WEST LONDON TRAM: EALING COUNCIL BUSINESS CASE

PART A

Contents

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EXECUTIVE SUMMARY

This report forms part of the "business case" for the West London Tram from the perspective of Ealing, and Ealing within the wider context of West London. It is presented as Part A, which identifies the key elements of the pros and cons of the Tram proposal and provides an overall conclusion. It draws on the more detailed analyses covering the individual duties, responsibilities, and services of Ealing Council that are contained in Part B of the Ealing Business Case.

The material contained in this report will be important in relation to the decision regarding the Borough Council becoming a joint promoter of the scheme. If the Council does so decide the report together with the more detailed studies undertaken will also form an important part of the Ealing Business Case for the Tram. The information will also provide a valuable input to any subsequent Inquiry into the Tram project.

The report acknowledges the challenges that face Ealing over the coming years. These include the expected increased pressure of traffic demand due to the expected growth in employment and population in line with the London Plan and the Ealing UDP, and the Borough's aspirations for accommodating this in a way that is environmentally sustainable.

The benefits of the Tram would flow from improvements to public transport capacity, reliability and quality on the Uxbridge Road corridor, helping to address growing problems of congestion, air and noise pollution, and increasing passenger demand as population and employment grow over the next decade. In addition the Tram would enable other benefits to be secured provided that opportunities are taken. Such "indirect" benefits would include improvements to the public transport network as a whole, improved public realm, and reinforcement of the role played by Uxbridge Road in future. In the longer term, the Tram opens up a further planning options for higher intensity development in the town centres and along the Uxbridge Road corridor, and it provides a transport "quality margin" that will support efforts to reduce the proportion of travel by car.

The disbenefits of the tram will include the disruption to local communities and especially to business and other activities on Uxbridge Road itself, and the diversion of some road traffic away from Uxbridge Road onto alternative routes.

The report, supported by the detailed analyses in Part B, summarises the benefits and disbenefits and aims to make a balanced judgement on the merits of the Tram proposal. It examines the effects of the Tram on both Ealing Council and on Ealing residents and businesses.

The overall message is that there are considerable benefits to be had from the introduction of the Tram. These are judged, both in magnitude and extent, to outweigh disbenefits that will fall on some parts of the community, particularly during construction. This judgement is subject to the requirement that the promoters of the scheme are proactive in capturing all the potential benefits of the scheme, and in mitigating all the identified disbenefits to the greatest extent possible. Such efforts

will involve both the Ealing Borough Council, and Transport for London, together with other partners.

SCENE SETTING

1. Introduction

1.1 The subject and purpose of this report

1.1.1 This report is about the creation of a Tram service along the Uxbridge Road, and considers the merits of this proposal from an Ealing perspective. The Tram scheme was conceived originally as a means of improving the capacity and quality of public transport along this important corridor. Now it can equally be associated with contributing to the Borough's wider objectives. The report considers the merits of the Tram scheme in relation to a vision for more sustainable travel, providing public transport with a modern image, while supporting and promoting social and economic development including stronger town centres in West London. The scheme is also associated with population and employment growth in West London, and the need to accommodate the increase in travel demand that will follow.

1.1.2 Llewelyn Davies were commissioned to undertake research into the merits of the case for the West London Tram specifically from the perspective of the London Borough of Ealing, including the Borough Council. The purpose of the commission was to provide:

- A balanced assessment of the Tram scheme from an Ealing perspective;
- A balanced assessment of the direct effects of the Tram on travel in Ealing, and on the delivery of Ealing Council's services;
- A balanced analysis of the likely indirect effects and opportunities that will arise as a result of the Tram scheme, including enhanced capabilities deriving from environmental and capacity improvements, but which depend on complementary measures and evolution of policy to be fulfilled.

1.1.3 The report is intended to complement rather than duplicate the Business Case for the West London Tram produced by Transport for London. It does, however, draw on some the traffic modelling and other data that also underpin the TfL case, albeit from an Ealing viewpoint.

1.1.4 The outcome report of the consultant's findings is structured in two parts. This **Part A** report provides an overall analysis of the pros and cons of the West London Tram from an Ealing perspective. The report is likely to form part of the Council papers required when consideration is given to whether the Council decides to acquire "joint promoter" status. The **Part B** report provides a more detailed

case and will be required to support the Council at subsequent stages including any Public Inquiry.

1.2 Structure of the report

1.2.1 Part A first sets the scene for the analysis including the planning context, a description of the Tram scheme, and the criteria against which, in the view of the Borough, it should be assessed. It is necessary to establish these criteria in order to answer the basic question: "Will the Tram support or hinder the achievement of Ealing's plans and strategies?" Next, the report assesses the identified impacts and effects of the Tram scheme, including the impacts both on travel patterns and on the delivery of the Borough Council's services such as Education and Social Services. This is followed by a consideration of the wider potential and opportunities that the Tram could bring, provided that complementary measures are taken. The Part A report concludes by attempting to answer the fundamental questions that must be posed in order to justify promotion of the Tram scheme, or indeed its rejection. A summary of the direct and indirect effects is provided. Having undertaken this work, it is expected that the Council will wish to know the consultant's conclusion or the net benefit or disbenefit of the Tram scheme, and this is offered in the final section of the report.

1.3 The Ealing perspective

1.3.1 As part of the present study, key service providers in Ealing have been consulted, and an analysis has been undertaken of the benefits, impacts and opportunities of the Tram for the people of Ealing, and for the various services, duties and responsibilities of the Council.

1.4 Next steps

1.4.1 The next major step towards implementation will be the submission of a Transport and Works Order application under the Transport and Works Act 1992. This submission requires inter alia the preparation of a business case in support of the Tram, which is being prepared by Transport for London. This case would be considerably strengthened if the project were to be jointly promoted with one or more of the local authorities whose powers and duties would be affected by the scheme. With half of the proposed route length within the Borough of Ealing, the Council's participation is seen as particularly important. With this purpose in mind, this report sets out the merits of the scheme from an Ealing perspective, and attempts a balanced view of the negative as well as the positive features of the scheme.

1.4.2 The material contained in this report will be important in relation to the decision regarding the Borough Council becoming a joint promoter of the scheme. If the Council does so decide the report together with the more detailed studies undertaken will also form an important part of the Ealing Business Case for the Tram. The information will also provide a valuable input to any subsequent Inquiry into the Tram project.

1.5 Summary view of the Tram from an Ealing perspective

1.5.1 In summary, the authors of this report believe that the West London Tram overall will be a valuable asset to the future development and well-being of the Borough of Ealing, and is worthy of a commitment to joint promotion by the Borough Council alongside Transport for London. The Tram will be more than just a piece of transport infrastructure, and will bring a variety of benefits to a wide area, well beyond the Uxbridge Road itself.

1.5.2 The report acknowledges that not everyone will benefit from the scheme, especially during the period of construction, but presents evidence to show that such disadvantages will be far outweighed by the advantages in the medium and longer term. Moreover, the report presents evidence that the Tram will provide public transport capacity “headroom” that will be needed to accommodate future population and employment growth, and to promote more sustainable travel patterns. Without such “headroom” it is likely that worsening conditions on the roads would limit accessibility, and could act as a significant brake on the growth and development of the Borough and West London generally.

2. Tram Project Status and Description

2.1 Current status of the Tram scheme

2.1.1 Where does the scheme stand? The scheme to date has been promoted by Transport for London, and it has the support of the Mayor for London as a key transport investment in the Capital. It forms part of the Mayor's Transport Strategy and planning strategy as set out in the London Plan. There has been wide consultation both of stakeholders and of the public at large and considerable work has been undertaken to develop the scheme. Where appropriate, this report makes use of the material produced so far.

2.2 Description of the proposed West London Tram in Ealing

2.2.1 This section sets out the proposal that is being assessed. It should be stressed that details of the scheme and complementary measures will continue to evolve, but certain components will feature in any scheme.

2.2.2 The scheme involves a double track Tramway, with rails set flush into the road surface. Along most of its length, the Tramway would use the existing road carriageway, sometimes with exclusive use of part of the carriageway and sometimes sharing it with general traffic. On dual carriageway sections within Ealing, the Tramway would have sole use of one existing carriageway with general traffic using the other. Trams would be powered by electricity drawn from overhead lines. They would be 40m long and 2.65m wide, with 70-90 seats, plus standing room and space for wheelchairs and unfolded pushchairs. The maximum capacity would be about 300 passengers. 41 stops would be provided, 22 of them in the Borough.

2.2.3 The assumed peak period Tram frequency is every 3 minutes between Shepherd's Bush and Hayes By-Pass, giving a capacity of up to 6,000 passengers per hour in each direction, and every 6 minutes between Hayes By-Pass and Uxbridge. The Trams will replace the 207 and 607 (Express) bus routes on Uxbridge Road and their end-to-end operation will eliminate the present need for interchange for longer distance journeys which cannot use the 607 express. The number of Trams operating per hour will be similar to the number of buses operated on routes 207 and 607 buses at present. But without the Tram, by 2011 the increased demand arising from population, employment and other growth would require the number of buses to be doubled. Even with high capacity bendy-buses it is forecast that 38 vehicles in each direction would be required. Transport for London takes the view that the Uxbridge Road route is not capable of handling such numbers, certainly not

with any reasonable degree of reliability (see West London Tram Information Sheet 37, TfL June 2004).

2.2.4 The end-to-end journey time will be approximately 65 minutes, compared to about 60 minutes for the present 607 express with only 18 stops and 101 minutes for the 207 bus serving 65 stops. TfL forecasts that increasing traffic congestion will increase the 207 journey time to 117 minutes by 2011.

2.2.5 The scheme assumes that Trams will be given priority over general traffic to minimise journey times, promote reliability and create conditions favourable to attracting journeys currently made by private car. This would be achieved by a variety of means according to local conditions, including Tram priority at traffic signalled junctions; separate lanes for Trams and traffic where space permits; "traffic metering" at the approach to pinch points to allow Trams a clear run into the constrained section; and closure of the road to general traffic in a few particularly constrained locations.

2.2.6 The scheme will be complemented by off-route traffic management measures to encourage longer distance general traffic not requiring access to businesses and services along Uxbridge Road to use the strategic routes such as the A4 and the A40.

2.2.7 Of the various features of the scheme to be more fully developed, one of the most important will be the reorganisation of bus routes other than the 207 and 607, and the development of interchange facilities between the Tram and other modes. In addition the design of the Tram facilities and equipment, including the stops and interchanges, and the design of public realm affected by the scheme will influence the overall quality and success of the project.

2.2.8 The preferred site of the depot for the storage and serving of the Trams has been identified as being on the Uxbridge Road just west of the Grand Union Canal, in LB Hillingdon.

2.2.9 There are other major transport changes that could impact on transport in Ealing, and that will provide additional opportunities for interchange with the West London Tram, in particular:

- Heathrow rail service to Heathrow and Paddington stopping at Ealing Broadway, Southall, and Hayes.

- Crossrail, with a stop and interchange at Ealing Broadway, although this would not be available until 2013 at the earliest.

2.2.10 It must be emphasised that these heavy rail services serve a very different travel demand from the West London Tram, basically a regional service as opposed to a local and sub regional service. In that sense the schemes are complementary rather than competing to serve the same travel market, and each could enhance the

usefulness and demand of the other. This complementary role consists of the Tram feeding passengers to and from heavy rail interchanges, particularly at Ealing Broadway, and is dependent on the provision of greatly enhanced interchange facilities. It is understood that the Crossrail scheme envisages improvements to Ealing Broadway station and the Tram scheme design continues to investigate ways of making the interchange between the Tram and all rail services at the station as convenient as possible.

2.2.11 The role of Uxbridge Road

2.2.12 Uxbridge Road provides the Tram route through Ealing. Uxbridge Road has always played a key role in west London, first as an important transport and trading route and, as the development of London spread westwards, as a focus for movement and activity. It remains the main corridor of activity in the Borough of Ealing, but its transport role has evolved. Since the 1940s the main medium, longer distance and heavy goods road traffic through west London has shifted to the A40 and A40(M) to the north and the A4 and M4 to the south. The role of Uxbridge Road has thus shifted from being an all-purpose thoroughfare to being a corridor of people movement rather than vehicle movement. In addition, its role as a focus of commercial, leisure, cultural and other activity within the Borough of Ealing is undiminished.

2.2.13 The Timeline below shows how the Uxbridge Road corridor has evolved. Its status has remained as a strategic carrier of people, and as a focus of local communities along the route. The planning status of the road in section 9 of the Ealing UDP is a “main distributor road”. But it is no longer, and should no longer be, regarded as a strategic route in terms of general vehicular traffic. This is not a downgrading of its role, indeed quite the reverse, since without expectations of carrying capacity for through vehicular traffic, Uxbridge Road can be better integrated with the communities it serves.

2.2.14 Uxbridge Road is served by one of the most frequent bus services in London and is host to a wide range of activity. There are four identified town centres along the route within the Borough (two district centres Hanwell, and Acton, the major centre at Southall, and the metropolitan centre of Ealing Broadway and West Ealing).

2.2.15 For the Council itself, Uxbridge Road is crucial, with the town hall and most of the main Council offices being located alongside. It is also the location of the new Response project, and the single point of access for personal contact with Borough staff regarding all the Council’s services.

2.3 The Uxbridge Road corridor is also the prime location in the Borough for cultural, health, leisure and other facilities that serve the Borough. For example, within 10 minutes’ walk (about 800 metres) of the Tram are located:

- Half of the state secondary schools in the Borough;
- Ealing Hospital;
- Thames Valley University Ealing campus sites;

- Ealing Hammersmith and West London College sites at Southall, Ealing and Acton;
- Sports Centres of Southall, Dormers Wells (Southall), Reynolds (Acton), Acton Swimming Baths;
- Four libraries;
- Ealing Studios;
- Cinema (Ealing).

2.4 The Uxbridge Road corridor (including areas up to about 800 metres from the road itself) contains around 60,000 residents, or 20% of the Borough's total population. It contains a higher share of the Borough's employees, which emphasises the role of the corridor as a focus of activity, namely 31,000 employees, or 27% of the Borough total. (Note: the employment figures are related to "proxy" ward totals including Acton Central, Ealing Broadway, Elthorne, Southall Broadway and Walpole wards.)

2.5 Uxbridge Road will continue to be the heart of the Borough as the town centres are enhanced and other developments intensify population and employment. There will also be an increasing cultural role for the corridor. For example, more than a quarter of new floorspace proposals in the Ealing Unitary Development Plan are located alongside or close to the Uxbridge Road.

2.6 The creation of the Tram thus can be placed in the context of enhancing a route that has a long history and a strong future as a community spine.

Timeline of Uxbridge Road development

Date/period	Event/feature
Middle ages	Origins of the “high” road London to Oxford
1901 -1904	Tram from Acton to Shepherd’s Bush (London’s first electric Tram), then extended to Uxbridge
1935	Western Avenue built, offering Uxbridge Road relief from through traffic
1936	Trams converted to trolleybuses
1960	Trolleybuses converted to buses
1965	M4 opened offering traffic relief to the south
1967	Higher capacity buses introduced
1990	Express bus 607 introduced, followed by bus priority measures
2005	Introduction of bendy-buses (Increased capacity) between Hayes and Shepherd’s Bush

3. Future prospects for the London Borough of Ealing

3.1 Ealing in 2011

3.2 The case for the Tram must be made not in relation to present day traffic and environmental conditions, but in relation to the conditions that would be experienced in 2011 and beyond if the Tram were not built. In addition, Ealing is expected to experience considerable population and employment growth and this will increase travel demand in the Borough that will need to be accommodated in some way.

3.3 The expected deterioration in traffic and public transport conditions by 2011 are dealt with in more detail in the section on "identified traffic effects without the Tram".

3.4 Pressures for traffic growth

3.5 The trend is likely to be for increasing traffic on Ealing's roads, and increasing parking demand for both residents and visitors. This will arise in part from a continuing switch of mode to car driver, for example by households becoming owners of two or more cars and deciding to make certain journeys by car that were formerly made by other means.

3.6 Pressure for road traffic growth is also likely to arise (again, in the absence of counter measures to shift mode of travel away from the car) from growth in Ealing and West London as a whole. The expectation is that between 2001 and 2016 population in the Borough will grow by 7% and that employment will grow by over 8% (see table). The Borough Council's adopted UDP and other plans support and cater for growth of this scale, consistent with the London Plan and the West London Sub Region Development Framework.

Table 1: Population and employment growth in West London

2001 to 2016	Ealing	West London
Population	21,300 (+ 7%)	+140,000 (+ 10%)
Employment	9,000 (+ 8%)	+86,000 (+11%)

3.7 Other factors could bring increased pressure on transport facilities in Ealing over which the Borough may have little influence. Such exogenous factors include intensification of development in neighbouring boroughs, especially development of regional or sub-regional significance such as Heathrow airport, the new shopping centre at White City, and the new stadium at Wembley, to name a few prominent examples. Such developments will attract people (and goods movement) from a wide area, and generate traffic throughout west London.

3.8 Such expected growth and change is of importance to the Tram, since it is one of the key ways of influencing the future amount of traffic and the modal split of personal travel in Ealing.

3.9 It has been suggested that by 2011 there could be area-wide road or congestion charging that would reduce the demand for car travel. Were this to happen, the demand for public transport would be increased, and this would further add to the pressures on the Uxbridge Road, were travel in the corridor to remain dependent on the 207/607 bus services.

3.10 All of these trends and pressures will be translated into the need for higher capacity and better quality public transport. The Tram is expected to provide a substantial increase in both capacity and quality and in this way will help to avoid the deterioration of travel and environmental conditions that would be certain to arise without it.

4. "What does Ealing want?"- The vision for Ealing

4.1 The vision for the borough of Ealing is set out in a range of strategy documents. The aspects that are relevant to the Tram are brought together in this section. In total they comprise the Borough Council's vision for the future of the Borough and its residents and workforce. The issue for review in this report is: will the Tram support or hinder sustainable achievement of these plans and strategies?

4.2 The Vision for Ealing and West London

4.3 This section describes Ealing's vision of an enlarged local economy, more cohesive and safer local communities, and higher levels of environmental sustainability, alongside and supported by population and employment growth.

4.4 The Council's approach to fulfilling both its responsibilities delegated to it by Central Government, and for promoting the social, economic and environmental well-being of its citizens, is through a combination of council-wide 'corporate' plans (such as the Community Strategy, the Capital Strategy, and the Performance Plan), which 'sit above' a number of departmental or service specific plans. It is this higher tier of plans and strategies that best encompass Ealing Council's high-level objectives.

4.5 The themes outlined in the Community Strategy provide an over-arching context to the individual plans and strategies prepared by each of the partners on the Local Strategic Partnership. These themes are:

- A place with strong neighbourhoods and communities
- A better place to live
- A healthier place
- A safer place
- An attractive an environmentally friendly place
- A more accessible place
- A better place to grow up
- An economically successful place

4.6 The Community Strategy contains three objectives in particular where the Tram potentially can make a direct positive contribution as noted below. These broad strategic objectives are designed both to guide the development and enhancement of specific services, and to encourage involvement in the community planning process and encourage the

coordination of service providers. These objectives provide the context for the development of the strategic objectives of the Council, which were developed as the 'Ealing scorecard'. Some of these relate to the way the Council operates as a corporate body, such as staff development and resource management. However, the Tram could potentially contribute to achieving some, including:

- Ensuring a sustainable transport system: dealing with congestion; reducing pollution; encouraging modal shift to more sustainable modes of travel, and ensuring fast and easy movement around the Borough. The Tram is designed to contribute to this objective not only for travel along Uxbridge Road, but for travel throughout the Borough taking advantage of better north-south routes and interchange points.

- Fair and equitable service - Responding to the needs of a diverse community. The Tram should be configured to benefit all communities along the Uxbridge Road, and to help in integrating divers communities.

- Creating life opportunities for all - Education services, access to learning, youth facilities and health, access to affordable housing, reducing social exclusion. The concentration of facilities along the Uxbridge Road corridor makes the Tram particularly relevant to this objective.

- Protect and enhancing the environment - Protecting and enhancing a sustainable, healthy and pleasant environment and street scene attractiveness. The Uxbridge Road contains the strongest mix of people activities and traffic in the Borough. The Tram is relevant to finding a better balance with less adverse environmental impact.

4.7 Other key council strategies and themes to which the Tram potentially can contribute are the Economic Strategy, the Ealing Unitary Development Plan (UDP) and the individual Town Centre Strategies. These are briefly reviewed in turn.

4.8 The relevant strategic objectives of the Economic Strategy to which the Tram could help achieve include:

- Supporting enterprise and entrepreneurship

- Raising participation and achievement in learning and skills

- Inclusion and equality in the labour market

- Quality environments and infrastructure

4.9 The Unitary Development Plan commits to the Tram as one means of achieving a number of policies and objectives (UDP policy 9.3):

- Sustainable Development

- A decent environment for all – to provide a decent environment for living and working
- Open land – to maintain a system of major open areas linked by green corridors
- Built environment – to enhance the built environment
- Environmental standards
- Housing – increase the quantity of housing to meet demand for all tenures
- Employment – to promote balanced economic development
- Shopping and town centres – to encourage convenient shops and services throughout the borough
- Community facilities – to encourage the provision of community facilities to meet the wide ranging needs of the community
- Transport – to provide residents with proper accessibility to jobs, shops and services
- Arts, culture and entertainment – to enhance the provison
- Local areas – to enhance the identity of different areas in the borough

4.10 The Town Centre Strategies are clearly designed for the individual centres, but there are however a number of cross-cutting objectives to which the Tram is relevant, particularly since four of the Borough's town centres are located on the Tram route. The Town Centre objectives include:

- Enhancing and improving the individual roles of the town centres
- As foci for economic development
- Providing sustainable patterns of activity
- Creating distinctive and attractive town centres through urban design to improve the public realm and urban environment
- Improving accessibility by improving public transport, walking environments and transport hubs
- Town centre management

4.11 These 'high-level' plans and strategies contain a number of aims and objectives that the Council shares and promotes across its full suite of corporate guidance. Numerous departments and services work towards achieving these aims.

5. Assessment criteria for the Tram

5.1 Through a review of a host of plans and strategies, the range of high-level objectives of the Council has been distilled. The shaded box below sets these out in six categories that comprise the Government's five WEBTAG criteria together with a further category, "People and Communities", which has been added to reflect the role the Council has beyond the purely transport-related criteria. The WEBTAG criteria were developed by the Department for Transport as an extension of cost-benefit appraisal of transport schemes. It should be noted how the WEBTAG headings, and the objectives beneath them also capture national, London and sub-regional policies and strategies.

5.2 Items in the shaded box with an asterisk reflect the Borough's four main themes derived from the various Borough strategies. The next section deals with these specifically.

5.3 WEBTAG assessment criteria and supporting objectives

Environment

- Protecting and enhancing a sustainable, healthy, safe and pleasant local environment
- Promoting sustainable development
- Ensuring a good quality street-scene and public realm*
- Improving the quality and efficiency of housing
- Creating distinctive and attractive town centres*
- Reducing pollution and promoting an efficient use of resources
- Reducing air and noise pollution from traffic

Safety

- Enhancing and improving community safety
- Creating safer local environments and neighbourhoods*
- Reducing and tackling crime and anti-social behaviour

Accessibility

- Facilitating the provision of a sustainable transport system*
- Encouraging the use of sustainable forms of transport*
- Ensuring people can access a range of services, facilities and opportunities, and ensuring that people are not disadvantaged by where they live*
- Reducing the need to travel by providing services and facilities close to where people live and work
- Improving public transport infrastructure*
- Tackling and reducing congestion
- Developing a network of accessible town centres that provide sustainable patterns of activity*

Economy

- Supporting enterprise and entrepreneurship
- Inclusion and equality in the labour market
- Ensuring and enhancing a high quality environment and infrastructure to allow for economic development*
- Ensuring a supply of affordable homes
- Increase skill levels among the workforce
- Maximising the benefits to Ealing's workforce of economic development in West London
- Managing economic growth with regard to environmental protection and sustainable development*

Integration

- Developing and encouraging sustainable forms of transport
- Ensuring fast and easy movement around the borough
- Integrating all transport needs to connect to the right places*
- Promoting integration through planning controls

People and Communities

- Supporting mixed, sustainable communities*
- Participation in learning, skills and education
- Providing services and facilities to support vulnerable members of the community
- Providing community facilities to meet the need of the community
- Facilitating access to facilities and services*

5.4 The Borough's themes for developing West London Tram

5.5 The strategies and plans described above have been distilled by the Borough Council into four broad objectives, against which the Tram (and indeed other proposals) can be appraised:

These broad objectives are:

1. **Improve Network Capacity and Reliability**

2. **Provide Access for All**

3. **Improve Environmental Design and Management**

4. **Facilitate Area and Town Centre Regeneration**

5.6 The four objectives have considerable resonance with the WEBTAG appraisal criteria described on the previous pages. There is considerable consistency and overlap, and the main relationships are described below:

- The "network capacity and reliability" theme is most strongly connected with the WEBTAG Accessibility criterion, but the Integration criterion is also important. Assessment of the Tram under these categories is complex, since some effects will be direct (such as increased reliability) while others (such as improved interchange with routes serving other parts of the Borough) are indirect effects that are dependent on complementary measures being taken.

- The "access for all to public transport" theme falls within the Accessibility criterion, and is assessed mainly as a direct effect of the Tram.

- The "environmental design and management" theme falls within the Environment assessment criterion. Environmental design quality will be delivered mainly through specification of the Tram scheme and associated streetworks rather than the through Tram itself. It therefore falls into the category of a potential benefit, and has to be assessed as such.

- The area and town centre regeneration theme relates strongly to both the "Economy" and the "People and Communities" criteria.

5.7 In conclusion, this section has demonstrated how the assessment of the Tram project is carried out within a broad and well-established framework of both council and West London strategies, and criteria set out by Government and by the Borough Council.

IDENTIFIED EFFECTS OF THE TRAM

6. Travel and traffic changes

6.1 This section examines the transport related effects of the Tram, and provides likely transport scenarios in 2011 with and without the Tram.

6.2 Traffic trends and impacts without the Tram in 2011

6.3 The prospects of more traffic and the increased negative traffic impacts have been investigated using TfL's SATURN model. It should be noted here that this report is in part a product of the model output at a particular point in the process. Both the model and the scheme specification on which it is based will change as the Tram scheme evolves. The report and its findings are based on the 2004 consultation version of the Tram proposal (Phase IIIA) and the model output is that provided in December 2004.

6.4 In the absence of counter measures traffic conditions are expected to deteriorate. Traffic forecasts for the area show that the growth in traffic levels and congestion will increasingly spread outwards from the Uxbridge Road into some of the surrounding residential areas as road users seek to avoid increasing journey times by finding alternative routes. Some users of the road will move further afield to the A4 and A40 avoiding the area completely.

6.5 The amount of traffic (vehicle kilometres) in Ealing in the morning peak period is predicted to increase by 6.6% from 2003 to 2011. In the interpeak period (10 am until 4pm) the increase is predicted to be 7.2%. This will make travel slower and more unpredictable, increasing average journey times for everyone, certainly by car, but also by bus unless further bus priority measures are taken. As traffic volumes increase, so the performance of the road network becomes less stable, and journey times will become more unreliable.

6.6 The deterioration in traffic conditions will mean that journey times by car will increase. The number of people able to reach the town centres and other destinations in the Uxbridge Road corridor within 10 minutes by car will decline. For example, the proportion of the Borough population within a 10 minute drive in the morning peak will decline by 16% for Ealing Broadway and Acton, and 38% for Southall. For Hanwell the effect is wider and the number of people within a 20 minute drive will decline by 17%.

6.7 The inter-peak period is the most crucial in terms of access to shops and services. The number of people in west London who can reach Ealing Broadway within a 10 minute drive will decline by 7% between 2003 and 2011. However, the predicted changes for the other centres are small.

6.8 Increased traffic congestion will mean that, on balance, the catchments of the town centres and other destinations will shrink. People will in effect become "further away" than today, reducing custom and choice of labour, and reducing people's access to shops, services and employment. The rise

in traffic in other parts of West London is likely to have a similar impact on other centres with which Ealing competes, so the problem will be carried by car users either in the form of longer journey times or the choice of nearer destinations. It is unlikely in itself to impact on the relative competitiveness of centres.

6.9 The traffic model does not cover parking demand or changes in the time it takes to find a parking space. However, increased journeys by car will mean extra parking demand at destinations. If parking provision is not expanded in proportion, there will be knock-on impacts such as higher parking charges or diversion of journeys to other destinations. On the other hand, the provision of more parking to meet demand would result in other negative impacts such as lower intensity of land use, and more disruption of pedestrian and other local movement. The provision of parking in reality will be influenced by policy, including policies aimed at reducing the impacts of car use, especially in the town centres.

6.10 The impact of increased journey times can to some extent be mitigated if priority can be provided for public transport, which allows a proportion of people to "escape" the congestion by switching to bus. But such priority may be difficult to provide for the larger number of buses required to cope with rising demand, and the help offered may be limited. Today's priority measures have tended only to maintain bus speeds, not to increase them.

6.11 Traffic trends and impacts with the Tram in 2011

6.12 Turning now to the situation in 2011 with the Tram, the following sections discuss the benefits and how to capture them, and the disbenefits and how to mitigate them.

6.13 Taking first the issue of capacity and public transport priority, the Tram provides not only the means of carrying more passengers, but of carrying them more reliably due to intensive priority over other traffic. Such priority will not be achieved automatically, however, and it must be adopted as a crucial criterion for the design and layout of the Tram scheme, and also the associated highway and traffic management changes both on and off Uxbridge Road. The Tram also provides potential to improve the wider public transport network in the Borough, as explained below.

6.14 The Tram can help to improve the public transport network by creating a higher capacity and reliable "spine" route and by enabling the provision of more frequent and reliable bus services that link to and across the Uxbridge Road.

6.15 In 2011 when the Tram is opened the Uxbridge Road will carry less traffic during the morning peak (fewer vehicles) than would be the case if there was continued reliance on buses. This has important benefits both locally and for the Borough as a whole. Locally, the Uxbridge Road will be a better place to be and to do business, with less traffic, and with most of the public transport traffic being pollution-free. Looking at the broader benefit, reduced traffic east-west on Uxbridge Road means that it will be easier to provide for bus

and other road user movements north and south. Areas such as Northolt, Greenford and Brentford can be better linked with the centres and activities along the Uxbridge Road. In addition to this, the reduction of movements along the Uxbridge Road makes it easier to provide effective priority measures, and to provide capacity for movements across the Uxbridge Road, which is important in order to develop the non-radial public transport network, as emphasised below.

6.16 Thus although the traffic reduction benefits are found mostly on the Uxbridge Road itself, the wider network can benefit as well. Taking the Borough as a whole, the amount of traffic during the morning peak is predicted to increase between 2003 and 2011 by 6.1%, compared to a 6.6% increase that will occur without the Tram. The traffic model predicts that the amount of traffic during the interpeak period is greater with the Tram than without, increasing between 2003 and 2011 by 7.9%, compared to a 7.2% increase that will occur without the Tram. This increase is thought to result from slightly longer car trips for those who switch to alternative routes (e.g. using the A40 or A4 rather than Uxbridge Road).

6.17 Overall changes in travel time with and without the Tram

6.18 The policy context for promoting public transport over the car does not override the need for the Tram to show a benefit, and the appraisal process requires that changes in travel time by all modes should be taken into account. The scheme will not show a net benefit if public transport benefits are outweighed by longer travel times by car. With the Tram, time savings to public transport passengers in Ealing will be more than double the time lost to people in cars during the AM peak, and more than triple during the inter-peak, as shown in the table below.

Table 2 Time Benefits on all Journeys to, from and within LBE, 2011 with Tram against 2011 without Tram

	Public Transport		Car		Net Benefit	
	Peak	Interpeak	Peak	Interpeak	Peak	Interpeak
Total time benefits (minutes)	205,000	442,000	-96,500	-136,000	108,000	306,000
% change per trip in minutes	-8.6%	-12%	7.4%	7%	-	-
Time saved / person trip (minutes)	4.6	5.1	-0.9	-0.7	-	-

Note: All times in minutes

Overall changes in vehicle kilometres driven with and without the Tram

6.19 The traffic model predicts an increase in traffic volumes in Ealing between 2003 and 2011. During the morning peak period the increase is expected to be less with the Tram than without, which probably reflects mode shift from the car. In the interpeak period the increase in traffic is somewhat greater

with the Tram, which may result from less mode switch from car, together with somewhat longer routes because of diversions away from Uxbridge Road. It is worth noting here that the traffic model assumes that trip origins and destinations will remain the same, so diversions away from Uxbridge Road will tend to be reflected in longer trip lengths. In practice, a proportion of users may respond to this by choosing nearer destinations. The results are shown in the table below.

Table 3 Changes in traffic volumes in 2011, with and without the Tram

	2003 Base		2011 No Tram		2011 With Tram	
	AM peak	Interpeak	AM peak	Interpeak	AM peak	Interpeak
PCU-Kms	238,914	218,367	254,816	234,087	253,599	235,701
Change			15,902	15,720	14,685	17,334
%			6.66%	7.2%	6.15%	7.9%

Note: The figures relate to the number of passenger car equivalent units (pcus) driven for an average hour within the peak or interpeak periods.

Public transport changes with and without the Tram in 2011

6.20 Regarding public transport on Uxbridge Road itself, forecast patronage in 2011 would require (according to TfL) an average of 38 buses per hour in each direction on the busiest sections, assuming the use of high capacity bendy-buses. When demand requires more than 25 vehicles per hour (around 3,000 passengers per hour), bus operating costs increase disproportionately and Trams become a more cost-effective way of meeting that demand.

Table 4: Capacities of different modes

Passengers per hour per direction (000s)	1	2	3	4	5	6	7	8	9	10	11	12
Bus	━	━	━									
Bus with intensive priority	━	━	━	┅	┅							
Tram			━	━	━	━	━	━	━	━	┅	┅

(Source: Work undertaken by Halcrow for Transport for London)

Note: the dashed lines indicate higher capacities that have been achieved in some cities, but where there is uncertainty about their achievability in the West London context

6.21 Predicted levels of passenger demand during the AM peak on the Uxbridge Road could be accommodated using 16 Trams in each direction between Uxbridge and Southall Broadway, and by 20 vehicles between Southall and Shepherd's Bush (though demand slightly exceeds this at Ealing Broadway

going eastbound during the AM peak). It is planned to provide 20 Trams per hour between Southall and Shepherd's Bush at peak times.

6.22 Some of the predicted increase in public transport demand on the Uxbridge Road is accounted for by the assumed additional quality and appeal of Trams compared to buses. This element of demand increase would not arise if the offer remained solely with buses. To the extent that this is true, the Tram offers a clear benefit over the bus, but at the same time this factor precludes a direct comparison of operating conditions "with" and "without" the Tram.

6.23 Once the Tram infrastructure is provided, extra passenger capacity can be provided up to a practical limit of around double the forecast demand at 2011. This provides generous "headroom" to meet the demand arising from growth and development in Ealing, together with further switching of trips from car to public transport.

6.24 The Tram is predicted also to result in a reduction in the number of car trips, compared to the "no Tram" situation. This means fewer parking acts will take place, and again these benefits are likely to be focused in the areas served by the Tram.

6.25 To the extent that the opportunity to improve bus services on north-south routes is taken, this will encourage still less traffic than indicated by the traffic model in relation to the Tram by itself.

6.26 In the longer term, there may be further pressure to introduce traffic limitation measures such as congestion charging and parking controls and charges. In this case the Tram would provide an attractive alternative for those choosing as a result to make less use of their cars. In this case the Tram provides the "carrot" which makes the "stick" of traffic limitation both more effective and more acceptable.

6.27 Impact of Tram on journey times and catchments

6.28 The performance of the transport network will be better with the Tram than without. One of the ways in which this will happen is faster journeys in Ealing and the consequent ability to reach a wider range of places or populations within a given amount of time. Below are some examples of the impact on journey times and catchment populations with the Tram in 2011 compared to buses during the morning peak (8am – 10am). Alongside in the table are shown changed catchment populations for the car.

Table 5 Impact of journey time savings on catchments - AM peak (and interpeak)

	Public Transport Ealing residents within a 50 minute catchment	**Car** Ealing residents within 20 or 30 minute drive catchment
Drayton Manor High School	20,000 more residents	12,000 more Borough residents within a 20 minute drive
Ellen Wilkinson Girls School:	10,000 more residents	14,000 less people within a 20 minute drive, but no change to the number within 30 minutes
Ealing Hospital:	27,000 more residents (35,000 more in interpeak)	11,000 more people within a 20 minute drive, but 3,000 less during the inter-peak
Dormers Wells Sport Centre	15,000 more residents (16,000 more in interpeak)	6,000 less people within a 20 minute drive, and 7,000 less during the inter-peak. No change to the number within 30 minutes.
TVU, St Mary's Road campus	20,000 more residents	No change
Southall Town Centre	42,000 more residents (45,000 more in interpeak)	14,000 less will be able to drive in under 20 minutes during the AM peak (2,000 less during the inter-peak), but 2,000 more people will be within a 30 minute drive
Hanwell Town centre	45,000 more residents (50,000 more in interpeak)	20,000 more within 20 minutes (but 2,000 less during the inter-peak)
Acton Town Centre	45,000 more residents	11,000 less within 20 minutes, but unchanged within 30 minutes
Ealing town centre	4,000 more Ealing residents	Unchanged am peak (2,000 less people within a 20 minute drive interpeak, and more within 30 minutes)

Notes:

1. The population figures are just for the residents of Ealing. In practice people from other Boroughs may also be affected.
2. The results are for door-to-door journeys and are weighted to match people's perceptions of time.
3. Numbers are rounded
4. Numbers are average for peak and interpeak hours

6.29 Ealing town centre is already highly accessible for Ealing residents by public transport, so the change with the Tram is proportionately less, but If all West London residents are included, Ealing will have about 28,000 more people within 50 minutes travel by public transport.

6.30 The impact on car journeys is reflected in the fact that some catchments will shrink to some extent. But overall the negative impacts are not judged to be severe, and the number experiencing a change must be kept in perspective with the total Borough population approaching 300,000 people. The figures are given for the same example locations as before.

6.31 It should be noted that the times for which the analysis is carried out are greatly different, with much longer journey times for public transport than for car. This is important when interpreting the results. While the number of residents within a 20 or 30 minute drive time may be somewhat reduced as a result of the Tram, residents will still be able to reach the selected destinations much quicker by car than by public transport. The Tram therefore is predicted to reduce the gap between public transport and car access times, but it is a long way short of eliminating it.

6.32 Furthermore, an emphasis on shifting the balance of advantage away from the car towards public transport and other modes is a component of both Ealing and London-wide strategic policy.

6.33 Traffic diversions and impacts

6.34 Some sections of the Uxbridge Road will be closed to general traffic, or subject to other restrictions such as banned turns. If the road network were to be otherwise left untouched, this would lead to some traffic diverting off the Uxbridge Road onto alternative routes nearby. Some of the routes are residential in character or are sensitive to traffic impacts for other reasons, such as school entrances. This aspect of the Tram scheme understandably gives rise to concerns amongst those living in or using the affected streets.

6.35 Traffic diversion is to be managed in order to minimise the extent of diversion, and to mitigate the impact of traffic in sensitive parts of the Ealing road network. Such traffic management measures must be seen as an integral part of the Tram scheme, not an afterthought. A series of traffic management measures has been devised and has been accepted by TfL as part of the scheme, and as such will be funded as part of the scheme.

6.36 The effect of the proposed traffic management measures will be to ameliorate the traffic increases on most of the sensitive local streets. Nevertheless, it will be important to counteract the negative impact of any increase of traffic on streets that are used by non-radial (north-south) bus routes. This will be a prime concern in finalising the network designs in conjunction with TfL.

6.37 Overall, the justification of the Tram should be made giving regard to the extent that disbenefits to individuals are outweighed by the extent of benefits to the community at large. The Council will need to be sure that it strikes a reasonable balance.

7. Impacts of the Tram on Borough Services

7.1 This section describes the direct implications of the travel and movement changes on the delivery of Council services and duties: structured within the relevant assessment criteria (see section 6). More detailed analysis is contained in part B of the Ealing Business Case. The information in this section is based on results from the traffic model in terms of both journey times and traffic volumes. The identified impacts on Council services fall into two categories:

a) Journey time changes affecting the accessibility and catchments of facilities and services;
b) Traffic volume changes affecting the environmental quality and safety of streets where facilities and Council services are located.

7.2 As with the travel and traffic analysis in Section 7, the data are considered in relation to conditions with and without the Tram. With regard to traffic volume changes, the emphasis is on the changes with the Tram compared to without the Tram in 2011, and taking into account traffic diversion mitigation measures that have been agreed as part of the Tram scheme.

7.3 The two sources of data act as proxies for the assessment of direct effects of the Tram scheme. The proxy relationship for the WEBTAG criteria discussed in the previous section are as follows:

- Environment: Changes in traffic volume provide the proxy for air and noise pollution;
- Safety: Changes in traffic volume provide the proxy for the safety of streets;
- Accessibility: Changes in accessibility and journey times are measured (i.e. no proxy);
- Economy: Opportunities are discussed in the “potential effects” section;
- Integration: Opportunities are discussed in the “potential effects” section;
- People and Communities (added criterion): Opportunities are discussed in the “potential effects” section.

7.4 In terms of the four identified Borough objectives for the Tram, the proxies work as follows:

- Improve Network Capacity and Reliability: Inherent in scheme, plus “indirect” effects of bus service and interchange improvements;
- Provide Access for All: Inherent in scheme, no data available;

- Improve Environmental Design and Management: Opportunities are discussed in the “potential effects” section;

- Facilitate Area and Town Centre Regeneration: Opportunities are discussed in the “potential effects” section.

7.5 Further discussion of the Tram in relation to these four Borough themes is provided in the next section dealing with indirect effects and opportunities presented by the Tram.

Table 6 Change when Tram operational compared to no Tram in 2011

Service	Travel time		Traffic impacts	Comments
	Public Transport (PT)	Car	(Vehicle flows past the door)	
Nursery schools	(+)	-	+	Marginal benefit of PT travel time and less traffic impacts. Small disbenefit of increased travel time by car.
Transport for Children with Special Ed Needs	na	(-)	na	Disbenefit of slower road speeds
Primary schools	(+)	-	Mixed	Marginal benefit of PT travel time. Mixed traffic impacts – about a third gain, a third neutral, a third negative
Secondary Schools and Tertiary colleges	+	-	Mixed	PT travel time: schools nearest Tram route benefit, neutral elsewhere. Traffic impacts are mostly neutral, but negative for two college campus, especially TVU Ealing
The Town Centre Strategies				
Ealing	+	=	+	
Southall	+	=	+	
Acton	+	-	+ and -	Increased car travel time at peak only Some traffic impacts on diversion routes
Hanwell	+	-	+ and -	Negative impacts from traffic diversion Some traffic impacts on diversion routes
LBE "Response" Programme	+	=	+	Relates to Parnell House
Street Operation and Enforcement	na	na	-	Likely to be greater enforcement burden, but tram routes easier to enforce than bus lanes
Management of car parks	na	na	-	Access arrangements to Uxbridge Road car parks may be affected
Roads and paths maintenance	na	-	=	Minimal impact but could need adjustment of schedules
Cycling	na	na	+	Benefits both for Uxbridge Road and connecting north-south routes
Waste collection	na	na	=	Minimal impact but could need adjustment of schedules.
Library service	+	=	+	[No identified impact on mobile library]
Community centres and halls	(+)	(-)	(+)	Marginal impact
Sports & Leisure centres	+	+	=	Insignificant traffic changes at sports and leisure centres
Health promotion	na	na	na	Benefits from mode switch from car
Activities for older adults and people with disabilities	+	mixed	mixed	Impacts depend on specific locations. Mobility impacts on people with disability expected to be positive overall
Arts and heritage	+	=	+	Mostly Ealing town centre
Parks, and green spaces	(+)	(+)	=	Marginal impacts because local catchments
Cemeteries	(+)	(-)	(=)	
Business rates	(+)	(-)	(+)	Relates to rates office in Ealing only

Housing & Environmental Health services	(+)	(-)	(=)	Very marginal impacts depending on sites visited
Social services	na	mixed	mixed	Routes and visits vary over time, so traffic impacts cannot be predicted. Service schedules are routinely adapted
Community transport service	na	na	mixed	Routes and visits vary over time, so traffic impacts cannot be predicted. Service schedules are routinely adapted
Environmental services street trading	na	na	+	Street trading will need to be adapted
Hospitals	+	-	=	Important service not under Borough control

Notes

1. Travel time is given by changes to the catchment population
2. "Travel Time" includes performance of the public transport and highway networks
3. The "with Tram" situation includes the agreed traffic diversion mitigation measures
4. na means not applicable
5. The larger symbols indicate the main impacts
6. + or – in brackets means small number or proportion of people affected
7. "Mixed" means that different locations have different impacts. An overall judgement as to the balance of gainers and losers is given in the "comments" column

7.6 There will obviously be negative impacts on most services along Uxbridge Road during construction. For clarity these are not included in the table above. It has not been possible to assess the impacts of the construction period because at this stage of the process there is no information available about how construction will be handled. It should be a requirement of the design and contracting of the scheme to minimise disruption, to phase the construction with this as a prime objective, and to ensure that all those affected are kept fully informed throughout the process.

POTENTIAL AND INDIRECT EFFECTS OF THE TRAM

8. Indirect impacts and opportunities

8.1 This section considers prospects for transport and quality of life in Ealing in the period up to 2011 and beyond. It identifies the potential contribution that the Tram could make to attain the Borough's identified objectives, provided that there are complementary actions and policies to support this process. In effect it deals with what one might call indirect or "spin off" or "indirect" benefits and opportunities from the Tram. This will very much be within the control of the Borough itself. The section also deals with the challenges the Borough faces, and the potential limits on achieving growth imposed by the current transport system. Analysis is also provided in relation to the Council's four main themes for the Tram (see section 5).

8.2 The Urban Context - Prospects for growth in Ealing and West London

8.3 Much of the opportunity for growth occurs in or near the Uxbridge Road corridor, including Southall gasworks – one of the largest brownfield sites in West London. Half of all the development sites, accounting for 29% of net increases in floorspace, identified in the recently adopted Unitary Development plan are within walking distance of the Tram route. This means that a significant proportion of the increased travel demand is likely to be focused in the southern half of the borough served by the Uxbridge Road. The figure below shows the location of development sites in Ealing, together with the Tram route and the 400m catchment of the stops along the route (approximately 5 minutes walk).

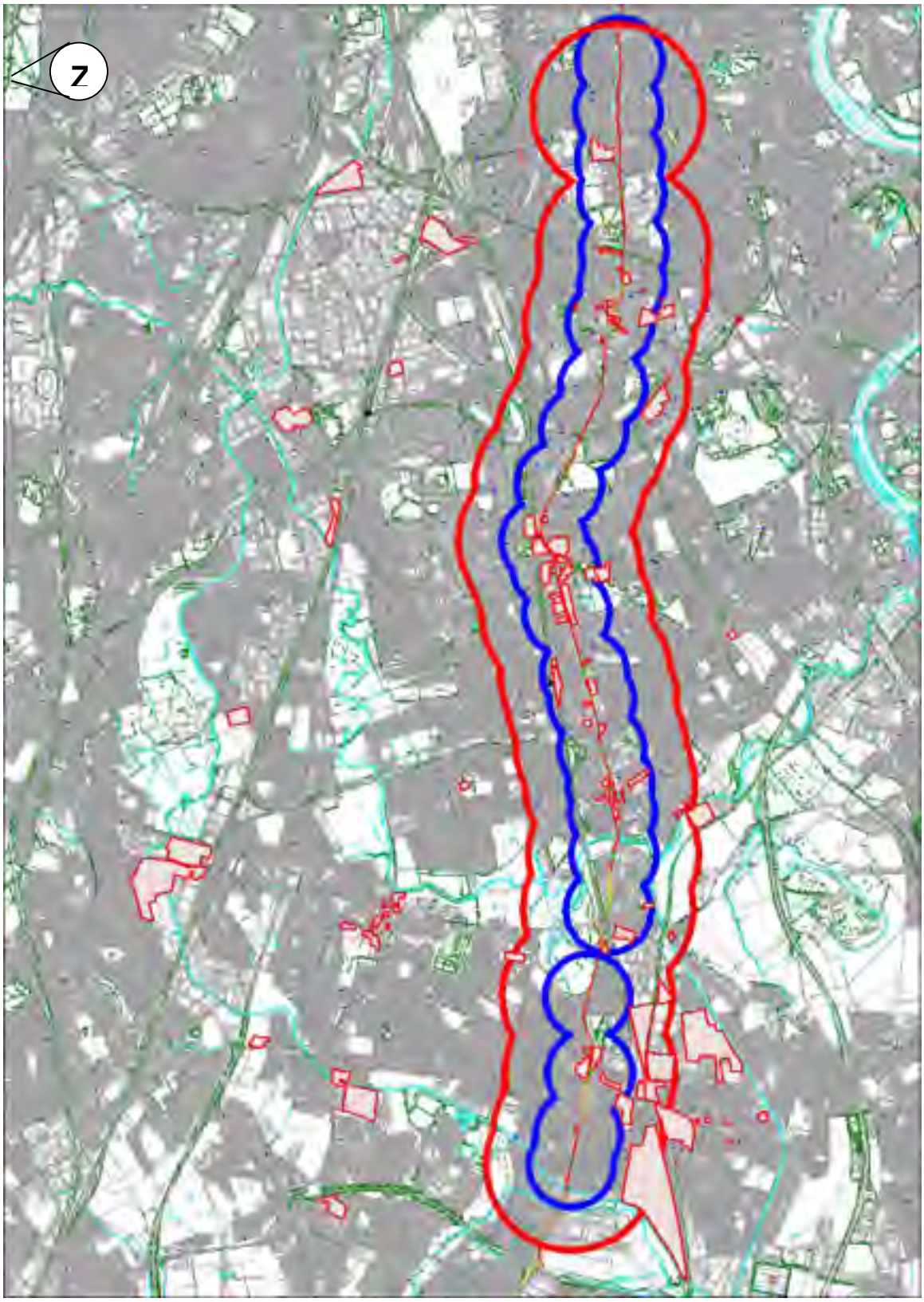


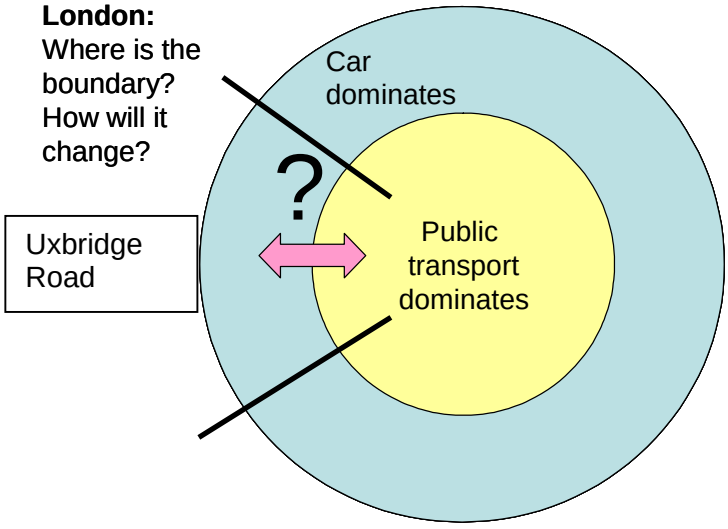
Figure 1: Location of Development Sites in Ealing in relation to the Tram route and the 400m and 800m catchments of Tram stops.

8.4 Ealing: urban or suburban?

8.5 West London's densities of population and employment are highest towards central London (Hammersmith & Fulham) and fall towards the periphery (Hillingdon). Ealing is mid-way both geographically and in terms of densities, and is at a crossroads between development in the direction of lower density suburbs with higher levels of car use, or higher density urban areas with greater reliance on public transport and other non-car modes. The present pattern of access to public transport shows the highest levels of accessibility to be located in Ealing stretching from the Broadway down to Ealing Common London Underground Station, and Acton Town centre along to Acton Town Underground Station (Source: Public Transport Accessibility Level mapping in Llewelyn Davies for TfL: Sub-Regional Development Frameworks).

8.6 Given the gradual intensification over two centuries of development and redevelopment, further evolution of Ealing towards low density car-based solutions is unrealistic. But the issue is whether future development and growth can be met in ways that are both economically successful and environmentally sustainable.

8.7 The Tram, together with other major public transport improvements, would enable the "public transport culture" of inner and central London to be extended westwards along the corridor served by the Uxbridge Road. This would lead to more sustainable travel choices, and less environmental impact for a given amount of growth, in line with Ealing strategies.



8.8 The introduction of the Tram to Ealing would also allow the Borough to pursue higher density development along the Uxbridge road corridor, especially at interchanges, due to the increased capacity that the Tram scheme gives in comparison to the bus. This policy choice towards maximising densities for housing and employment uses, alongside

improvements to public transport and encouraging its use is in line with strategic objectives set out in both regional and national policy guidance.

8.9 Without the public transport improvements supporting this higher density development, Ealing would be forced towards lower density, more car-reliant development, and there could be major implications in terms of lower growth, lost development due to increased road and parking space, loss of environmental quality, increased traffic impacts, and fewer travel choices for those without cars. Such a move would be contrary to current policy, which clearly rejects car-based or car-reliant development in favour of developments that can be served adequately by public transport.

8.10 The third possibility or choice would be to try to develop in a way that accommodates growth and intensity, but without the supporting infrastructure and other changes such as traffic and parking restraint that would be needed to avoid growing congestion and environmental problems. Such a scenario at some point would act against the success of Ealing and west London generally and the concomitant decline in the quality of life would almost certainly become unacceptable. Again, allowing this scenario to develop would be contrary to policy commitments at all levels of government.

Table 7: Population and employment density – West London (2001)

	Population density (persons per hectare)	Employment density (employees per hectare)
Hammersmith & Fulham	104	51
Ealing	55	26
Hillingdon	21	10

8.11 These increases in density along the corridor will not dramatically change the average density across the Borough, however, and it should also be noted that in parts of the Uxbridge Road corridor high density developments could occur without the Tram, as evidenced by some recent developments in Ealing town centre.

8.12 The step-change in quality of the public transport infrastructure provides allows development along the Uxbridge Road corridor to achieve similar densities to sites towards inner London, as a result of the increased accessibility and the associated capacity that the Tram route provides along the corridor. Some developments planned are already at such densities, but the additional capacity, or the certainty that the Tram will happen, could hasten the speed at which developments are brought forward.

8.13 Without the Tram, higher intensity development is still an option, but it would be achieved at the price of worsening conditions with increasing congestion,

less reliable travel times, and further deterioration in environmental quality. The current London Plan period ends in 2016, by which time there may be different aspirations for more intensive development, and a heavier focus on alternative travel to the car. The Tram provide the capacity and quality margin to allow such aspirations to be pursued, and it opens up potential for further limitations on car use for environmental and other reasons.

8.14 The above issue may be seen in the context of the Greater London Authority's targets for traffic growth. In west London, the target growth for traffic in inner boroughs is –2% between 2001 and 2011, but +4% for the outer boroughs. Shifting Ealing's character or identity from "outer" to "inner" therefore would be reflected in a considerably more challenging traffic reduction target. The GLA target for outer west London town centres is –1% over the same period. Given the string of town centres along the Uxbridge Road, and the fact that the Uxbridge Road forms a substantial part of their travel catchments, the –1% target traffic reduction target may be regarded as the most appropriate for the Tram to address.

8.15 Focus of activity on Uxbridge Road

8.16 Section has described the role of Uxbridge Road, and the concentration of activities in that corridor. In future this concentration can be encouraged through polcy, and supported by the additional quality and capacity of the Tram compared to reliance on buses. Economic and development policy can ensure that in future the corridor contains an even greater proportion of the facilities and services in the Borough. This will increase their accessibility by all sections of the community.

8.17 In future, education, health, employment and other services can be concentrated within the Tram corridor. This is already happening. For example Ealing Broadway is home to the "one stop shop" for the Council's services ("Response"). Ealing's first speculative office building in recent times has been built next door. These are signs of the reinforcement of the corridor, and this will have reciprocating benefits with the enhancement of public transport.

8.18 Strategies for each of the Council's key services (including the Response Programme) could include a review of location and accessibility to take account of the better offer following the opening of the Tram. This would support policies within the New Plan for the Environment, which supports the development of facilities with a wider catchment along the Uxbridge Road within the town centres (whilst still maintaining local facilities that serve a predominantly walk-in catchment).

"Ealing Gateway": New speculative offices, Ealing Broadway

8.19 The Tram and traffic demand management

8.20 Targets have been set for road traffic growth in London (Mayor's Transport Strategy, GLA, June 2001, and London Plan). For outer London including Ealing the target is to "reduce growth by a third" from 2001 to 2011. The target for town centres, which would include the four main town centres in the Uxbridge Road corridor, is to "seek zero traffic growth" over this period. Meeting this target presents a major challenge, in particular if traffic is to be limited without reducing accessibility, which could undermine social and economic vitality. The expected mode shift from car to public transport expected as a result of the Tram would contribute to this objective.

8.21 The Tram as part of a transport package

8.22 The Tram is just one of the counter measures that can work to reduce traffic volumes, or to avoid them increasing in the first place. It will be important for the Council to work alongside TfL and other agencies to exploit the full potential for public transport and other improvements. Some measures should be seen as an integral part of the Tram scheme, either because they are required to mitigate negative traffic impacts, or they are needed to capture benefits of the Tram, or because the opportunity to implement them arises from the "once-in-a-lifetime" opportunity presented by Tram construction. Other measures may be regarded as valuable additions but less critical in terms of phasing.

Integral measures include:

- Improved bus services in non-radial directions, taking advantage of higher priority within and across the Uxbridge Road;

- The provision of good bus-Tram interchange points along the Uxbridge Road, especially in the centres;
- Traffic management and traffic calming measures to deter extra traffic from using local streets;
- Creation of better conditions for walking and cycling both along and across Uxbridge Road;
- Renewal of public realm in Uxbridge Road and its approaches, including hard and soft landscaping;

Other measures consistent with the overall approach

- Parking controls and charges to manage both traffic and parking demand;
- Implementation of Travel Plans for businesses and facilities served by Uxbridge Road (e.g. Ealing Council, Ealing Hospital, TVU, Hammersmith and West London College; other schools and places of employment.

8.23 The Borough has recognised the need to integrate some of these measures with the early stages of the Tram planning process. The other complementary above can either be pressed for as part of the specification for the Tram, or can be developed once the Tram scheme is committed.

8.24 Of key importance is the issue of public transport services in non-radial (north-south) directions. The Tram offers the potential to improve such services, and thus to strengthen the network as a whole. But this will not happen unless a deliberate effort is made to bring about these improvements.

9. The Tram and the Borough's four main themes

9.1 This section provides a discussion of the Borough objectives to which the Tram is expected to contribute, namely:

1. Improve Network Capacity and Reliability
2. Provide Access for All:
3. Improve Environmental Design and Management:
4. Facilitate Area and Town Centre Regeneration:

9.2 The opportunities presented by the Tram are discussed below under each of these themes in turn.

9.3 Improve Network Capacity and Reliability

9.4 The improvement of capacity on Uxbridge Road is inherent in the Tram scheme, and in fact is the primary transport reason for the proposal. In addition, there is potential to bring improvements to the wider public transport network in Ealing. Such network benefits will depend on further and complementary actions to secure greater priority at junctions, and to create high quality and convenient interchange points, together with all the attributes of attractive public transport including information at all points of the journey, and the use of modern comfortable vehicles.

9.5 To deliver high capacity and reliability there will be a need for management and enforcement of parking and traffic regulations. The Tram may result in the loss of some on-street parking along the Tram route. The full extent of this is not yet known. The management and control of parking will be an important component of the design and specification of the Tram scheme and the full range of parking and servicing issues will have to be addressed.

9.6 The Borough can benefit in the longer term from a pro-active approach to the potential network and interchange benefits of the Tram. The Uxbridge Road high quality spine route creates a foundation for further accessibility enhancements, including both Tram extensions and higher quality bus and rail connections with other parts of the borough, especially in tangential directions. These opportunities for further integration of transport networks include:

- Extensions of the Tram, e.g. to Southall gasworks, to Hayes regeneration area and Heathrow, and to Greenford, to add value to regeneration aspirations and further enhance the potential for economic development for the Borough and its citizens through increasing the quality of linkages between people and places;

- Redevelopment and expansion of Ealing Broadway as a major interchange. There is a realisation in the Ealing Town Centre Strategy that Ealing lacks a fully integrated transport interchange, and the Tram potentially can go some way to resolving this,

especially if it is planned in conjunction with other bus and rail enhancements (such as Crossrail);

- Incremental reinforcement of the walking and cycling networks, as well as the public transport network, to connect Uxbridge Road more effectively with other parts of the Borough. Indications were given that the Tram could be integrated with other public realm, pedestrianisation or cycling improvements to lift the overall quality of the urban environment along the Uxbridge Road corridor. However, it must be stressed that this is not a 'given' benefit, but one that in order to achieve it, the Council must work for as part of its overall Strategy for the Tram.

9.7 Provide Access for All

9.8 Potential disbenefits in terms of accessibility arise from the fewer stops that the Tram makes than the current bus services. However, it is likely that to maintain bus efficiency, the current number of bus stops would have to be reduced between now and 2011 in any case and a reduction has been assumed in the traffic model, with 17 stops along the 207 route expected to be removed in order to maintain efficiency. Comparison between the current situation and the Tram proposals is not appropriate. Although there will be less stops, the Tram's associated advantages over the bus such as improved reliability may reduce the impact of this disadvantage upon users.

9.9 The increased accessibility that the Tram offers to the four town centres improves the labour catchments of these centres, allowing the benefits of the economic growth planned for these centres to be available to more residents. Quicker journeys along the Uxbridge Road corridor also allow the Borough's population to access economic opportunities such as jobs from a wider area, such as in Shepherd's Bush, White City or Uxbridge, which people may not have done previously due to perceived or actual unreliability of other methods of transport. This may particularly benefit people within deprived communities such as part of the Dormers Wells ward or the South Acton estate.

9.10 The Tram vehicles and Tram stops will be fully accessible to those who are less mobile, including wheelchair users, and those encumbered with shopping bags and children's buggies. A report by Colin Buchanan and Partners1 suggested that the light rail provides independence to many mobility impaired individuals.

9.11 Improve Environmental Design and Management:

9.12 The Tram provides a major opportunity to bring about a transformation of the environment of Uxbridge Road with high quality public realm design, including hard and soft landscaping, furniture, lighting, security facilities, and

[1] Colin Buchanan and Partners, Survey on Croydon Tramlink for South London Partnership, 2003.

(potentially) public art, though this is dependent on the detailed design of the scheme and the resources devoted to it. The provision of the Tram also presents a more sustainable, environmentally beneficial transport option than reliance on diesel-powered buses, and higher levels of private car use, through the use of vehicles with very low noise pollution and low emissions.

9.13 Different ways can be sought to promote such improvements with the Tram:

- The Tram will create a new and positive street design element where the existing townscape is weak or unstructured;
- The Tram can respect and enhance the strong townscape that can be found in the centres (about a third of the route in Ealing passes through or alongside conservation areas), such as Acton town centre. Acton town square is one of 100 public spaces for London identified by the Mayor, where the Tram could be integrated into the public realm design;
- The Tram can act as a catalyst for improving the walking and cycling links to the Uxbridge Road, increasing the attractiveness of the whole Borough network.
- The Tram establishes a transport system that supports environmental objectives, and encourages use of a mode that is less environmentally damaging in terms of emissions, fuel use, and noise generation than alternatives such as the car and bus.
- A public transport system of this nature supports principles of sustainable development such as a more resource-efficient way of moving people, and allows other aspects of sustainable development to occur such as encouraging less car-reliant residential development. This would help support elements of planning policy, which aims to promote public transport and restrain car traffic, and encourages new development that makes the maximum use of public transport.

9.14 There may, however, be a number of disbenefits that the Tram could have on the local environment:

- The construction of the Tram will inevitably cause some pollution from the noise created, dust, dirt and construction traffic. This disbenefit will be for a relatively short period of time, and can be mitigated through cooperation with constructors and through the Code of Construction Practice. Detailed impacts of pollution will be contained in the forthcoming Environmental Impact Assessment.
- There may be environmental impacts in terms of loss of buildings, loss of trees and the potential visual impact that the Tram will have on local areas. The Tram will require the removal of some buildings along its route (some of which may be of conservation value), though the route has been planned to minimise this, and those properties affected could result in improved facilities elsewhere or opportunities to replace with public realm or landscaping.
- The visual impact of catenary, masts and power lines, especially on the townscapes of centres and conservation areas, cannot

objectively be measured, but can be minimised through the use of high quality equipment.

- The potential increase in traffic on diversionary routes may also have an environmental impact in terms of noise and congestion. In the localised areas where this occurs, traffic management measures can be introduced to limit its impact, and such measures are already being specified and accepted by Ealing and TfL as an integral part of the Tram scheme.

- The loss of Trees is an important consideration, and features heavily in the concerns of the community. Some trees will need to be removed along parts of the route, but a policy and practice could ensure that new trees are planted in compensation for this loss.

9.15 A note of caution is needed in relation to traffic diversion impacts:

a) First, increases in traffic are predicted to occur whether or not the Tram is introduced. The model suggests that the difference in local impacts with or without the Tram will be relatively small compared to the overall change between 2003 and 2011;

b) Second, the model enables "with and without" Tram comparison to be made, but it may not adequately reflect the potential for "traffic evaporation". Research evidence from elsewhere suggests that when road capacity is reduced, traffic volumes also reduce. It should not be assumed, therefore, that all the predicted traffic will materialise and will have to be accommodated.

9.16 There will be disruption in terms of access and environmental impacts during the period of Tram construction. This will need to be minimised through a process that will include consultation with local businesses to manage access arrangements, investigation into alternative access points and times, and the creation of a Code of Construction between contractors and the authority. In terms of disruptions to Council services that use the route (such as Waste and Recycling services), indications were given that these disruptions can be managed and mitigated. If the disruptions along the route are known in advance, these will be built into the scheduling and management of services.

9.17 The environmental benefits described above cannot reasonably be expected to be achieved without the creation of difficulties for some people in some locations for some of the time. The extent and severity of the disbenefits will depend on the extent and success of mitigation measures taken. The concept, implementation and subsequent planning of the area affected by the Tram should take account of:

- Types of impact (positive and negative, direct and indirect, short term and long term)

- Positive impacts that can be exploited through further actions

- Negative impacts that can be mitigated

- Negative Impacts that can be compensated
- Impacts that must be accepted, either during construction, or longer term.

9.18 Facilitate Area and Town Centre Regeneration

9.19 The vision articulated in both London and Ealing plans is for the development and enhancement of a corridor of higher intensity activity, served by a sustainable, modern transport system capable of creating a positive image and transport experience in Ealing. This focus of new development is reinforced by the Town Centre Strategies, the New Plan for the Environment and through the location of development sites currently in the planning pipeline. The modern Tram is consistent with a vision to reinforce the role of the Uxbridge Road corridor as a chain of successful town centres, supported by higher density and more intensive development within the catchment of the Tram.

9.20 The nature of a Tram scheme itself, in its design and perception, plus the journey ambience and reliability it provides, can encourage the people to switch from the car to a more sustainable method of transport. The International Association of Public Transport (UITP) has argued that light rail "contributes positively to the social dimension of a city, improves the quality of life and makes it more liveable"2. A recent survey of the impact of the Croydon Tramlink also indicated that the scheme dramatically raised the profile of Croydon, and raised people's morale and confidence, and attracted new people to the area3.

9.21 The vision is also in terms of the enhanced role and image of town centres, and ensuring all members of the community can access the economic benefits available. The Tram passes through and directly serves four centres in Ealing (in addition to two centres in adjacent boroughs). With its high profile presence and modern image, combined with high passenger capacity and service quality, the Tram is consistent with the Council's strategies to promote and enhance the Borough's town centres. The need to encourage investment in town centres, especially in Ealing (which is one of the 10 Metropolitan Centres identified in the London Plan), must be balanced with the commitment made to protecting the environment, both in terms of the quality of the built environment and by restricting traffic growth. By increasing the proportion of town centre access by non-car modes, the Tram can help to achieve that balance.

9.22 The Tram can be an important catalyst for some or all of the centres to develop into the role required of them, as identified in the town centre strategies. This is not just about expanding the retail offer. The Council is keen to enhance the economic, community and cultural role of the centres,

[2] PTEG (2004) The Benefits of Light Rail; p.21
[3] Colin Buchanan and Partners, Survey on Croydon Tramlink for South London Partnership, 2003.

and to prevent the “leakage” of people and patronage to centres outside the Borough. This is a potential threat if other competing centres develop in ways that provide better environmental conditions and better levels of access. People living in the Uxbridge Road corridor will have greater choice of places to shop and conduct their business. The enhancement of the Ealing centres will enable them to compete more effectively with centres in neighbouring boroughs, including the new major retail centre at White City.

9.23 In relation to Ealing town centre, to retain its current retail offer, and attract a wider range of retailers, more customers are required. The Tram can help achieve this through expanding its catchment. There are additional associated benefits such as increasing the town centre catchment population without having to create more car parking, which would reduce the available land for development.

9.24 Of course, improved public transport will enable people to reach centres outside Ealing more easily, as well as enabling people to come into the Borough. But overall the better accessibility to centres along the Uxbridge Road corridor should enhance its competitiveness relative to other corridors or locations. For the Borough, accessibility to the corridor from areas to the north and south will be important, enabling Ealing centres to serve all Ealing residents, and to reduce the “leakage” of custom outside the Borough.

9.25 The Tram could add to the potential for, and capacity of, redevelopment of the Southall Gasworks site, opening up the site for investment and offering the potential to create a sustainable residential environment;

9.26 A community regeneration objective is to create stronger social and cultural integration of the diverse communities and activities within the Borough. The Tram should contribute to this objective by providing a stronger physical link, but also a unified identity through the medium of the Tram itself.

9.27 The Tram can support regeneration targets and aims in a number of ways:

- In relation to specific neighbourhood renewal work, which is focused on the Dormers Well ward and the South Acton estate, the Tram will improve public transport accessibility to areas such as Southall. This allows these communities better access to jobs and services, especially for those residents who rely on public transport (car ownership in these areas is low compared to the remainder of the Borough).

- There has been a reluctance by property developers to invest in Southall. The Tram may provide the confidence to develop and invest in the area.

- The Tram will increase the attractiveness of Southall to shoppers and investors, and offer potential to improve the streetscape and shopping environment. The Tram could benefit street management in Southall, such as displacing illegal street trading or making it easier to enforce abandoned vehicle policy;

- The Tram increases accessibility to facilities and services, so that people will have a greater choice, especially those people who rely on public transport. for example, in 2011 without the Tram, 65,000 people are within 30 minutes public transport travel time of Southall town centre, its retail and leisure services (such as the new Sports Centre), but this increases to 84,000 people with the Tram.

- The Tram also supports the achievement of more sustainable communities through offering a higher quality public transport alternative to the car, reducing the need to provide as much car parking, and permits higher density development near to public transport nodes.

9.28 In terms of community safety, which is a primary concern of many neighbourhood level and community based strategies, the Tram would have a minimal impact, though this is dependent of the design of the Tram stops. Modern street furniture and Tram stops, with adequate lighting and materials could enhance people's perception of public transport as a safe way to travel, and new stops may replace existing bus stops or shelters that may suffer from vandalism or other problems. Again, this is dependent upon the specification of the Tram.

9.29 Potentially there could be a loss of trade and economic activity in the short term during construction of the Tram and a period of adjustment to it. Following completion of the Tram, enhanced accessibility and image should lead to increased trade. Anecdotal evidence from the impacts of the Luas scheme in Dublin suggested that disruption, whilst real, was really only comparable in scale to a major sewer or water replacement project – which although inconvenient, could be considered to be an occasional problem that occurs in urban environments. There was also indication that there has been visible upgrading and "business gentrification" along the route4.

[4] Anecdotal evidence from consultants RPS McHugh, March 2005.

CONCLUSION AND OVERALL ASSESSMENT

10. Conclusion

10.1 This report presents the key elements of the case for the West London Tram. It is presented from the perspective of Ealing, and Ealing within the wider context of West London. More detailed analyses covering the individual duties, responsibilities, and services of Ealing Council are contained in Part B of the Ealing Business Case. This Part A carries the main arguments and draws upon the detailed work.

10.2 Benefits for the London Borough of Ealing

10.3 The introduction of a modern Tram to Ealing enables the realisation of a vision for a vibrant and diverse community, able to grow and respond to economic and social change. It is not just a piece of transport engineering, but a major asset that will bring wide-ranging benefits to the community as a whole. These wider benefits are outlined here:

1. Create a high quality and high capacity spine route through the main centres of activity in Ealing, enabling further growth and development in this corridor;
2. Help to establish much improved public transport interchange between radial and non-radial directions, linking northern and southern parts of the Borough to the main retail and employment centres;
3. Improve the image and environmental quality of the four town centres along the Uxbridge Road, creating better public realm and “quality of stay”;
4. Improve quality of access on foot (and cycle) both to and within the street;
5. Thereby provide investment and business opportunities, and a better offer in terms of retail and other facilities;
6. Thereby attract more people to Ealing for shopping and services, reducing the proportion of people who travel outside the Borough for these requirements;
7. Reduced levels of noise and pollution along the Uxbridge Road due to the replacement of large numbers of diesel buses with Trams which are quiet and have zero emissions at the point of use.
8. Provide a stronger connection between communities the diverse communities in Ealing, fostering wider opportunities and integration;
9. Provide a public transport service that is dependable, regardless of traffic conditions;
10. Provide a more enjoyable travel experience across the Borough.

10.4 The London Borough of Ealing has an opportunity to maximise the benefits available to it that are offered by the Tram by responding to it in terms of policy and service planning. Measures that could maximise the benefits of the Tram to the Borough could include:

- Link Ealing to other parts of West London more effectively, and provide the Uxbridge Road communities with a stronger image, and

enable them to play a more prominent role in the West London sub-region;

- Establishing planning and development policies to allow higher density residential, employment and mixed uses that the Tram allows to happen;
- Tailor the provision of service delivery to the Tram corridor to maximise accessibility to Council services and facilities;
- Manage the transport network to link into the Tram, take advantage of the opportunities it provides and limit its environmental impacts, such as through traffic management and the provision of cycle and pedestrian networks;
- Create the opportunity “from Day 1” for an upgraded street environment, with better facilities, furniture, hard and soft landscaping, and security, provided that the right decisions are taken at the right time.

10.5 Potential disbenefits for the London Borough of Ealing

10.6 The conversion of the Uxbridge Road public transport services to Tram operation will inevitable bring some disbenefits for the Borough. The may be summarised as:

- Disruption of trade and traffic during the construction period;
- The requirement for resources to be devoted to ensuring the smooth running and success of the project;
- The requirement to commit funds for the Tram scheme itself, and for the associated upgrading of the public realm in line with public expectations;
- The need to reorganise the provision of Borough and other services affected by the Tram and its construction, particularly those located on the Uxbridge Road or using that route for access;
- The Tram brings the possibility of better access by Tram leading to more people travelling out of the Borough for shopping and other purposes.

10.7 Benefits for the residents of Ealing

10.8 Here are some examples of the ways in people will benefit from the Tram:

- For people living within a few minutes walk of a Tram stop, a wider choice of destinations within easy reach. Journeys with the Tram will be smooth and quiet compared to the bus, and the extra capacity of

each vehicle means little chance of not being able to get on because of crowding. It will be a better travel experience, and this will attract more users, and more frequent use, whether to reach one of the shopping centres, or the TVU, or the Dormer Wells Sports Centre, or any of the other many activities along the route.

- People living in other parts of the Borough often rely on the centres of activity along the Uxbridge Road. The Tram provides the potential to enhance public transport access to these centres from areas to the north and south of Uxbridge, as well as along the Uxbridge Road corridor. Realising this potential should be a key requirement of the Tram scheme from the Ealing point of view, to ensure that the scheme benefits everyone in the Borough.

- For people heading further afield, such as to work in Central London or to Heathrow, the Tram will provide a reliable and efficient means of interchange with rail and Underground services at Ealing Broadway.

- For employers, the Tram will broaden the range of people from which to draw recruits, and the higher quality of the commuting trip should help to retain staff.

- For retailers, especially along the Uxbridge Road, the Tram provides a grandstand view of the shop windows along the way and is thus a valuable marketing tool. People will know what is on offer. Retailers will be able to retain or enhance their competitiveness with other locations.

- For the providers of services, including health, education and leisure there will be benefits in being located along a highly accessible spine route.

- The area served by the Tram will benefit from an improved image and better quality surroundings, making it more attractive to investors, and raising the value of land and buildings.

- With the much higher capacity of the public transport system, more intensive activity can take place, and so more people can benefit.

- People whose mobility is impaired will find the Tram a great deal easier to use than buses. Each Tram stop will be accessible to all. Every Tram will stop at the same position and boarding points for wheelchairs and buggies can be clearly identified.

- The proximity of many of Ealing's cultural and leisure facilities to the Tram route will enable more people to be attracted to events and facilities.

10.9 Potential disbenefits for the residents of Ealing

- The likelihood of increased traffic on certain streets that provide an alternative route to the Uxbridge Road, even following traffic management measures designed to mitigate these effects;

- Because of these diversions, some streets may have extra controls on parking imposed that might not have otherwise been necessary;

- The temporary disruption to daily life, together with the noise and dirt generated by the construction of the Tram.

- In summary, Ealing faces a number of key challenges in relation to its transport network and prospects for growth over the next 10 years. These include:

- Policy Challenges – The Borough has a responsibility to adhere to and achieve policy challenges set out at various spatial levels. These include the regional (London) level, such as the growth targets set out in the London Plan and the targets set out in the Mayor's Transport Strategy. There are also more local policy challenges such as those relating to sustainable travel choices, protecting the environment, maintaining and improving the Borough's town centres, and promoting accessibility to jobs and services. These are set out in the Community Strategy (adopted by the Council as a member of the Local Strategic Partnership), the London Plan, the New Plan for the Environment, the Town Centre Strategies and the Economic Strategy.

- Dealing with the effects of traffic growth – as the population of Ealing and West London rises, and current patterns of mode shift towards the car increases, traffic congestion will increase, increasing journey times, putting more traffic pressure and its environmental effects on the Borough's roads, and limiting people's accessibility to jobs and services in Ealing. This could have negative environmental and economic effects on Ealing.

- Overcoming constraints on development potential - Traffic and the limited capacity provided by the bus service is an increasing constraint on the economic performance of Ealing and limits its potential for further growth. Congestion limits the movement of goods and services, and has negative environmental impacts. The Tram provides a more efficient way of moving people along the Uxbridge Road corridor, and provides a higher capacity and more efficient use of road space than can be provided by the Bus. This improvement in the Public Transport network also allows higher density development to occur along the Uxbridge Road corridor.

11. Summary appraisal

11.1 The overall message is that there are considerable benefits to be had from the introduction of the Tram. These are judged, both in magnitude and extent, to outweigh disbenefits that will fall on some parts of the community, particularly during construction. In both promoting and (when the time comes) defending the case for the Tram it will be necessary to ensure that the maximum possible efforts are made to capture all the potential benefits of the scheme, and to mitigate disbenefits to the greatest extent possible.

11.2 A number of key questions have to be answered. Having carried out the detailed exploration of the effects of the Tram, the consultants' view on the answers is presented below:

Question	Suggested answer
How is the vision for Ealing (and for Ealing within West London) affected by the Tram?	Higher capacity, quality and accessibility levels enable higher aspirations for growth and development, without environmental and quality of life penalties
To what extent can it be achieved without the Tram?	The same basic vision can be pursued without the Tram, but either to a lower intensity, or with poorer environmental outcomes
Will the Tram facilitate a higher level of achievement?	Growth and development without damaging traffic impacts will be difficult to achieve without the Tram

11.3 A summary appraisal against the Borough headline objectives for the Tram is provided in Appendix A below.

Appendix A

Summary Appraisal against Borough objectives

Borough Appraisal Objectives	Potential Benefit	Potential Disbenefit
1. Improve Network Capacity and Reliability	Dependent on pro-active enhancement of north-south bus routes and interchanges, and service quality	Traffic diversion negative impacts are largest potential disbenefit. Further mitigation will be possible through measures to reduce traffic, either with local limitation such as parking, or area wide such as road charging (not in Borough control).
2. Provide Access for All	Inherent in the scheme, but full potential also dependent on the achievement of objective. Potential for stronger community integration and reduced social exclusion	Failure to deliver network wide benefits would compromise the achievement of this objective. There will be disruption during construction period.
3. Improve Environmental Design and Management	Dependent on adequate design and resources	Disruption will occur but can be minimised with good management and supervision of contracts. Townscape impacts can be mitigated through use of high quality (and expensive) equipment
4. Facilitate Area and Town Centre Regeneration	Enables pursuit of higher intensity and more diverse development through planning and other policies	Risk of trade being lost to other centres accessible by Tram. Town Centre strategies therefore important.

Appendix B

Appraisal of Tram against WEBTAG Plus criteria

Appraisal criteria	**Summary Appraisal**
Environment	
Less Traffic - better environment in Ealing	Benefit, mainly on Uxbridge Road, and smaller reductions on some other roads
Less pollution (emissions, noise, visual) from public transport	Benefit on Uxbridge Road, with most public transport having zero emissions
Journey ambience	Benefit
Enhanced image of Uxbridge Road	Benefit
Alternative routes could suffer from increased traffic	Some disbenefit, but manageable. Also potential for further traffic "degeneration"
Visual intrusion of masts, catenary, signs and surfaces	Disbenefit, especially for the one third of the Tram route with conservation designations. Mitigation possible
Loss of green or other public space	Believed to be small scale
Creation of better, or new, public realm, open space and landscaping opportunities	Benefit, if resources are allocated to capture it
Possible negative affect on townscape (loss of listed buildings etc.)	Not finalized, but small in scale
Loss of street trading (stalls)	Mixed perceptions as to benefit or disbenefit
Temporary disruption during construction	Disbenefit
Safety	
Reduced car and bus traffic - less conflict and crashes	Changes difficult to predict because of mixed causation factors that can change independently of one another
Security (personal and business)	Uncertain:fewer but better-designed stops giving greater security. Also more people at each stop and per vehicle, so could be security gains. But longer walks to/from stops could counter this.
Increased traffic danger on diversionary routes	Possible disbenefits. Local mitigation measures need to be taken

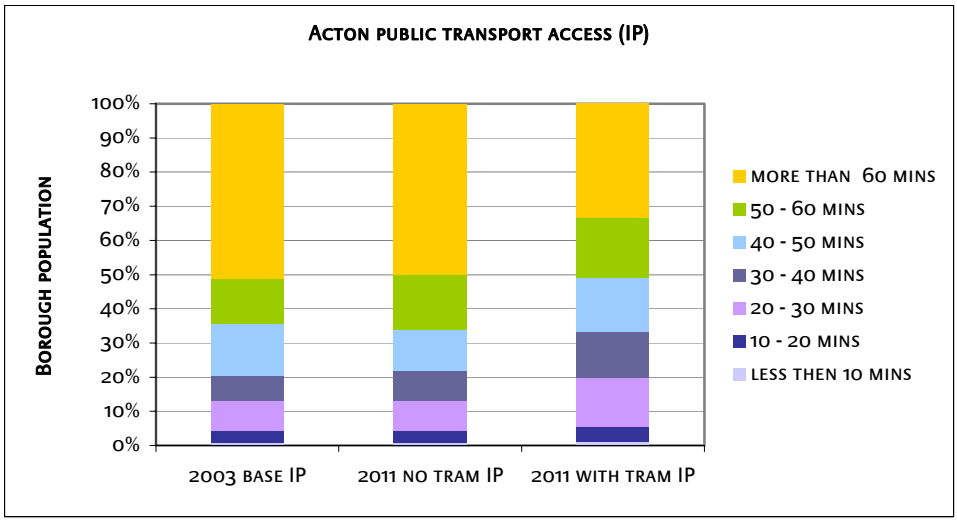
Accessibility	
Journey time savings	Benefit overall (public transport user benefits outstrip car user disbenefits)
Higher capacity (compared to bus)	Benefit (more people have good PT accessibility)
Enhanced reliability of PT service	Benefit
Wider population catchments for jobs and services	Benefits for public transport users, mixed impacts for car users
Less frequent PT stops on Uxbridge road	Disbenefit, given comparison between planned Tram stops and current bus stops, number of bus stops would have to be reduce in 2011 to maintain efficiency.
Potentially less frequent services than bus	Marginal Disbenefit (still “turn up and go” frequency of 3 to 6 minutes)
Reduced capacity for other road traffic	Some disbenefit (for vehicle users) but benefit overall if mode switch
Alternative routes could suffer from increased traffic	Localised disbenefits (specific locations) so mitigation measures needed
Parking on Uxbridge Road could be reduced	Disbenefit – extent not yet known
Loss of convenient access to some businesses for servicing/deliveries	Disbenefit – extent not yet known
Impact on movement of Emergency Vehicles	Likely benefit on Uxbridge Road, disbenefit on some other roads
Economy	
Transport efficiency	Benefit (lower operating costs)
Transport economic efficiency and reliability: Ealing residents	Assumed benefit, no data
Enhanced image of Uxbridge Road	Benefit
Increased accessibility to local amenities and employment	Benefit, except risk of outward flow to competing centres
Speed reliability, ride quality and image together promote regeneration, densification, intensification	Benefit likely
Increased land values resulting from greater accessibility	Benefit likely

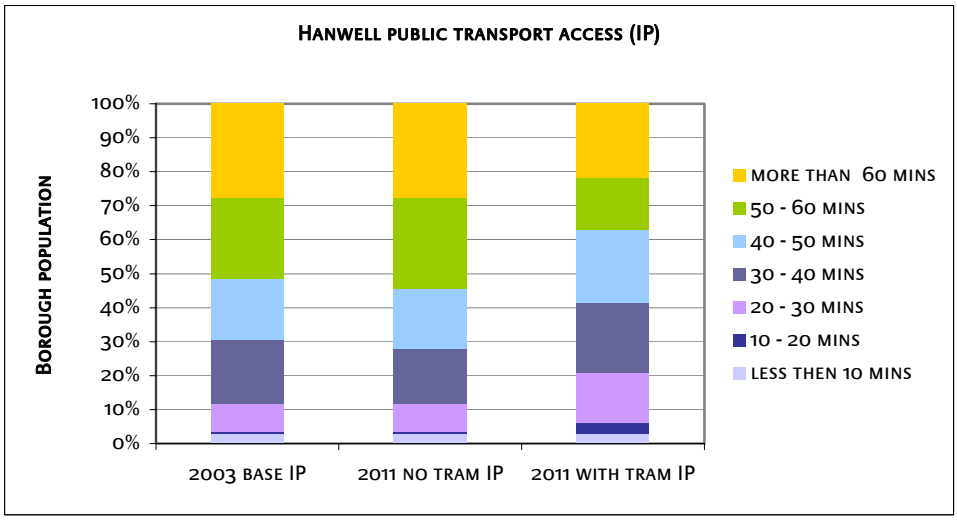
Loss of trade during construction	Disbenefit needing mitigation or compensation
Integration	
Easier interchange between modes	Potential benefit, dependent on design
Better interchange with north-south routes	Potential benefit, dependent on design
Faster overall journey times	Benefit for many journeys, but may be some disbenefit due to fewer stops and increased walking times.
Land use policy: higher density at interchanges	Potential benefit
People and Communities Community regeneration (additional criterion for this report)	
Support community function of town centres	Benefit from wider access, but marginal disbenefit from reduced local access by bus along Tram corridor
Support better links between centres and rest of Borough	Benefit
Create stronger links between diverse communities	Benefit, but some disbenefit from reduced local access by bus due to fewer stops
Provide wider choice for disadvantaged individuals and communities	Benefit, but some disbenefit from reduced local access by bus

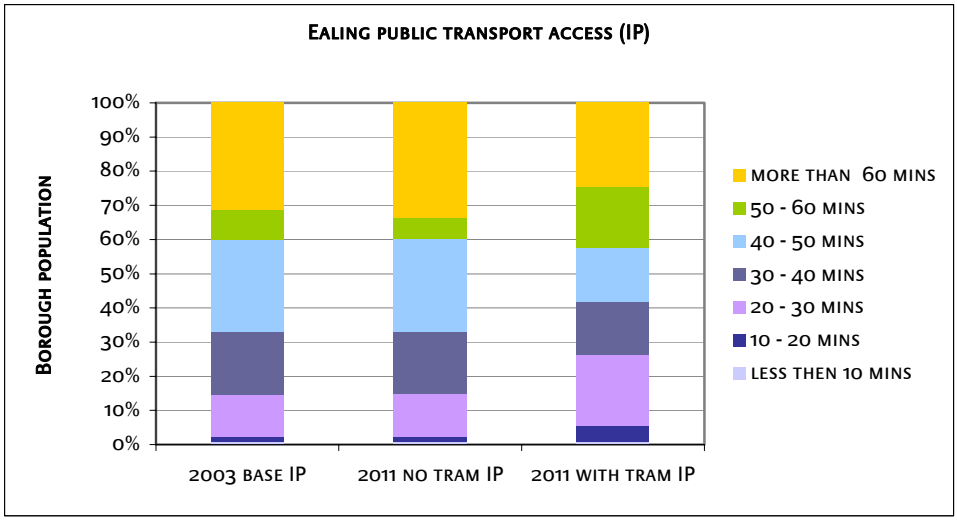
Appendix C

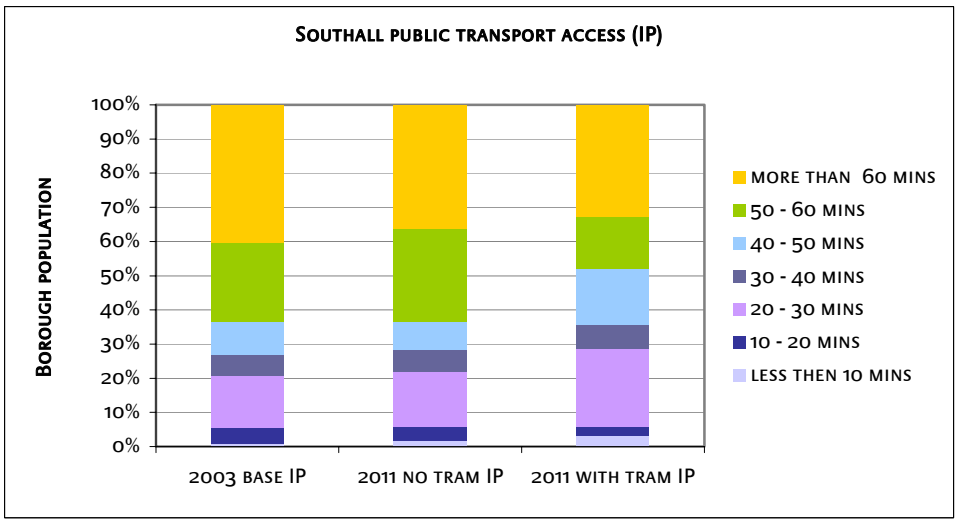
Public Transport Accessibility to Ealing's Town Centres during the Inter-peak period (Weighted)

The charts show the proportion of the Borough's population that is accessible within the stated time bands.






EALING PUBLIC TRANSPORT ACCESS (IP)
BOROUGH POPULATION
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2003 BASE IP
2011 NO TRAM IP
2011 WITH TRAM IP
MORE THAN 60 MINS
50 - 60 MINS
40 - 50 MINS
30 - 40 MINS
20 - 30 MINS
10 - 20 MINS
LESS THEN 10 MINS


SOUTHALL PUBLIC TRANSPORT ACCESS (IP)
BOROUGH POPULATION
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2003 BASE IP
2011 NO TRAM IP
2011 WITH TRAM IP
MORE THAN 60 MINS
50 - 60 MINS
40 - 50 MINS
30 - 40 MINS
20 - 30 MINS
10 - 20 MINS
LESS THEN 10 MINS

Appendix D

Traffic Impacts on Various Community Facilities

Facility	Specific Impact*	Overall Impact
Acton Swimming Baths	Moderate decrease in overall traffic along High Street	=
Dormers Wells Leisure Centre	Moderate increase in traffic along Dormer's Wells Lane	=
Reynolds Sports Centre	Moderate increase in one direction along Gunnersbury Road and a negligible decrease in the other direction	=
Twyford Sports Centre	Significant increase along Uxbridge Road and Twyford Avenue, but decrease along Rosemont Road and Creffield Road	--
Southall Sports Centre	Significant decrease in traffic along both Beaconsfield Road and South Road	+
Villier's High School	Varied impact – some increase along Villier's Road and significant decrease along Park Avenue	=
Twyford High School	Significant increase along Uxbridge Road and Twyford Avenue, but decrease along Rosemont Road and Creffield Road	--
Hospitals		
Acton Hospital	Moderate increase in one direction along Gunnersbury Road and a negligible decrease in the other direction	=
Ealing Hospital	Negligible change – small decreases in traffic along all adjacent routes	=

Appendix E

Photo Gallery

Photograph selection – Uxbridge Road

Diverse communities

Bland townscape –

the Tram can add to the scene

Pressure on side streets

Pressure on Uxbridge Road

Good townscape that requires

sensitive Tram design

On-street retailing may be affected

Pressure at bus stops

Bus priority measures

Tram aspects from other places

Shared bus and Tram street, Basel

Shared footway and Tram stop, Bordeaux

Shoppers mix easily with Trams, Croydon

Public art – Tram stops designed by local artists,

Hanover (1)

Hanover (2)

Hanover (3)

Uniform stop design concept, Lyon

Local identity with the Tram, Montpelier

Bold roundabout design, Montpelier

New public space at Tram stop, Lyon

Tram stops can add vitality and security at night, Bilbao