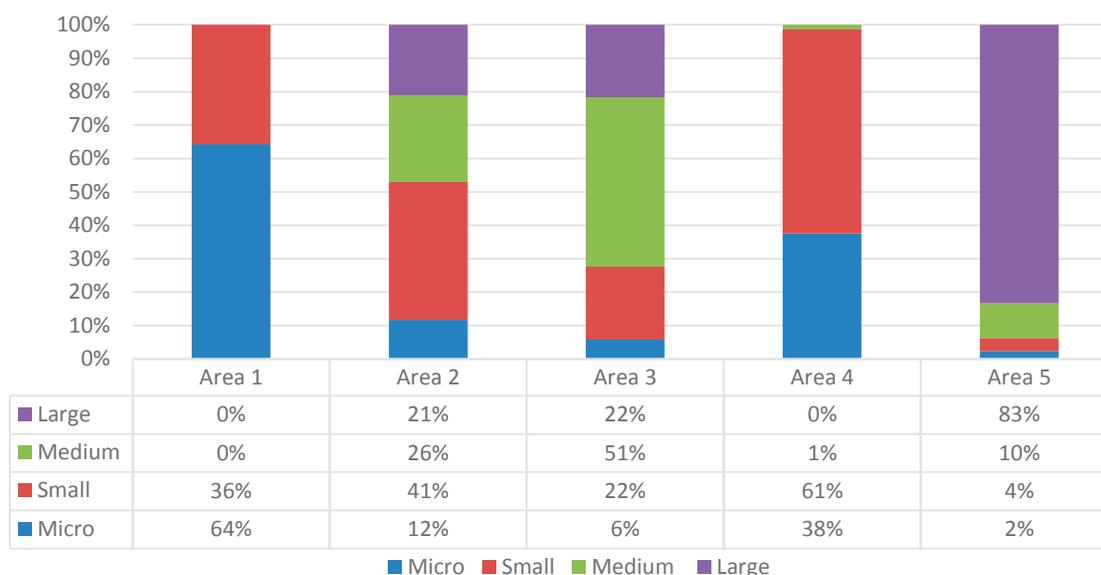
Micro enterprises account for all the employment in Area 1. Large enterprises are dominant in Areas 2 and 3. Areas 4 and 5 have an approximately equal split between the number of people employed by medium and large enterprises.

Information and Communication

The Information and Communication sector employs approximately 3000 people, which is 12% of the total BID workforce.

Figure 10 shows the proportion of employment for each size of enterprise.

Figure 10: Employment by size of enterprise in each LSOA by the Information and Communication sector



Source: ONS²⁸.

Small and micro enterprises employ the majority of the workforce in Areas 1, 2 and 4. In Area 5 over 80% of sector employment is provided by large enterprises.

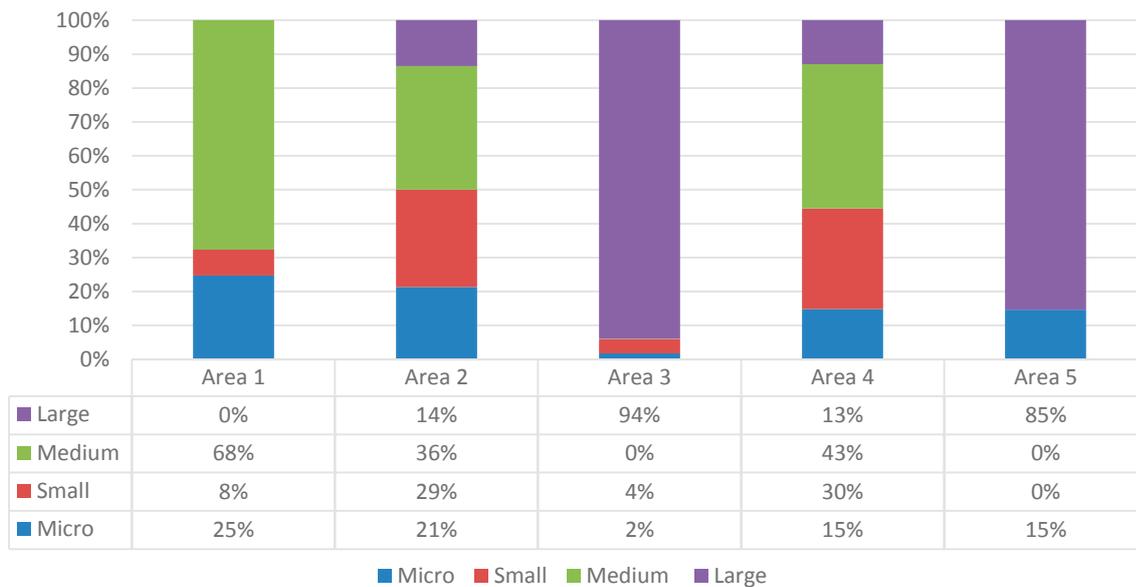
Arts, Entertainment, Recreation and Other Services

The Arts, Entertainment, Recreation and Other Services sector employs approximately 2,000 people or 8% of the total BID area workforce.

Figure 11 shows the proportion of employment for each size of enterprise

²⁸ ONS (2012): Business Register and Employment Survey, www.nomisweb.co.uk

Figure 11: Employment by size of enterprise in each LSOA by the Arts, Entertainment, Recreation and Other Services sector



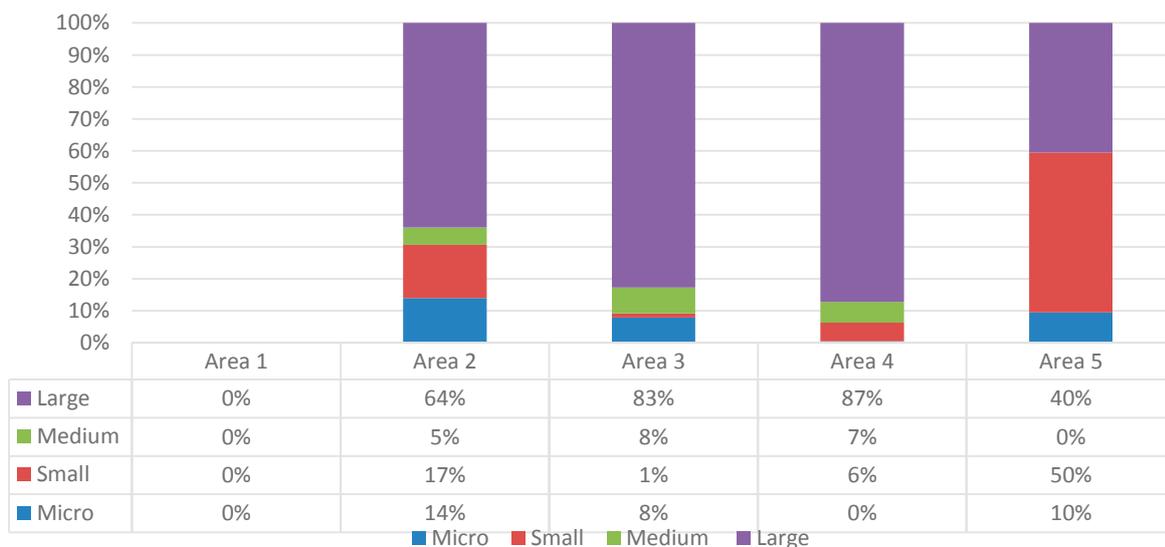
Source: ONS²⁹

Areas 3 and 5 have the largest proportion of jobs in large enterprises, whereas medium-sized enterprises dominate in Areas 1, 2 and 3.

Retail

The Retail sector employs approximately 1900 people or 7.5% of the total BID area workforce. Figure 12 shows the proportion of employment for each size of enterprise.

Figure 12: Employment by size of Enterprise in each LSOA by the Retail Sector



Source: ONS³⁰

²⁹ ONS (2012): Business Register and Employment Survey, www.nomisweb.co.uk

³⁰ Ibid.

Area 1 has no registered retail jobs. For Areas 3 and 4, large enterprises are the main providers of employment, accounting for up to 87% of the total workforce in the LSOA.

2.2.5.3 Floor Space

The Hammersmith BID area is characteristic of London's urban landscape. The BID's total land coverage is 44.70ha of which 38% is occupied by building structures³¹.

The floor space use for LBH&F is presented below in Table 1.

Table 1: Floor space use, LBH&F

Use (m ²)	1995-1997	1998-1999	2002-2003	2007
Storage & Warehousing	308,673	285,229	284,122	247,988
Industry	224,546	193,424	192,117	155,746
Offices	1,080,440	1,051,822	1,154,253	1,263,466
Shops	581,223	576,566	568,546	658,222
Education	393,941	375,460	341,492	255,002
Health	300,165	294,682	260,359	275,579
Public Buildings	655,872	688,260	640,858	595,429
Transport	658,358	637,515	613,856	646,484
Utilities	62,606	52,113	40,395	39,757

Source: LBH&F³².

The table shows that the majority of floor space is dedicated to offices, the number of which grew by 17% between 1995 and 2007.

Transport and retail enterprises are the second and third largest occupiers of floor space in LBH&F.

2.2.5.4 Commuting flow

The Hammersmith BID is the 10th busiest hub on the London Underground network, processing a large volume of traffic relative to its size. Consequently, the townscape is severely impacted by the presence of major roads and pass-through traffic. Hammersmith is also a major underground transport interchange and provides access to four London underground lines – Hammersmith and City, District, Circle and Piccadilly lines. Charing Cross Hospital and Ealing, Hammersmith and West London College are a destination for a large number of commuters.

Commuting flow analysis can give an indication of the number of commuters and other visitors to the Hammersmith area. TfL data shows that in 2012 37.2m people entered and exited the two underground stations in Hammersmith (District and Hammersmith & City lines). This is an overall growth rate of 10% in the number of commuters going through Hammersmith stations since 2007.

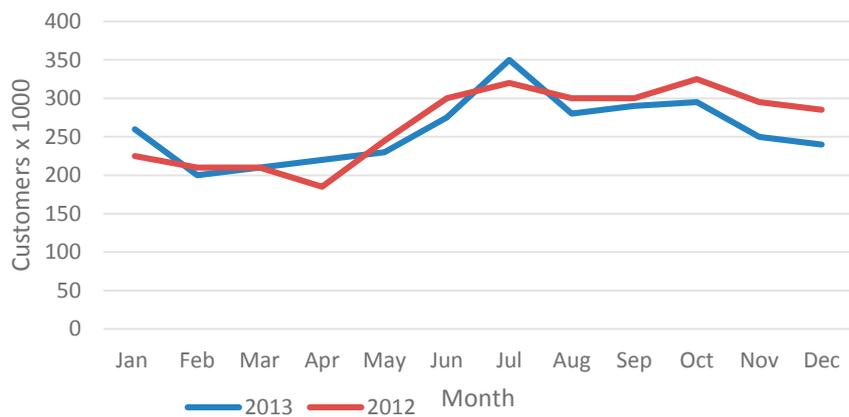
Figure 13 below presents visitor count data downloaded from Springboard, the customer counting and performance measurement device located at the back of Kings Street in Hammersmith³³. The total number of visitors recorded was approximately 3.2m in 2012 and 3.1m in 2013.

³¹ The Ecology Consultancy and The Green Roof Consultancy (2012): Hammersmith Business Improvement District (BID): Green Infrastructure Audit, <http://www.london.gov.uk/sites/default/files/Hammersmith%20BID.pdf>

³² LBH&F (2010): Borough profile 2010, http://www.lbhf.gov.uk/Images/Borough%20profile%202010_tcm21-143348.pdf

³³ Access to Springboard data was provided by HammersmithLondon.

Figure 13: Annual visitor numbers, King Street, 2012-2013



Source: Hammersmith BID.

Summary

The baseline data gathered above suggests that the Hammersmith BID area has the potential to become an energetic and exciting town centre that generates employment and income for its businesses if investment is made in its public realm and the business environment.

The BID area has:

- Captive footfall from a high commuter base;
- An active business profile that would benefit from investment in the surrounding environment; and
- A nearby population that earns above average income and are an excellent potential customer base if investment is made in the retail environment of the BID.

The area is currently heavily disadvantaged by the Hammersmith flyover that splits the town centre and severs the area from the river thus forfeiting the major advantage that could be had from a continuous flow in pedestrian access towards the river and the attendant retail and commercial spend that this could generate.

3. Remedial Flyover Works

In 2012 a two-phase remedial works plan was developed to repair the damage caused by water ingress to the supporting cables and to restore the safety and service life of the existing flyover. Phase 1, covering the emergency works, was undertaken between December 2011 and May 2012. Phase 2, encompassing the work to be completed to extend the lifespan of the flyover, commenced in October 2013 and is expected to continue until the summer of 2015.

Phase 2 of the remedial works for the Hammersmith Flyover is part of the TfL Structures and Tunnels Portfolio which includes the following three work packages:

- Work Package 1 consists of Upper Holloway Railway Bridge and Highbury Corner Bridge on the A1, the A127 Ardleigh Green Railway Bridge and the A406 Power Road Railway Bridge;
- Work Package 2 consists of the A406 Fore Street Tunnel, Chiswick Bridge on the A316 and the reconstruction of the woodlands retaining wall on the A406 near Golders Green; and
- Work Package 3 consists of the second phase of improvement works on the Hammersmith Flyover, following the successful re-strengthening works during spring 2012³⁴.

3.1 Scope of remedial works

The remedial works necessary to return the Flyover to its full operational capacity will include the following key elements:

- Installation of additional structural cables;
- Replacement of bearings underneath the flyover;
- Replacing the drainage system;
- Waterproofing and resurfacing the deck to prevent further damage to the flyover; and
- Strengthening the walls at both ends of the flyover³⁵.

³⁴TfL (2013): TfL appoints design consultants as major road structure improvement portfolio takes shape, <http://www.tfl.gov.uk/corporate/media/newscentre/archive/26758.aspx>

³⁵RBKC (2013): Work to strengthen Hammersmith Flyover begins on 28 October, <http://www.rbkc.gov.uk/pressrelease/pressreleasepage.aspx?id=4540>

3.2 Timeline

Table 2 sets out the timeline of Phase 2 of the remedial works.

Table 2: Remedial works timeline

Type of Work	Start	Finish
Commencement of Phase 2 Remedial Works	28/10/2013	n/a
Installation of Scaffolding	First few weeks starting from late October 2013	-
Central Reservation and Drainage Upgrade	January 2014	June 2014
Concrete Repairs, Replacement of waterproofing, Resurfacing the Flyover Deck	June 2014	September 2014
Strengthening of the walls, replacement of expansion joints	September 2014	December 2014
Completion	Summer 2015	-

Source: RBKC³⁶.

3.3 Affected areas

The locations most affected by construction will include:

- Hammersmith Bridge Road (east and westbound);
- Fulham Palace Road (north and southbound);
- Talgarth Road slips;
- Sussex Gardens; and
- Queen Caroline Street³⁷.

3.4 Traffic Management

Given the scale of disruptions caused by the five month long remedial works in early 2012, TfL emphasised its commitment to minimising the impact of road closures during the second phase of the remedial works and has therefore announced that the road works will take place in the off-peak time between 22:30 p.m. and 05:00 a.m. in order to curtail disruption.

Although TfL has not published a definitive road works timetable outlining all closures that will occur in 2014 and 2015, some preliminary announcements regarding expected closures have been made and these are outlined below in Table 3.

³⁶ RBKC (2013): Work to strengthen Hammersmith Flyover begins on 28 October, <http://www.rbkc.gov.uk/pressrelease/pressreleasepage.aspx?id=4540>

³⁷ London Traffic (2013-2014): Hammersmith Bridge, <http://www.londontraffic.org/hammersmithbridge/>

Table 3: Known road closures

Type of Closure	Start	Finish
Sixty parking bays in Sussex place near the Hammersmith Apollo ³⁸	January 2014	November 2014
Temporary reduction of the width of all lanes. Specific lanes designated for large vehicles. Flyover closures in one direction every few nights	January 2014	June 2014
Limited number of weekend (Friday evening to Monday morning) closures in one direction only	June 2014	September 2014
Further Night time closures	September 2014	December 2014

Source: RBKC³⁹.

3.5 Total Cost

The original cost of the Flyover repairs was estimated at £72.879m. The figure was later revised and an increase in Project authority to £76.779m was approved by the Finance and Policy Committee⁴⁰.

³⁸ LBH&F (2013): Flyover works to close 58 parking bays in Hammersmith, http://www.lbhf.gov.uk/Directory/News/Flyover_works_to_close_58_parking_bays_in_Hammersmith.asp

³⁹ RBKC (2013): Work to strengthen Hammersmith Flyover begins on 28 October, <http://www.rbkc.gov.uk/pressrelease/pressreleasepage.aspx?id=4540>

⁴⁰ Finance and Policy Committee (2013): Hammersmith Flyover Strengthening Phase 2, <http://www.tfl.gov.uk/assets/downloads/corporate/FPC-20131017-Part-1-Item13-Hammersmith-Flyover-Strengthening.pdf>

4. Tunnel Proposal Baseline Facts

CH2M HILL has been commissioned by LBH&F to develop a feasibility study that considers possible route options for the Hammersmith tunnel. The study assesses three major options, each having two sub-options related to the presence/absence of the North/South connections. The list of options is as follows:

Option 1

- a) Online Cut and Cover replacement for the Flyover including portals
- b) As Option 1a with additional North/South connections with Shepherds Bush Road and Fulham Palace Road

Option 2

- a) Bored Tunnel between North End Road and the A4 Sutton Court Road (two lanes per tunnel)
- b) Bored Tunnel between North End Road and the A4 Sutton Court Road (with junctions – three lanes per tunnel)

Option 3

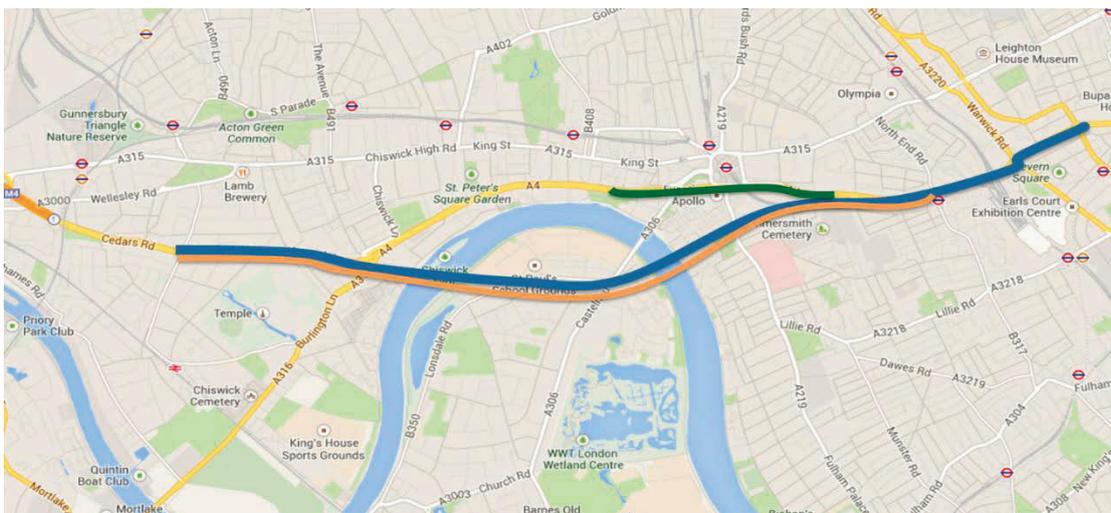
- a) Bored Tunnel between Earl's Court and the A4 Sutton Court Road (two lanes per tunnel)
- b) Bored Tunnel between Earl's Court and the A4 Sutton Court Road (With junctions - 3 lanes per tunnel)

For options 2b and 3b the study also considers the following outline junction connections:

- A316 Burlington Lane to Central London (both ways);
- Shepherd's Bush Road to Heathrow (both ways); and
- Fulham Place Road to Heathrow (both ways).

Figure 14 below was created by the CH2M Hill team and illustrates the proposed location of the tunnel with Options 1, 2 and 3 drawn in green, orange and blue respectively.

Figure 14: Tunnel route options



Source: CH2M HILL⁴¹.

⁴¹ CH2M HILL (2013): Hammersmith Flyunder Tunnel Feasibility Study – Tunnel and Geotechnical Engineering.

4.1 Tunnel Options

Option 1 will have the greatest impact on the Hammersmith BID area since the construction will occur within the boundaries of the BID. This means the area will bear most of the disruption associated with the scheme including traffic congestion, travel delays, and noise. It should be noted that construction employment and local spend by construction workers is not considered as a significant benefit in the benefit appraisal framework due to the temporary nature of this impact.

Options 2 and 3 will likely cause disruption within the BID area from earth transporting trucks going to and from construction sites. The impact of this increased haul traffic could potentially be reduced however through the use of conveyor belts, which allow earth to be removed and loaded onto trucks within the existing construction site and away from the public. An alternative option includes using the river to haul earth away from the construction site.

A summary of the options together with the estimated costs, duration and potential disruptions is provided in Table 4.

Table 4: Tunnel options, summary table

Option	Definition	Construction Method	Cost (£m)	Duration	% of East-West Traffic likely to use the tunnel	Traffic Disruptions	Location of Main Disruption
Option 1a	Online Cut and Cover replacement including portals	Cut and Cover	£212	3 years	100%	Option 1: 18 months; Major disruptions as the flyover will most likely need to be decommissioned and demolished	Hammersmith Town Centre
Option 1b	As Option 1a with additional North/South connections with Shepherds Bush Road and Fulham Palace road	Cut and Cover	£369	4 years	-		
Option 2a	Bored Tunnel between North End Road and the A4 Sutton Court Road (two lanes per tunnel)	Tunnel Boring Machine	£1,210	2-3 years	60%	Option 2&3: 12/18 months; Traffic restrictions will apply due to lanes' closure in both direction; the flyover, however, will remain fully operational	Portal Locations and Drive Site
Option 2b	Bored Tunnel between North End Road and the A4 Sutton Court Road (with junctions – three lanes per tunnel)	Tunnel Boring Machine	£1,702	3-4 years	-		
Option 3a	Bored Tunnel between Earl's Court and the A4 Sutton Court Road (two lanes per tunnel)	Tunnel Boring Machine	£1,297	2-3 years	50%		
Option 3b	Bored Tunnel between Earl's Court and the A4 Sutton Court Road (With junctions - 3 lanes per tunnel)	Tunnel Boring Machine	£1,758	3-4 years			

Source: CH2M HILL⁴² LBH&F⁴³

⁴² CH2M HILL (2013): Hammersmith Flyunder Tunnel Feasibility Study – Tunnel and Geotechnical Engineering.

⁴³ LBH&F (2014): Hammersmith Flyunder Feasibility Study, Report of the Divisional Director.

5. Socio Economic Impacts

5.1 Flyover remedial works

Given TfL's commitment to contain the traffic impact of the flyover remedial works and to limit the works to off-peak and night times, the socio-economic impacts of the remedial works specifically on the BID study area are considered to be negligible.

Benefits

Socio-economic benefits from structural and remedial works to infrastructure assets would be generated by:

- Construction employment sourced from the local area; and
- Local retail spend by the construction work force.

As the BID study area is a narrowly defined area covering commercial and retail space its contribution of construction workers to the project is insignificant, and as the remedial works will be undertaken mostly at night the contribution to retail activity by the construction work force is considered negligible.

Disbenefits

Socio-economic dis-benefits for the BID area would be generated by the:

- Traffic congestion; and
- Noise from the construction works.

Again, these are mitigated by the fact that the works will take place outside of working hours.

Given that the speed limit on the flyover has been reduced from 40 mph to 30mph during the 18 month period of the remedial works and assuming no traffic suppression or diversionary impacts, our high-level estimate of the value of time lost from the imposition of a lower speed limit on the flyover during the remedial works is £5 million. The calculation is detailed in Table 5 below.

Table 5: High-level estimate of value of time lost during remedial works

Vehicles /day	90,000
Days per year	365
Total vehicles/year	32,850,000
Months for flyover repairs	20
Years for flyover repairs	1.67
Total vehicles over 20 months	54,750,000
Flyover Length (meters)	622
Meters per mile	1,609
Flyover Length (miles)	0.39
Minutes to travel on Flyover @ 40mph	0.58
Minutes to travel on Flyover @ 30mph	0.77
Increased time (seconds)	11.60
Value of time (£ / hour) WebTAG	£26.73 ⁴⁴
Seconds per hour	3,600

⁴⁴ Department for Transport (2011): Transport Analysis Guidance (TAG): Value of Times and Operating Costs

Value of time (£ / second)	£0.0074
Value of delay (£ / car)	£0.0861
Value of delay - all vehicles	£4,714,505.83

5.2 The Tunnel

This section of the report looks to identify the potential socio-economic impact of the flyover replacement on the Hammersmith London BID area.

In identifying the socio-economic impacts of the tunnel it is appropriate to refer to the WebTAG transport appraisal methodology developed by the Department for Transport. The likely impacts of the tunnel are included in the following DfT WebTAG categories:

Economy, including:

- Investment in the public realm;
- Land release and development;
- Business investment;
- Employment; and
- Regeneration.

Environmental, including:

- Noise; and
- Air quality.

Social, including:

- Physical activity.

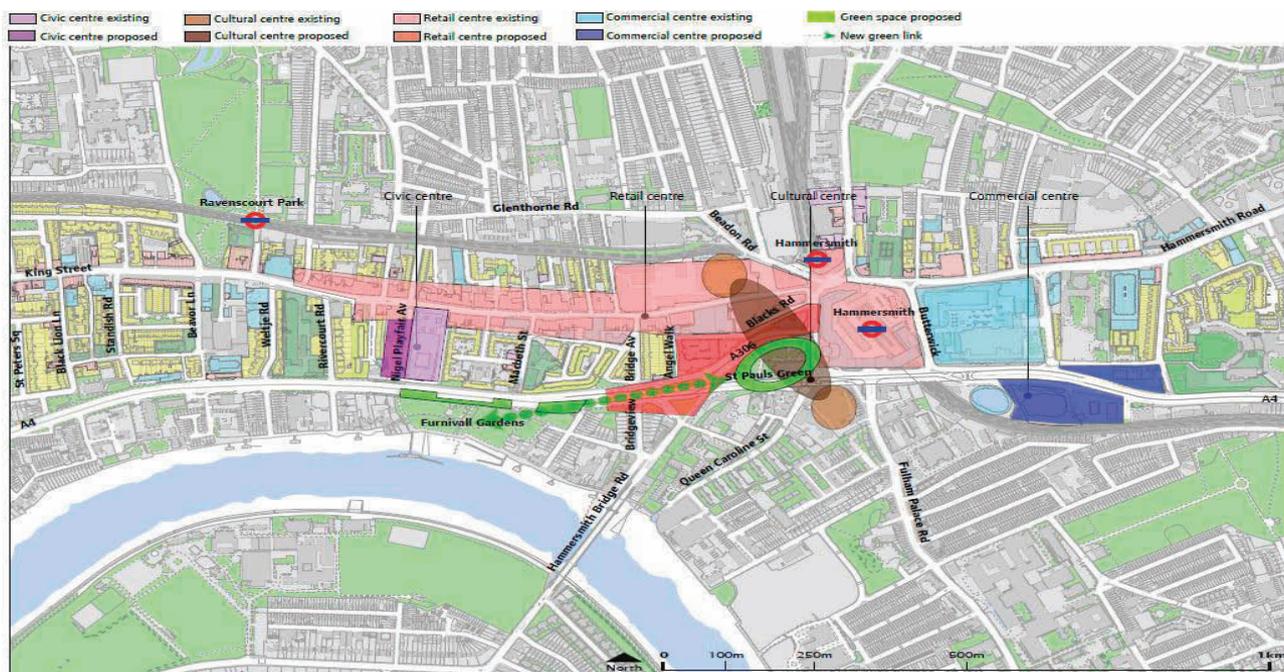
5.2.1 Economy

The most significant economic impact of the proposed tunnel will derive from increased land values for land released for development and from improvements to the public realm.

5.2.1.1 Land Release

Figure 15 shows the area of the land released and the proposed developments in Hammersmith.

Figure 15: Land released and proposed developments in Hammersmith, LBH&F.



Source: LBH&F⁴⁵

The release of land from underneath the flyover for development has significant economic potential.

LBH&F in partnership with the Greater London Authority (GLA) have undertaken a theoretical exercise to estimate the amount of land that could be released by removing the flyover. The estimates show:

- 143,000m² could be provided directly by the removal of the A4; and
- 193,000m² could be provided from development of the A4 on land that could be brought forward in the areas around the A4 and in Hammersmith Town Centre, particularly to the south side of King Street, to open up connections between Hammersmith Town Centre and the River Thames.

The development of this land for residential, commercial and retail purposes is likely to increase the overall land and property values in the BID area and increase the take-up of commercial and retail accommodation especially as the connection with the riverfront will be re-established.

LBH&F is formulating an illustrative Masterplan⁴⁶ to determine potential development opportunities in and around the BID area. In Hammersmith Town Centre, the illustrative Masterplan identifies the potential to construct medium density buildings, ranging from 6 to 8 storeys, with two taller elements suggested, one a replacement building on the site of Landmark House, the other a new building at the junction of King Street and the Hammersmith Gyratory, outside of Hammersmith District and Piccadilly Line station.

The illustrative Masterplan also indicates that there may be the potential for high density buildings on sites to the east of Hammersmith Town Centre, which is seen to be an appropriate location for an expanded office quarter that would present opportunities for large floorplates, helping to optimise development floorspace and value.

To the south of Hammersmith Town Hall and the Riverside Gardens housing estate, there will be opportunities to expand Furnivall Gardens and provide additional residential development.

Further, development opportunities exist around St. Paul's Green to connect the two anchor leisure facilities of Lyric Square Theatre and the Hammersmith Apollo through a series of connected smaller leisure

⁴⁵ LBH&F (2014): A4 Flyunder

⁴⁶ LBH&F (2013): A4 Flyunder Feasibility Study, Valuation chapter and illustrative Masterplan.

destinations, supported by other uses such as retail, office, residential and community developments. There will also be opportunities for the expansion of St. Paul's Green particularly to the south, on the land currently occupied by the A4 Flyover. Local businesses have already expressed support for these proposed developments⁴⁷.

The total development floorspace is estimated to be 363,000m². It is envisaged that approximately 50% of the new floorspace created would be used for residential development, with the other 50% split between office, retail, leisure and community uses⁴⁸.

5.2.1.2 Property value

LBH&F has made some very preliminary and high-level estimations of the potential value of the developed property. Owing to lack of data on commercial and retail development values, LBH&F assume in their estimation that 100% of the land would be used for residential development and calculate that the 363,000m² of floorspace would translate into 4,840 residential units at an average unit size of 75m². Using a current benchmarked sales price for residential units of between £901-£1,000 per square foot, the Council anticipates that development of the land would generate revenue of between £1.59bn and £1.77bn. Construction costs are assumed at 37.5% of this value, based on 30% capital construction cost and 7.5% covering professional fees, contingencies, marketing and finance. Net returns are therefore assumed to be between £0.95bn (at the £901/square foot selling price) and £1.06bn (at the £1000/square foot selling price)^{49, 50}.

5.2.1.3 Rateable value

It is possible to perform a similar high-level preliminary estimation of the potential rateable value of retail and commercial development in the BID area.

The BID's current total land coverage is 44.70ha of which 38% (or 17,000m²) is occupied by building structures⁵¹. The approximate average building height in the BID area is 6 to 8 storeys⁵². We can thus estimate the current floorspace available in the BID to be approximately 119,000m².

Using the initial Masterplan assumption that 50% of the newly developed floorspace would be split between office, retail, leisure and community uses we can assume that 35% would be developed for commercial and retail use, that is 127,050m². This represents an increase in available floor space of 64%.

In 2013 the total rateable value of businesses in the BID was £74m⁵³. Increasing the rateable area by 127,050m² (64%) could increase the rateable value to £153m per annum.

⁴⁷ HammersmithLondon (2013): Transport Forum Group Feedback

⁴⁸ LBH&F (2013): A4 Flyunder Feasibility Study, Valuation chapter and illustrative Masterplan

⁴⁹ LBH&F (2013): A4 Flyunder Feasibility Study, Valuation chapter and illustrative Masterplan

⁵⁰ The estimation has assumed 0% affordable housing, with LBH&F commenting that the viability of the tunnel effectively precludes the provision of affordable housing if the development of the land is required to finance the tunnel (ibid.).

⁵¹ The Ecology Consultancy and The Green Roof Consultancy (2012): Hammersmith Business Improvement District (BID): Green Infrastructure Audit, <http://www.london.gov.uk/sites/default/files/Hammersmith%20BID.pdf>

⁵² LBH&F (2013): A4 Flyunder Feasibility Study, Valuation chapter and illustrative Masterplan

⁵³ Data received from LBH&F Revenues & Benefits Department (H & F Direct).

5.2.1.4 Public Realm

Investment in the public realm⁵⁴ can stimulate the local economy and generate above average private-sector returns. Indeed, improvements in the quality of the public realm has been linked to increased number of visitors and retail spend in an area. Tourism is particularly reliant on high quality public realm⁵⁵. Further, a high quality pedestrian environment and public realm is considered an essential component in creating a positive business environment⁵⁶. This is especially important for the BID area as it has a high concentration of competitive business activity that would benefit from investment in the business environment. Reducing the severance from the river and enhancing connectivity, especially for pedestrians, is likely to have a positive impact for retail businesses.

Investing in open community or public space in a densely populated urban area affords the opportunity to create a more cohesive community and provides an essential safety valve in relieving the stress of urban living⁵⁷. Indeed one indicator of a strong community is the presence and quality of pedestrian activity, especially in the centres of communities⁵⁸.

Furthermore, a well-designed public realm has a positive impact on the perceptions of an area, especially by non-locals⁵⁹, and attracts increased footfall and spend.

Investment in the public realm has been found to have significant and measurable impact on local economies⁶⁰. A high quality public realm contributes to adding value to land and property values within an area.

Economic benefits from an improved public realm are derived from:

- Attracting investment;
- Increasing land and property values;
- Attracting visitors and tourists;
- Enhancing image; and
- Increased business access due to land redevelopment.

LBH&F's illustrative Masterplan⁶¹ identifies opportunities in redeveloping the southern side of King Street in Hammersmith Town Centre as public realm and creating new connections between the Town Centre and the River Thames. In particular, there may be opportunities for a pedestrian friendly boulevard to be created, linking the King's Mall and Lyric Square, through to St. Paul's Green and St. Paul's Church and on to the Hammersmith Apollo and the River Thames. New public open space would be provided through the expansion of Furnivall Gardens and St. Paul's Green. There may also be an opportunity for a 'green link' to be created to connect these two open spaces.

⁵⁴ defined as any part of a city that is available for everyone to see and use without charge at any time including streets, pathways, right of ways, parks, publicly accessible open spaces, squares and any public and civic buildings and facilities,

⁵⁵ ECOTEC (2007): Economic Impacts of the Public Realm, [http://www.northamptonshireobservatory.org.uk/docs/docEconomicImpactofThePublicRealm-FinalReport\[1\]080128141405.pdf](http://www.northamptonshireobservatory.org.uk/docs/docEconomicImpactofThePublicRealm-FinalReport[1]080128141405.pdf)

⁵⁶ Begg, I. (1999): Cities and Competitiveness, <http://www.kulturplan.lixnet.dk/pdf/litteratur/city-competitive-begg.pdf>

⁵⁷ Department for Transport (2004): Transport Analysis Guidance (TAG): The Townscape Sub-objective

⁵⁸ Ibid.

⁵⁹ Frontier Economics Ltd. (2004): Quality of Place and Regional Economic Performance: Draft Evaluation of the Existing Evidence and Investment Checklist

⁶⁰ Centre for Local Economic Strategies (2007): The Contribution of the Local Environment to the Local Economy

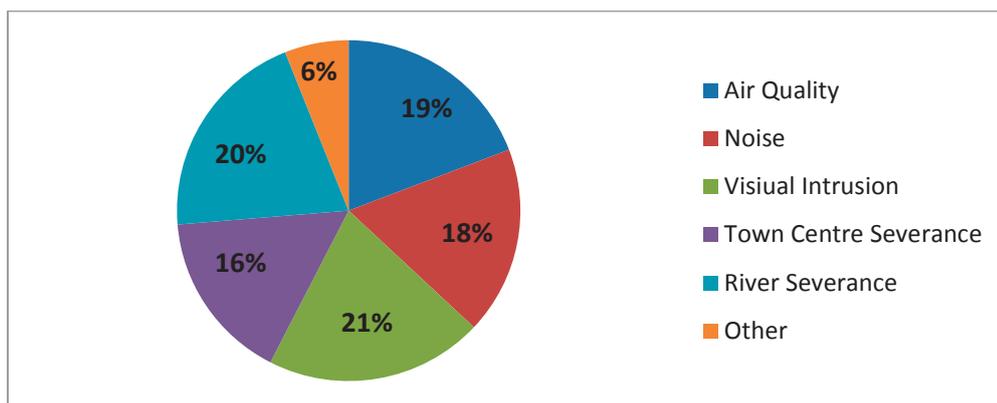
⁶¹ LBH&F (2013): A4 Flyunder Feasibility Study, Valuation chapter and illustrative Masterplan

5.2.2 Environmental

The detrimental health effects of transport caused by air pollution and noise and vibration are recognised by the British Medical Association⁶².

Further, noise and emissions from transport and visual intrusion have been highlighted by LBH&F residents to be amongst the most important disadvantages of the flyover (see Figure 16 below, responses from resident survey on the tunnel option). All of these impacts would be solved by the flyover's replacement with a tunnel.

Figure 16: What are the current problems that you would like to see the tunnel overcome? LBH&F Survey Results



Source: LBH&F⁶³.

5.2.2.1 Noise

The tunnel will take a substantial amount of traffic underground. The flyover currently carries approximately 90,000 vehicles a day. The speed limit on the flyover is 40mph although cars have been known to travel at speed exceeding 65mph, particularly at night. A passenger car travelling at 65mph at a distance of 25ft generates 77dB of noise, well above what is considered annoyingly loud by many people⁶⁴. Noise barriers have been installed on the flyover to mitigate the noise annoyance, nonetheless there is a potential positive benefit to burying the flyover and reducing the noise annoyance experienced by nearby residences at night.

There is a further effect to be considered, that of noise on property prices. Detailed noise studies would have to be conducted to quantify the effect for Hammersmith but it is meaningful to note that a tunnel could have a positive impact on property prices through noise alleviation.

It should be noted however that there will very likely be negative noise impacts associated with the construction process.

5.2.2.2 Air quality

The area around Hammersmith flyover lies within an Air Quality Management Area (AQMA), where the probability of achieving the air quality objectives is estimated to be low. Hence, the local air quality will be an important consideration for the design of the proposed tunnel.

The Hammersmith and Broadway area is densely populated by customers, employees and local residents. Burying the flyover is likely to have a positive impact on the air quality experienced by the residents and users of this area.

⁶²British Medical Association (1997): Road Transport and Health, <http://trid.trb.org/view.aspx?id=473648>

⁶³ LBH&F (2013): Survey provided to CH2M HILL

⁶⁴ Industrial Noise Control (2000): Comparative Examples of Noise Levels, <http://www.industrialnoisecontrol.com/comparative-noise-examples.htm>

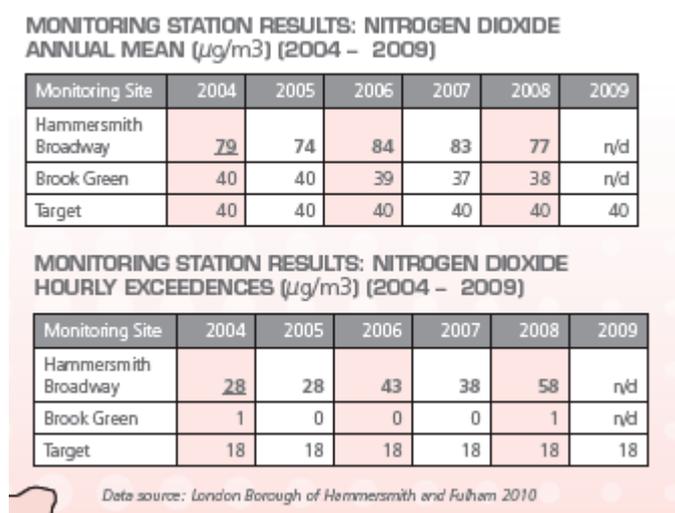
5.2.2.3 Pollutants

There are two Government targets for Nitrogen Dioxide:

- (i) No more than $40\mu\text{g}/\text{m}^3$ (micrograms per cubic metre) for the annual average and
- (ii) An hourly target of no more than 18 hours above $200\mu\text{g}/\text{m}^3$ in a year.

Both targets have continuously been missed at Hammersmith Broadway over the past ten years of monitoring. Most of the excesses have been recorded at those sites closest to the flyover and other main roads such as Hammersmith Broadway, the Westway, Talgarth Road and Fulham Broadway⁶⁵. Figure 17 shows the Nitrogen Dioxide monitoring station results between 2004 and 2009 while Table 6 extends the observations to 2012.

Figure 17: Monitoring station results: Nitrogen Dioxide annual mean and hourly exceedences; LBH&F (2004-2009)



Source: LBH&F⁶⁶.

Table 6: Nitrogen Dioxide annual mean concentration, Hammersmith

Site ID	Site Type	Within AQMA?	Annual Mean Concentration ($\mu\text{g}/\text{m}^3$) - Adjusted for Bias			
			2009 (Bias Adjustment Factor = 0.92)	2010 (Bias Adjustment Factor = 0.93)	2011 (Bias Adjustment Factor = 0.94)	2012 (Bias Adjustment Factor = 1.01)
HF32 (Hammersmith Broadway)	Urban Roadside	Y	72	72	64	67
HF63 (Talgarth Road)	Urban Roadside	Y	58	59	48	56

Source: LBH&F and RBKC Environmental Quality Office

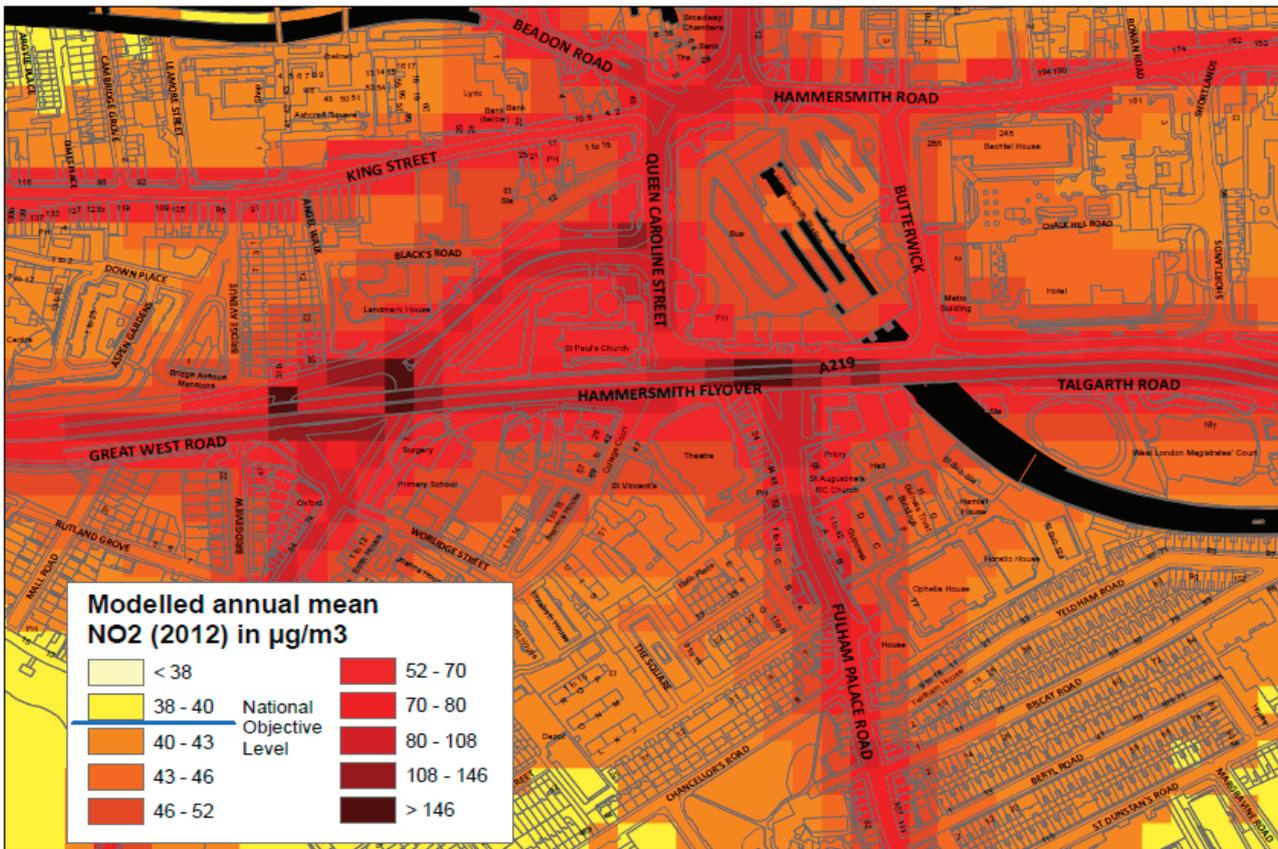
NO_2 levels at Hammersmith and Broadway have exceeded the air quality target of $40\mu\text{g}/\text{m}^3$ every year between 2004 and 2012.

Figure 18 and Figure 19 illustrate the distribution of annual mean NO_2 and PM_{10} exceedence across the Hammersmith area.

⁶⁵ LBH&F (2010): Borough profile 2010, http://www.lbhf.gov.uk/Images/Borough%20profile%202010_tcm21-143348.pdf

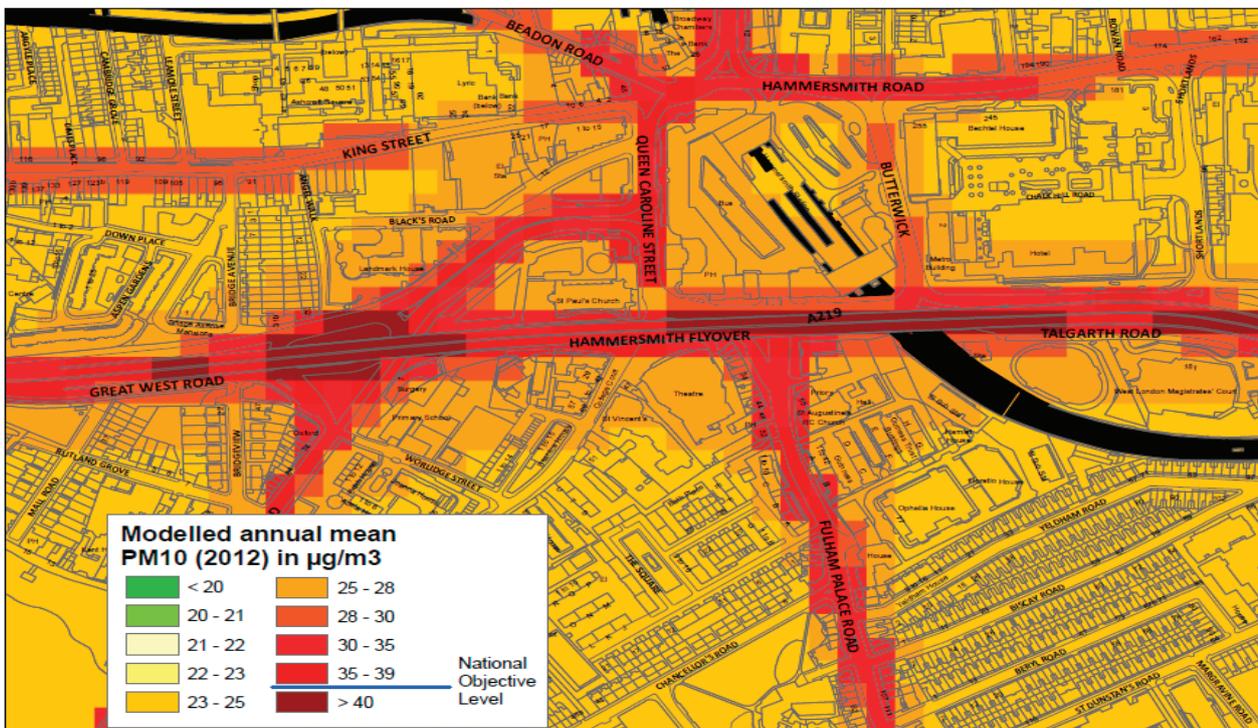
⁶⁶ Ibid.

Figure 18: NO₂ annual mean exceedence, 2012



Source LBH&F and RBKC Environmental Quality Office.

Figure 19: PM₁₀ annual mean exceedence, 2012



Source LBH&F and RBKC Environmental Quality Office.

In the case where tunnels redirect traffic underground pollution becomes concentrated, as opposed to being spread out along the length of an overground road. In the case of the Hammersmith tunnel, CH2M Hill is of the preliminary opinion that the net impact on air quality around the tunnel portals is probably neutral. Since Hammersmith is a densely populated area, air pollution control devices will need to be used to mitigate any adverse impacts on air quality. With these in place, the benefit in terms of air quality to the Hammersmith Town Centre is likely to be positive.

Tunnel development would need to comply with LBH&F's Development Management Local Plan policy DM H8 and the relevant London Plan policies. LBH&F would require an assessment of the NO₂ and PM₁₀ emissions from traffic, as well as any energy plant that might be required to run any ventilation plant⁶⁷.

In developing the detailed proposal for the tunnel the following will therefore need to be considered:

Ventilation

- Careful siting of any flue/ventilation outlets, having regard for sensitive receptors; and
- An appropriate height for any chimney flues/outlets must be determined to ensure adequate dispersal of emissions at appropriate locations and to avoid fumes being entrained in ventilation intakes where applicable.

Transport

- An assessment of the traffic to determine if traffic levels will increase as a result of the development; and
- A dispersion modelling exercise that includes the emissions from traffic and the impact of the tunnel structure on dispersion⁶⁸.

5.2.3 Social

5.2.3.1 Reducing severance

Removing the flyover and thus undoing the severance it causes to the Hammersmith Town Centre has the potential to provide significant positive impacts to the local community by unifying the Town Centre and thus connecting communities and people together through a well developed public and civic space. Furthermore, the local business community is also likely to benefit from a unified town centre that enables a freer flow for retail and commercial customers, especially pedestrians, as well as creating a connection with the Thames riverside that could attract a considerable number of visitors.

5.2.3.2 Evidence of Local Support

LBH&F has held a number of engagement meetings with local residents to discuss the tunnel scheme options and to collect their views⁶⁹. According to LBH&F, the Hammersmith tunnel scheme received substantial support from the local residents, with over 80% of respondents to a council poll backing some form of tunnel replacement⁷⁰ and council survey responses indicating that approximately 89% of respondents agree or strongly agree with a tunnel going ahead⁷¹.

The local business community is also supportive of a tunnel scheme that will release the land from underneath the flyover and improve connectivity with the river and between Hammersmith's existing commercial facilities. Specifically, removal of the flyover and commercial development of the area around the Ark is believed to significantly benefit the BID area⁷².

⁶⁷ LBH&F Environmental Quality Office (2014): data provided to CH2M HILL.

⁶⁸ Ibid.

⁶⁹ For example the Hammersmith Flyunder Summit held on 9 October 2013

⁷⁰ LBH&F (2014): Hammersmith 'Flyunder' options to be revealed, http://www.lbhf.gov.uk/directory/news/hammersmith_flyunder_options_to_be_revealed.asp?LGNTF=1

⁷¹ LBH&F Survey (2013): provided to CH2M HILL

⁷² HammersmithLondon (2013): Transport Forum Group Feedback

Local businesses are further supportive of residential uses being incorporated into the town centre, contributing to the vibrancy of the area in the evening⁷³.

There is a general desire by the local community for improvements in the appearance and quality of new developments in the BID area⁷⁴.

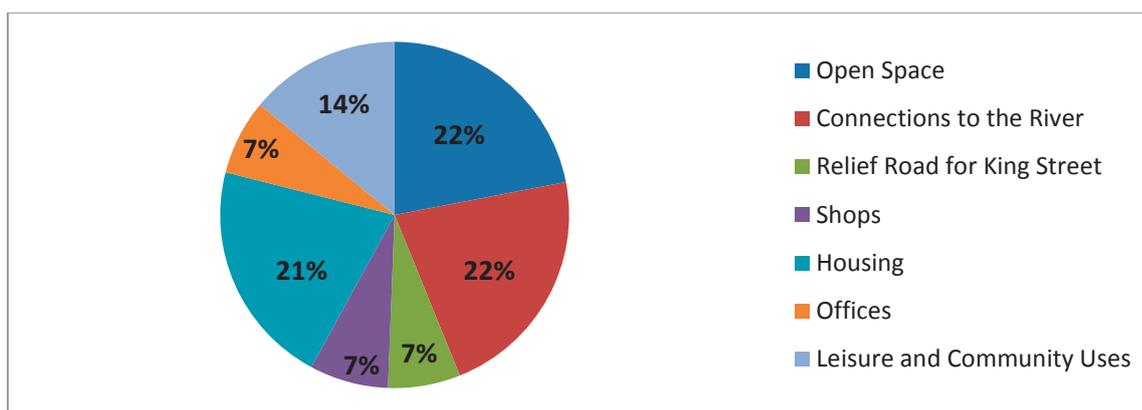
5.2.3.3 Physical activity – Walking and Cycling

The Government's White Paper⁷⁵ aims to encourage physical fitness by reducing the reliance on private cars and making it easier to cycle and walk more frequently. The A4 flyover cuts through the town centre hindering pedestrian and cycle movements and reducing access to the river⁷⁶.

The release of land from underneath the flyover for the development of a well-designed, pedestrianized public realm is a recognised way of achieving this aim. Creating more streets for pedestrians may significantly improve journey quality.

LBH&F residents recognise this use for the reclaimed land from underneath the flyover as more significant than commercial development, as is evident from Figure 20, a summary of an LBH&F survey conducted to assess resident views on the use of recovered land.

Figure 20: What should any land freed up by the removal of the flyover be used for? LGH&F Survey Results



Source: LBH&F⁷⁷.

In contrast it bears taking into account to what extent the tunnel would cause more traffic on secondary over ground routes in Hammersmith. The impact on pedestrian journey quality may be negative if secondary traffic is expected to increase.

⁷³ Ibid.

⁷⁴ Ibid.

⁷⁵ (DETR 1998): Transport White Paper, A New Deal for Transport: Better for Everyone, <http://webarchive.nationalarchives.gov.uk/+/http://www.dft.gov.uk/about/strategy/whitepapers/previous/anewdealfortransportbetterfo5695>

⁷⁶ The Ecology Consultancy and The Green Roof Consultancy (2012): Hammersmith Business Improvement District (BID): Green Infrastructure Audit, <http://www.london.gov.uk/sites/default/files/Hammersmith%20BID.pdf>

⁷⁷ LBH&F Survey provided to CH2M HILL in December 2013.

5.3 Case studies

We have included a number of case studies of developments similar to the proposed scheme of a tunnel of the Hammersmith flyover in order to provide examples of how the range of potential benefits discussed above have been realised.

5.3.1 A3 Hindhead Improvement

5.3.1.1 Overview

The Hindhead Tunnel is a dual carriageway tunnel that has recently replaced a part of the A3 trunk road between London and Portsmouth carrying over 28,000 vehicles a day. Prior to its replacement, this area of the A3 suffered from heavy congestion, causing additional gridlock to the Hindhead town centre.

The scheme, which cost, was the longest non-estuarial tunnel in the UK. It comprises a 1.8km twin bore tunnel underneath the Devil's Punch Bowl Site.

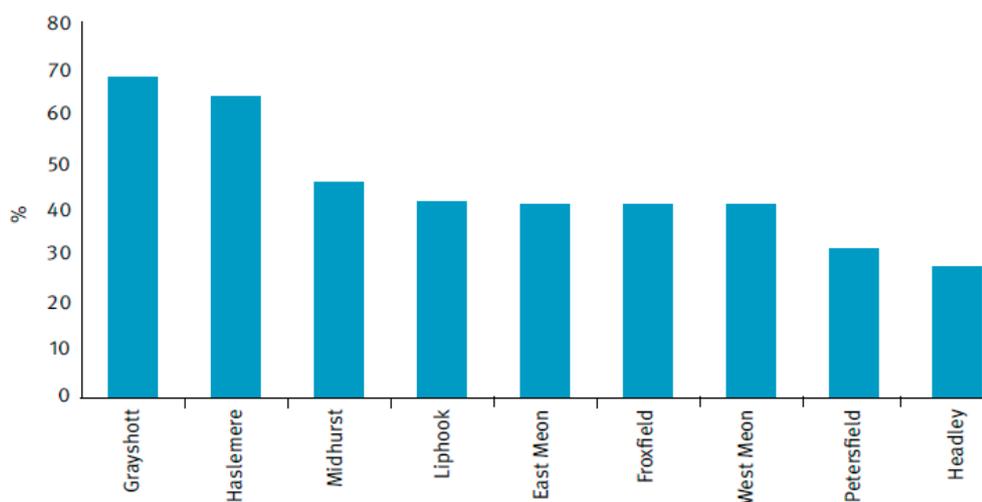
5.3.1.2 Reported Impacts

The tunnel was estimated to alleviate a considerable amount of traffic as well as reduce journey times. Journey times were estimated before and after the tunnel was completed. A delay during the peak-time congestion was seen to be reduced from 25 minutes to an average of 5 minutes, the monetised benefit of which was estimated at £240m. Further, potential regeneration benefits could stem from the traffic relief in the Hindhead town centre⁷⁸.

Knight Frank claim the tunnel construction to have a positive impact on the demand for property in the local area. It has been estimated that local property values could increase by up to 5%, attracting buyers who previously avoided the area south of Hindhead due to constant congestion problems.

It is anticipated that improved journey times will also lead to a growth in buyer activity in a 30-minute catchment area around Hindhead. Strong growth in property values has been documented since 2002 when the Hindhead Tunnel scheme was commissioned by the Highways Agency. These figures are shown in Figure 21.

Figure 21: Growth in house prices in areas around the Hindhead Tunnel (since 2002)



Source: Knight Frank ⁷⁹.

⁷⁸ Knight Frank (2011): Hindhead Tunnel Opens July 2011, An Analysis of the benefits for Hampshire and West Sussex, <http://my.knightfrank.com/research-reports/hindhead-tunnel-.aspx>

⁷⁹ Knight Frank (2011): Hindhead Tunnel Opens July 2011, An Analysis of the benefits for Hampshire and West Sussex <http://my.knightfrank.com/research-reports/hindhead-tunnel-.aspx>

An appraisal of the potential impacts of the Hindhead Tunnel undertaken by the Highways Agency is outlined below:⁸⁰

Noise

A qualitative assessment of noise reduction showed the number of people annoyed by noise dropped from 307 to 272 before and after the scheme. Significant reductions in the level of noise would occur in area within Hindhead Common and the Devil's Punch Bowl.

Landscape

The long term landscape impact was considered to be slightly beneficial due to the re-routing of traffic underground and the removal of the highway from the Devil's Punch Bowl and Hindland Common.

Townscape

The impact on the local townscape has been assessed as moderately beneficial due to the removal of traffic from the closed section of London Road. The extent of the benefits largely depend on the streetscape improvement schemes implemented after the tunnel completion. Overall improvements in the journey ambiance for nearly 36,000 road users a day are anticipated.

5.3.2 Alaskan Way Viaduct, Seattle

5.3.2.1 Overview

The Alaskan Way Viaduct, built in 1953, carries approximately 110,000 vehicles on State Route 99 from the SoDo neighbourhood to South Lake Union and is one of the two north-south traffic corridors in Seattle. The replacement was initiated to solve the road's traffic problems, as well as improve safety and free up public space for residential and business developments and recreational areas. The project is currently under construction, scheduled for opening in late 2015.

5.3.2.2 Reported impacts

Value of Existing Properties

The analysis undertaken by Allen Brackett Shedd (ABS) for the Viaduct replacement evaluated potential scheme benefits in terms of higher property values stemming from enhanced viewsapes, improved accessibility and reduced noise, vibration and pollution. The property values in the study area adjacent the Viaduct were estimated to rise by 3% to 25% as a result of the proposed replacement.⁸¹

Table 7: Property value benefits to the four surrounding areas and total benefits, Alaskan Way

	Benefits to 4 surrounding areas	Benefits to the total 12 areas
"High-range"	\$750m	\$880m
"Most probable" range	\$370m	\$450m
"Low-range"	\$190m	\$230m

Source: Glenn Pascall⁸².

Annual property tax revenue

- Additional \$3.6m in property tax revenue.

Impact on future development

- The study estimated a potential build-out value of over \$ 3 billion excluding land value; and

⁸⁰ UK Government Web archives: http://webarchive.nationalarchives.gov.uk/20120810121037/http://www.highways.gov.uk/roads/documents/AST_A3_Hindhead.pdf

⁸¹ Glenn Pascall, M.A.(2006): Alaskan Way Viaduct Replacement Project. A comprehensive assessment of benefits

⁸² Ibid.

- It has been concluded that the area closest to the Viaduct location has a greater probability of being redeveloped, which can also have a ripple effect on redevelopments in other areas.

Public realm improvements

- The project is seen to result in significant public realm improvements in terms of development of new public green spaces and boulevards. Consequently, the area is estimated to see an increase in tourist visits of between 2.5%-5%, which would translate into total additional spending of \$162-\$325m and tax revenue of \$7.5-\$15m.

5.3.3 Heart of the City, Sheffield Town centre

5.3.3.1 Overview

In 1995 the Millennium Commission awarded £22.7m towards Sheffield's city centre public realm improvement projects. This was later complemented in 2003 by further £1.5m grant to redesign the Millennium square.

Phase 1 was completed in 1999 and involved delivery of three projects including the Peace Gardens, Town Hall Square and Surrey streets.

5.3.3.2 Reported impacts

Town centre redevelopment had a substantial impact on the number of visits to the area as evidenced by the footfall surveys estimating the net additional visits to the area at 1.75m. Assuming an attribution range of 20%-44%, the increase in footfall associated solely with the redevelopment scheme was estimated at 0.35-0.77m visitors per annum⁸³.

Additionally, average additional spend per shopping visit has increased by £12, 7% of which has been attributed directly to the Peace Gardens public realm redevelopment project. Based on these estimated the total increase in shopping expenditure resulting from the project stands at £4.2m⁸⁴.

Similarly, the study also assessed the change in leisure related expenditure. The results show a net increase of £7 per person per year, which translates into the total additional expenditure of £0.3m⁸⁵.

The project also delivered some notable benefits in terms of rental uplift and yield improvement. With the attribution factor set at 40%-60%, the project's net impact has been a £1.60-£2.40/square foot increase in prime Grade A office rental value as well as 1-1.5% yield improvement⁸⁶.

5.3.4 Bjørvika Tunnel, Oslo

The Bjørvika Tunnel buried a major road in the centre of Oslo, allowing for the creation of Fjord City, which will deliver 15,000-20,000 jobs and 400,000m² of residential space. The project also includes new pedestrian and cycle paths and public transport lanes⁸⁷.

5.3.5 Plymouth – Armada Way

This is an over 14.5 meters wide, 1.6 km long street stretching from the railway station to the city centre, and is a key transport link for pedestrians.

⁸³ GENECON: Research & Evaluation of Public Realm Schemes, http://www.integreatplus.com/sites/default/files/genecon_public_realm_evaluation_sheffield.pdf

⁸⁴ GENECON: Research & Evaluation of Public Realm Schemes, http://www.integreatplus.com/sites/default/files/genecon_public_realm_evaluation_sheffield.pdf

⁸⁵ Ibid.

⁸⁶ Ibid.

⁸⁷ Steer Davies Gleave (2012): Roads International Case Studies, <http://www.tfl.gov.uk/assets/downloads/corporate/tfl-roads-review-part-a.pdf>

Combined with new commercial enterprises such as Drake's Circus Shopping Centre, the public realm improvements have helped to create a more legible city centre, promoting easy access for pedestrians, and a safer, more pleasant streetscape that is more conducive to attracting customers. The development of the new public square has attracted a number of markets, such as Christmas and food markets, with associated increases in the number of visitors to the city centre. The square also hosts a regular farmers market which proves to be extremely popular amongst businesses and consumers. This event attracts 120 stalls and an estimated 100,000 people over 3 days. In all, approximately 75 market days are hosted throughout the year.

It is anticipated that the next stage of the development, which will include a landscaped area and pavilion, should promote more street activity and an alternative space for cultural events and performances⁸⁸.

The regeneration of Armada Way has provided a venue for markets, which generates a surplus of £100,000 per annum⁸⁹.

⁸⁸ ECOTEC (2007): Economic Impact of the Public Realm. A final Report to the East Midlands Development Agency, [http://www.northamptonshireobservatory.org.uk/docs/docEconomicImpactofThePublicRealm-FinalReport\[1\]080128141405.pdf](http://www.northamptonshireobservatory.org.uk/docs/docEconomicImpactofThePublicRealm-FinalReport[1]080128141405.pdf)

⁸⁹ Ibid.

6. Concluding comments

This high-level socio-economic impact assessment demonstrates the potential the proposed tunnel has for transforming the Hammersmith BID area into a vibrant economic centre. The release of the land underneath the flyover for public realm and residential, commercial and retail development could generate significant increases in rates and rents from increased land and property values, thus helping to fund the development; attract visitors and thus increase spend in the area and generally invigorate the town centre.

Removing the flyover and thus undoing the severance it causes to the Hammersmith Town Centre has the potential to provide significant positive impacts to the local economy by unifying the Town Centre and its business district, creating a connection for local businesses, allowing a freer flow for retail and commercial customers, especially pedestrians, as well as creating a connection with the Thames riverside that could attract a considerable number of visitors.

Furthermore, the release of land from underneath the flyover for development has important economic potential, both from the sale of land for development and from the annual increases in local council revenue the development has the potential to provide.

In addition, if part of the land released is used for improving the public realm, the benefits to the local community and the local business environment are potentially extensive.

Further research and analysis needs to be undertaken in order to rigorously quantify in financial terms the benefits identified in this report. This should include⁹⁰:

- A full environmental assessment to cover analysis of the project's impact on the local area in respect of:
 - Noise;
 - Air quality;
 - Greenhouse gasses
 - Townscape
- A full transport assessment to understand the impact on local congestion and thus quantify the impact of changes to journey times;
- An Affordability and Financial Sustainability study;
- A study to identify the Social and Distributional Impacts of the Transport Intervention;
- A full Cost-Benefit analysis.

⁹⁰ Please note this is not the exhaustive list



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