

Transport for London

Transport assessment best practice

Guidance document

April 2010

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1. INTRODUCTION

Objectives

- 1.1 Best practice guidance was originally prepared by Transport for London (TfL) in 2006 to assist those submitting planning applications for major developments in London where a transport assessment (TA) is required. Since then there have been a number of changes including the introduction of new planning powers for the Mayor of London, the introduction of pre-application advice and the publication of national guidance on transport assessments issued by the Department for Transport (DfT). This confirmed that within London, TfL's guidance should be used for strategic applications referred to the Mayor. To reflect these changes, a number of revisions have been made to the document, taking into account changes to legislation and feedback from users.
- 1.2 The purpose of this document is to provide high-level guidance to improve the process for TfL and its Land Use Planning Team (LUP) and will not in any way replace borough guidance on transport assessments. Due to the technical nature of some elements of this document which will inevitably evolve over time, this document will be subject to periodic review.
- 1.3 The guidance is relevant to developments that are deemed to be strategically important and which are referred to the Mayor of London under the Town and Country Planning (Mayor of London) Order 2008. The LUP Team at TfL co-ordinates the transport elements of the Mayoral reports responding to these planning applications.
- 1.4 Major developments are likely, by nature of their scale alone, to generate high levels of movement. Whilst there may be some exceptions, such as certain types of development in the Green Belt, referred schemes are likely to have an effect on the operation of the transport network. Planning for managing access to such developments is essential if conformity with the London Plan is to be demonstrated.
- 1.5 A full transport assessment will be required for schemes that are referred to the Mayor, unless otherwise agreed with TfL.
- 1.6 This document offers advice and guidance to those producing transport assessments for referred applications. It is intended to ensure that all requirements of TfL are fulfilled and applications can be reviewed and assessed comprehensively.
- 1.7 A transport assessment is an inclusive process that should cover all aspects of movement by people and vehicles. It should be able to demonstrate how developments affect demands for travel and how all travel demands and servicing requirements will be met.

- 1.8 Reference is also made in the guidance to the additional responsibilities of TfL where developments impact upon the Transport for London Road Network (TLRN), the Strategic Road Network (SRN) and the Congestion Charge Zone or where applications potentially affect public transport services/infrastructure. Although this guidance is not concerned with these types of schemes specifically, many of the principles and techniques referred to in this document will be relevant. For these types of schemes, discussion with TfL is particularly encouraged. It should be noted that this document is not intended to explain in detail the variety of roles TfL has in relation to the control of non-referred planning applications.

Overview of the Referral Process

- 1.9 The Town and Country Planning (Mayor of London) Order 2008 sets out the criteria for schemes that need to be referred to the Mayor of London for developments that are of strategic importance in the capital. For referred schemes, the Mayor is able to provide comment and a statement as to whether he considers the application to comply with the London Plan. Where he considers it appropriate to do so on strategic grounds, he can direct the local planning authority (e.g. London borough, Olympic Delivery Authority, London Thames Gateway Development Corporation areas) to refuse planning permission. He can also, outside the Olympic Delivery Authority and London Thames Gateway Development Corporation areas, where an application meets certain criteria and policy tests, take over the application and become the local planning authority where he would determine the application himself. The TfL Land Use Planning Team advises the Mayor on transport issues as part of this process.
- 1.10 The London Plan has 'Development Plan Status' and as such has considerable weight in the decision making process. All referred planning applications should be in general conformity with London Plan policies. Any direction by the Mayor to refuse must be based on London Plan policy.
- 1.11 Local planning authorities in London must refer to the Mayor any planning applications that fall within the criteria that are set out in the Order. There are four main categories:
- Category 1: Large Scale Development;
 - Category 2: Major Infrastructure;
 - Category 3: Development which may affect Strategic Policies; and
 - Category 4: Development on which the Mayor must be consulted by virtue of a direction of the Secretary of State.
- 1.12 Appendix A gives a summary of the criteria for cases that are referred to the Mayor.

- 1.13 TfL produces a range of guidance documents, specific to particular business areas. These include advice on modelling techniques, design guides and general information on the requirements of TfL. This guidance should assist applicants of referred applications to identify appropriate techniques and obtain advice where appropriate. Appendix D lists some of the key reference documents.

About Transport for London

- 1.14 TfL is the integrated body responsible for the planning and management of London's transport system. Boroughs have responsibility for managing the local highway network. Within the organisation there are a range of business areas covering transport in London. In addition to being responsible for London Buses, London Underground, London Overground, Docklands Light Railway (DLR), River Services and Tramlink, TfL also has direct responsibility for the Transport for London Road Network (TLRN) and a network management duty (under the Traffic Management Act 2004) regarding the Strategic Road Network (SRN) along with all traffic signals, the Congestion Charging scheme, the Public Carriage Office and Dial-a-Ride.
- 1.15 TfL promotes cycling, walking, sustainable freight and Smarter Travel initiatives. In addition to direct responsibility for the London Overground rail services, London Rail, as part of TfL, has an increasingly important role in the management and operation of other rail services in London. TfL oversees the Local Implementation Plans (LIPs) process which channels funding for transport to London boroughs and also comments on boroughs' LIPs as part of the reporting process to the Mayor.
- 1.16 This range of responsibilities means that the operational aspects of the transport network, and the effect a development might have on the network, are key elements in assessing planning applications, as well as the policies of the London Plan. The LUP Team coordinates the TfL corporate response to Mayoral referrals on transport related matters, which can include liaising with local planning authorities, developers and the Greater London Authority (GLA).

Structure of this Guidance

- 1.17 Chapter 2 provides an overview of the criteria used to define referable applications and the Mayoral decision making process. Appendix A gives a summary of the specific thresholds that are used to classify referred planning applications, taken from the Mayor of London Order 2008.
- 1.18 Chapter 2 also outlines the separate regime associated with the Traffic Management Act 2004 and the Network Management Duty of TfL, and how this may impact upon referred planning applications.
- 1.19 Chapter 3 summarises the relevant policies relating to transport assessments and the London-specific policies that are taken into consideration in the Mayor's decision-

making process.

- 1.20 Chapter 4 sets out the procedures for scoping a transport assessment, including pre-application discussions and the production of a scoping document. This chapter also features a checklist. Applicants should use this checklist to identify topics to be included in the TA.
- 1.21 Chapter 5 sets out advice on the structure of a TA, including discussion of the use of plain English and clearly stating assumptions and references.
- 1.22 Chapter 6 outlines the input requirements for a TA. This covers the baseline conditions and consideration of the cumulative impacts that nearby developments may have.
- 1.23 Chapter 7 discusses the organisation of the TA document in terms of the stages to go through and the different aspects to cover when assessing impacts.
- 1.24 Chapter 8 covers specific analytical techniques recommended by TfL. This includes trip generation analysis and capacity analysis of individual modes and services.
- 1.25 Chapter 9 discusses proposing mitigation measures through planning obligations, the production of travel plans for people, Construction Logistics Plans for the movement of construction materials and Delivery and Servicing Plans for the movement of goods once the development is in operation.
- 1.26 Chapter 10 provides a summary of the main points of the guidance and an overview of the document.
- 1.27 Appendix A covers the criteria that define referrable planning applications.
- 1.28 Appendix B features the recommended methodology for the calculation of a public transport accessibility level (PTAL), as provided by TfL. It also provides a link to the PTAL website.
- 1.29 Appendix C provides contact details for the Land Use Planning Team, including a link to TfL's website giving key contacts and pre-application advice.
- 1.30 Appendix D lists some of the key reference documents available. TfL produces a wide range of detailed guidance documents on all aspects of transport in London and these should be considered for all referred planning applications.
- 1.31 Appendix E contains a glossary of various terms and acronyms.

2. OVERVIEW OF THE REFERRAL PROCESS

Introduction

- 2.1 The Town and Country Planning (Mayor of London) Order 2008 enables the Mayor of London to exercise influence over land use planning, including transport implications, through planning applications that are referred to him. TfL advises the Mayor on the transport implications of such planning applications.
- 2.2 The Mayor can direct a local planning authority to refuse planning permission if, amongst other matters, the transport impacts are considered to be contrary to the London Plan or otherwise contrary to good strategic planning in London. He can also, outside the Olympic Delivery Authority and London Thames Gateway Development Corporation areas, where an application meets certain criteria and policy tests, take over the application and become the local planning authority where he would determine the application himself. Figure 2.1 summarises the steps to obtaining planning permission.
- 2.3 The London Plan has 'Development Plan Status' and as such forms part of the decision making process. All referred planning applications should be in general conformity with London Plan policies. Any direction to refuse would normally be based upon London Plan policy.

Referred Planning Applications

- 2.4 Local planning authorities in London must refer to the Mayor any planning applications that fall within the criteria that are set out in the Order. Appendix A lists the referral categories.
- 2.5 The planning application process can be lengthy. In the case of referred applications, it is important to involve the GLA and TfL as early as possible in the process. Since November 2007 TfL has offered a formal pre-application advice service. Details are available from the TfL website. A written pre-application response from TfL provided as part of this service can help to identify issues at an early stage, particularly in relation to planning obligations, and speed up the decision making process.
- 2.6 Once an application has been established as being referrable, the transport planning process should follow the stages detailed below. Transport and access needs to be addressed at the outset when developments are being considered. The location, layout, design, types of use and scale will all affect how people will access and use a development. As a result it will need to be demonstrated how these issues have been considered.

Formal Consideration of the Planning Application and TA

- 2.7 The pre application meeting will be focused around the following issues: site location and public transport accessibility level; car and cycle parking provision; trip generation/traffic impact; modelling; public transport and pedestrian/cycles linkages; travel plan and planning obligations. Following the meeting a detailed advice letter will be provided, outlining the major transport planning issues and the constraints and requirements that have been agreed. This is copied to the local planning authority and GLA.
- 2.8 Once the content of the TA has been discussed with TfL and any amendments made in response to pre-application advice, the TA will be submitted with the planning application to the local planning authority. For a referred scheme, a copy of the application will be sent to the Mayor.
- 2.9 A copy of the TA and other relevant documents should be sent directly to the TfL Land Use Planning Team, in electronic format. This will help to speed up the evaluation and feedback process and allow TfL enough time to comment on the contents of the document, thus minimising any delays
- 2.10 The TfL LUP Team will circulate the TA and planning application internally to the appropriate sections within TfL, including Surface Transport, London Rail, DLR, London River Services, London Tramlink, Crossrail and the Underground. This will avoid local planning authorities having to consult these parts of the organisation separately. It is very important that the TfL LUP Team is the central point of contact to ensure that a corporate response is obtained. The LUP Team aims to respond within 21 days upon receipt of a TA, if possible prior to any stage 1 referral (see below).

The Mayor's Decision Making Process

Stage 1 Report

- 2.11 A referred planning application will be considered by the Mayor firstly as a Stage 1 report within six weeks of receipt. Any TfL concerns or requirements will be notified at that time. Where formal TfL pre application advice has already been provided, this will form the basis of the comments in the Stage 1 report updated in response to any amendments that the applicant has made. Applicants are asked to respond to the transport issues raised in the Stage 1 Report direct to the LUP Team Case Officer (see Appendix C for contact details) although case officers will be proactive in this regard. Any feedback or additional data requests highlighted in the Stage 1 report should be responded to with follow-up submissions.
- 2.12 Where TfL has raised significant concerns or specifically requested further information or analyses, additional information should be submitted on behalf of the applicant responding to the comments made by TfL in the Stage 1 report.

- 2.13 The information submitted should state explicitly where planning conditions or obligations are deemed to be required to overcome any concerns raised by TfL. Heads of terms of any proposed planning obligations should be included.

Stage 2 Report

- 2.14 The Mayor has the power to direct a local planning authority to refuse planning permission on referred applications or to take over the application for determination himself. He responds to such cases via a two stage reporting process. Following issue of the Mayor's stage 1 report, the local planning authority will make a draft decision on the application and notify the Mayor. The Mayor has 14 days to make a decision on 3 options: 1 - Allow the local planning authority's decision to proceed unchanged; 2 - Direct the local planning authority to refuse; 3 - Apply policy tests to see if he is justified in taking it over (outside the Olympic Delivery Authority and London Thames Gateway Development Corporation areas). If the Mayor, at stage 2, opts to take the application over, he in effect becomes the local planning authority for the purposes of determining that application.
- 2.15 The information supplied to the Mayor, together with any further submissions provided by the applicant, will be used by TfL to contribute to a Stage 2 Mayoral report.
- 2.16 All mitigation measures, including details of planning obligations or section 278 agreements, should be included in the submitted material. This will be the final opportunity to consider the information in the TA submission and to determine whether or not a direction to refuse planning permission on transport grounds will be appropriate.

Post Stage 2 - Issuing of Planning Permission

- 2.17 If the granting of planning permission depends on a planning obligation, in many cases TfL will need to be involved in the drafting and will in a limited number of cases be a signatory. In any event, a copy of the section 106 agreement should be sent to the TfL LUP Team for monitoring purposes once signed. TfL has a Planning Obligations Team which oversees the implementation of significant planning obligations (contained in section 106 agreements) in conjunction with TfL businesses.
- 2.18 Previous Stage 1 and Stage 2 reports can be viewed on the Mayor's websites at:

<http://www.london.gov.uk/mayoral-planning-decision/mayor%E2%80%99s-planning-decisions>

http://legacy.london.gov.uk/mayor/planning_decisions/

The Traffic Management Act (TMA) 2004 and How it Affects the Referral Process

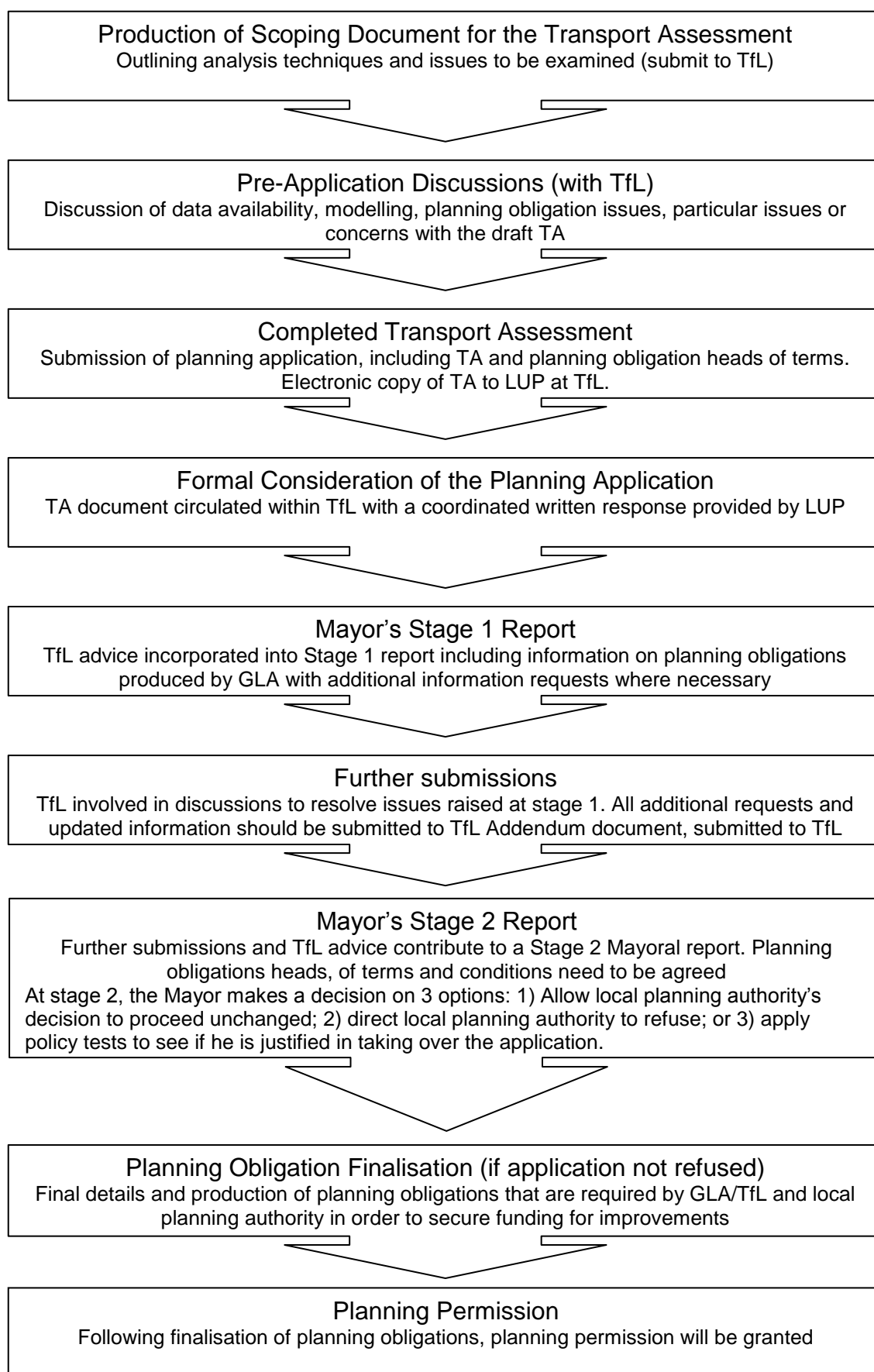
- 2.19 The Traffic Management Act (TMA) amends Section 301A of the Highways Act 1980 and Section 121B of the Road Traffic Regulation Act 1984 so that boroughs have to notify TfL if they are proposing to "exercise any power under the Highways Act or Road Traffic Regulation Act in a way which will affect, or be likely to affect a GLA strategic road." The TMA places a Network Management Duty (NMD) on local traffic authorities, including TfL, with the objective to secure the expeditious movement of traffic, which includes pedestrians. The NMD prompts the appointment of a Traffic Manager by each local traffic authority, whose primary role is to ensure the requirements of the NMD are fulfilled. The Director of Traffic Operations is TfL's Traffic Manager, whose role and objective as part of the NMD is to proactively safeguard the operation of the TLRN and SRN.
- 2.20 Before development can proceed, TfL must give consent if a GLA road (i.e. part of the TLRN) or a SRN road is affected by a proposal. TfL must give an opinion on a notification within one month. Where a TfL objection has not been withdrawn, the GLA can consider the objection and can give consent to the proposal. Whilst this is a distinct process from applying for planning permission, the two regimes can impact upon each other in certain respects.
- 2.21 In relation to planning applications, where the borough is acting as local planning authority under the Planning and Compulsory Purchase Act 2004, there is no statutory need for the boroughs to consult TfL unless the proposal affects the TLRN or SRN as explained above. This means that, in some cases, a local planning authority may choose not to consult TfL under TMA regulations during consideration of a planning application. This leaves the possibility of planning consent being granted whilst a subsequent notification to TfL under TMA regulations is refused. This can have implications for cases that are referred to the Mayor.
- 2.22 If an issue is identified for TMA approval for a referred case, and if it can be resolved at the planning stage, the issues will be highlighted to the applicant/local planning authority within the Mayor's Stage 1 or Stage 2 report that states the nature of the objection and the steps needed to resolve it.
- 2.23 Where an objection from TfL under the Traffic Management Act is likely in a referred planning application, negotiations with the applicant and discussions with the local planning authority will be necessary in order to avoid the problem of planning permission being granted and subsequently, TMA consent being refused. The following clause may be included in the planning report to the Mayor stating that his decision not to direct refusal does not prejudice TfL's position in any unresolved issue at a later stage:

"The Traffic Management Act 2004 amends Section 301A of the Highways Act 1980 and Section 121B of the Road Traffic Regulation Act 1984 so that boroughs have to notify TfL if they are proposing to "exercise any power under the Highways Act or

Road Traffic Regulation Act in a way which will affect, or be likely to affect a GLA strategic road". The Mayor's decision on this planning application does not prejudice the Director of Traffic Operations' position in any unresolved issue associated with the TMA at a later stage."

- 2.24 It is important to ensure that the two consent regimes are not confused and that, if a proposal is unacceptable in planning terms, but may have an effect on a TLRN or SRN road, that the Mayoral direction relates to sound planning reasons for refusal. Planning permission will not be refused simply because TMA consent would not be forthcoming - the effects of the development must cause demonstrable harm in planning terms for a refusal to be reasonable.
- 2.25 Applicants are encouraged to consider the implications of the Network Management Duty in TAs and discuss any TMA issues with TfL's Surface Development Planning Team so that an early resolution of any conflicts can be achieved.
- 2.26 The designation of the Olympic Route Network (ORN) in summer 2009 gives the Olympic Delivery Authority (ODA) legal powers to manage the ORN to minimise third party impacts on the approach to and during Games time. This issue should also be discussed with TfL's Surface Development Planning Team.

FIGURE 2.1 STEPS TO OBTAINING PLANNING PERMISSION



3. LAND USE AND TRANSPORT POLICY CONTEXT

Introduction

- 3.1 A transport assessment (TA) is required for all planning applications that are referable to the Mayor of London. A referable application is defined by the Town and Country Planning (Mayor of London Order) 2008. The scope of the TA is determined by the over-riding need to demonstrate how the transport demands of a particular development can be met within the existing and planned transport network. This should take into account infrastructure, transport services, transport capacity constraints and how the impact of that development can be mitigated.
- 3.2 Another key consideration is to assess the conformity of proposals with policy. Therefore the TA should consider the relationship between the development and relevant transport policies.
- 3.3 The following advice relates to how a TA should incorporate appropriate policy considerations and assess matters of consistency.

Planning and Compulsory Purchase Act (2004)

- 3.4 The Act was designed to improve the planning system and make it more flexible and responsive at a regional and local level. The Act sets out new procedures for the production of planning policies in order to achieve a more regional, strategic approach.
- 3.5 It introduces the concepts of a Local Development Document (LDD) and a Regional Spatial Strategy (RSS), replacing the former Unitary Development Plan (UDP) and Regional Structure Plan. This means that a LDD needs to be in general conformity with the Regional Spatial Strategy (in London's case the London Plan). It assigns Regional Strategies 'Development Plan' status. As explained below, LDDs make up the Local Development Framework (LDF).

Planning Act (2008)

- 3.6 The Act introduces the concept of National Policy Statements (NPSs) on a range of topics including transport infrastructure. It also allows for the creation of an Infrastructure Planning Commission (IPC) with powers to determine nationally significant applications for infrastructure projects. This is designed to speed up the planning process for new infrastructure including ports and airports. From 1 March 2010, the IPC started considering proposals for major energy and transport projects and will make decisions using NPSs that are being produced across Government.

- 3.7 The Act also enables the introduction of the Community Infrastructure Levy (CIL) by local authorities. CIL will be a standard charge or tariff to be applied to new developments within a specified area or meeting certain criteria. The context and justification for CIL at local level will need to be incorporated in boroughs' Local Development Frameworks. CIL will eventually provide a partial replacement for planning obligations/section 106 agreements (see below). The CIL Regulations came into effect on 6 April 2010. Under CIL Regulations, section 106 agreements will only be permitted if they are directly related to the new development and by April 2014, section 106 agreements will be scaled back further to ensure they operate effectively alongside CIL. Alongside other charging authorities (e.g. the boroughs), the Mayor also has the ability to apply CIL, but only for transport facilities.

Planning obligations

- 3.8 These allow local planning authorities to request contributions from developers to help mitigate the impacts of new developments through section 106 (s106) agreements. This is often used to obtain funding for transport improvements. The Mayor regularly asks for contributions on referred planning applications. These are secured through legal agreements known as planning obligations and are formulated using the principles set out in ODPM Circular 05/05.
- 3.9 Where a contribution from a developer is necessary, the granting of planning permission will be made conditional on the formulation and signing of a planning obligation. The details of this agreement are usually discussed with the local planning authority, and, if specific clauses or requirements are requested as part of the Mayoral referral process, with the GLA and TfL.
- 3.10 The best outcomes will usually be achieved and time and money saved by discussing potential planning obligations as early as possible. Proposals for transport mitigation measures should be discussed during the pre-application stage, involving a full dialogue between TfL, the local planning authority and the developer.
- 3.11 Such measures should be incorporated into the transport assessment for evaluation by TfL, the Mayor and the local planning authority. Where obligations or physical mitigation measures are proposed to address specific issues or concerns, their outcomes should be included in the transport assessment.
- 3.12 Delivering Crossrail is an important part of TfL's investment programme and a key priority for the Mayor, as set out in TfL's Business Plan (2009/10 – 2017/18). A specific requirement for planning obligations to secure funding for Crossrail is set out in a [draft] Alteration to the London Plan (Policy 3C.12A of the Proposed London Plan Alterations) and draft Supplementary Planning Guidance (SPG) issued by the Mayor. The Proposed London Plan Alterations and accompanying draft SPG 'Use of planning obligations in the funding of Crossrail' (October 2009) were considered at an Examination in Public (EIP) in December 2009 and in March 2010 the Mayor accepted the recommendations of the EIP Panel Report (issued in February 2010). The

emerging London Plan Alterations will be published in April 2010 and accompanying SPG is expected to be adopted by summer 2010 following a further round of consultation. It is important to refer directly to these documents for the precise details of the financial contributions required from new office, retail and hotel development towards Crossrail in central London, the Isle of Dogs and within 1km of Crossrail stations (if not already within the other contribution areas).

Planning Policy Guidance 13: Transport (PPG13) – 2001

- 3.13 As part of the policy changes associated with the 1998 White Paper, the Government published a revised version of Planning Policy Guidance: Transport (PPG13) in 2001. It aims to promote more sustainable transport choices for people and for moving freight and to improve integration between planning and transport. It places emphasis on the need to provide good public transport accessibility as part of new developments.

Planning Policy Statement 3: Housing (PPS3) – 2006

- 3.14 PPS3 provides guidance on a range of issues relating to the provision of housing. It replaces the 2000 version of PPG3. The document reflects the government's commitment to improving the affordability and supply of housing in all communities. It was developed in response to the recommendations in the Barker Review of Housing Supply published in 2004.
- 3.15 PPS3 sets out policies designed to achieve the desired outcomes of the Government's housing policy objectives which include creating sustainable, inclusive, mixed communities. In support of the objective to create mixed, sustainable communities, the Government's policy is to ensure that housing is developed in suitable locations which offer a range of community facilities and with good access to jobs, key services and infrastructure. On the subject of parking, PPS 3 states that 'local planning authorities should with stakeholders and communities, develop residential parking policies for their areas, taking account of expected levels of car ownership, the importance of promoting good design and the need to use land efficiently.'

Planning Policy Statement 4: Planning for Sustainable Economic Growth (PPS 4) – 2009

- 3.16 As well as updating PPG 4, PPS4 replaces PPS6 (Planning for town centres, 2005) and those parts of PPG 13 (Transport) which set out national maximum car parking standards for non-residential development. On the subject of car parking, it requires local planning authorities to set maximum car parking standards for non-residential development in their area, ensuring alignment with the policies in the relevant local transport plan and, where relevant, the regional strategy. In setting maximum standards, local planning authorities should take into account a number of factors including current and future likely levels of public transport accessibility, the need to reduce carbon emissions and to tackle congestion and the need to enable schemes to fit

into central urban sites and promote linked trips.

- 3.17 PPS4 is concerned with planning for sustainable economic growth and requires that regional planning bodies and local planning authorities should ensure that their development plan sets out a clear economic vision and strategy for their area which positively and proactively encourages sustainable economic growth. In determining planning applications for economic development, all planning applications should be assessed against a number of impact considerations including the accessibility of the proposal by a choice of means of transport including walking, cycling, public transport and the car, the effect on local traffic levels and congestion after public transport and traffic management measures have been secured.
- 3.18 In selecting sites and assembling land for main town centre uses, PPS4 requires that local planning authorities should identify an appropriate range of sites to accommodate the identified need, ensuring that sites are capable of accommodating a range of business models in terms of scale, format, car parking provision and scope for disaggregation. Local planning authorities are required to base their approach on identified need, identify the appropriate scale of development, apply the sequential approach to site selection, assess the impact of sites on existing centres and consider the degree to which other considerations may be material to the choice of appropriate locations for development.
- 3.19 Planning applications for main town centre uses which are not in an existing centre and are not in accordance with an up to date development plan must be accompanied by a sequential assessment and an impact assessment (dealing with the impacts set out in policy EC16.1 of PPS4). An impact assessment is also required for planning applications in an existing centre which are not in accordance with the development plan and which would substantially increase the attraction of the centre to an extent that the development could have an impact on other centres.

Planning Policy Statement 12: Local Spatial Planning (PPS12) – (2008)

- 3.20 This planning policy statement on local spatial planning sets out the Government's policy on the preparation of local development documents (LDDs) which make up the Local Development Framework (LDF). LDDs include the Core Strategy, development control/management document, site allocations document and Area Action Plans (AAPs). The LDF collectively delivers the spatial planning strategy for the local planning authority's area.
- 3.21 PPS12 includes a requirement for local authorities to carry out an infrastructure planning exercise with relevant agencies to underpin the Core Strategy and provide a justification for Community Infrastructure Levy (CIL) requirements. TfL engages with this process through its sub-regional and other policy work.

London Plan: The Mayor's Spatial Development Strategy Consolidated with Alterations since 2004 (2008)

- 3.22 The London Plan was published in February 2004 with the aim of providing a framework for strategic land use planning policy, strongly emphasising the need for sustainable growth and especially more sustainable forms of transport. In 2008 a consolidated version was published incorporating alterations made since 2004. A complete revision of the London Plan, to be progressed alongside a new Mayor's Transport Strategy (MTS) is underway which aims to see a new MTS published in 2010 (see below) and a new London Plan in 2011. In October 2009, the draft replacement London Plan was published for consultation. The next stage in the Plan's preparation is an Examination in Public (EIP) which will take place in the summer and autumn of 2010. Publication of the replacement London Plan is expected in late 2011.
- 3.23 The London Plan places an emphasis on sustainability by seeking to locate development in areas highly accessible by public transport in order to minimise the reliance on the private car and seeks to address the sustainable movement of freight.
- 3.24 The Planning and Compulsory Purchase Act (2004) assigns the London Plan Development Plan status and as such referred planning applications should be in line with the policies of this plan. Consequently, any refusal that TfL recommends to the Mayor is likely to be based on the proposal being contrary to a policy contained in the London Plan, or otherwise contrary to good strategic planning in London.
- 3.25 In particular, the London Plan contains maximum car parking standards with which referred applications should comply.

Mayor's Transport Strategy (2001)

- 3.26 The Mayor's Transport Strategy was published in July 2001 and sets out the Mayor's transport policies for London. A new draft Mayor's Transport Strategy (MTS) was published for consultation in October 2009 and publication of the final version is expected in spring 2010. The new MTS is being considered alongside a complete revision of the London Plan. The policies and proposals in the Mayor's Transport Strategy are a material consideration. However, the primary Development Plan Document is the London Plan together with any approved Local Development Documents. Any refusal based on London Plan policies could utilise Mayoral transport policies as supportive material.

Highways Act (1980) – Section 278

- 3.27 Section 278 of the Highways Act is concerned with agreements made with developers to carry out highway improvement works that are essential for the successful completion of a proposed development. Such agreements are made with the relevant local highway authority. Transport for London is the local highway authority for the

TLRN, so any works to TLRN Roads will require a specific section 278 agreement directly with TfL (separate from any other section 278 agreements that the developer may have with the local highway authority for its roads).

- 3.28 Section 278 agreements for SRN roads should be with the borough that is the local highway authority for these roads.
- 3.29 As with planning obligations, the best outcomes will usually be achieved and time and money saved by discussing potential section 278 agreements as early as possible. Discussions should start during the pre-application stage, involving a full dialogue between TfL, the local planning authority, the local highway authority and the developer.

Disability Discrimination Act (2005)

- 3.30 The Disability and Discrimination Act requires public transport, new buildings and the area around new buildings to be accessible safely and without unreasonable difficulty by people with disabilities. Any proposals should have proper regard for the Act, including a sufficient level of disabled parking (in a suitable location) and suitable access to the buildings

Local Development Documents

- 3.31 As mentioned above, boroughs are in the process of replacing Unitary Development Plans (UDPs) with Local Development Frameworks (LDFs). Local Development Documents (LDDs) will contain transport policies and area based policies that may affect transport networks. The TA will need to be mindful of emerging policies in LDFs and the status of saved UDP policies.
- 3.32 Other documents produced by boroughs, such as Supplementary Planning Documents, Planning Frameworks and Masterplans, should also to be taken into account during the formulation of a TA. Boroughs may have design guides or streetscape manuals that should be consulted when designing supporting infrastructure or mitigation measures.

4. SCOPING AND PRE-APPLICATION PROCEDURE

- 4.1 This section outlines the practical steps required prior to producing a transport assessment document through the process of scoping the document and holding pre-application discussions with relevant stakeholders.
- 4.2 Where schemes have a negligible impact on the operation of the transport network, an abbreviated TA or transport statement may be sufficient. In such instances, the reasons why core topics are not material, and hence scoped-out, should be given.
- 4.3 The first stage of the production of a transport assessment should be the scoping of what should be included in the final document. This will be guided by pre-application discussions with the local planning authority but, in the case of referred applications, should also involve formal pre-application meetings with TfL and the GLA.
- 4.4 A travel plan should be developed alongside the TA. This should contain as much detail as possible outlining proposed measures, targets, monitoring and roles and responsibilities for implementation. Where end occupiers and land uses are not known at the outset this can take the form of an interim plan. In these cases, a full travel plan will need to be prepared following consent, either as part of a planning obligation or a condition attached to the consent. However, the TA should include the principles of the proposed travel plan with the level of detail being commensurate with the extent to which the conclusions of the assessment are dependent upon it.
- 4.5 The checklist given below (Table 4.1) should help to inform the scoping exercise. This identifies both the essential requirements and any optional analysis that may be required. Any essential requirements that are not included in the document due to their lack of relevance to the particular scheme should be justified. The checklist is by no means exhaustive and additional relevant information should be included where it is material to understanding the effects of the development. Although a number of mitigation measures are not essential in every case, TfL and/or the local highway authority will indicate what appropriate mitigation measures are needed for a particular site. The checklist provides a generic list of section requirements. A more detailed list of input data requirements is shown in Table 6.2.
- 4.6 The production of a scoping document for the transport assessment can significantly improve the pre-application process for larger developments where the transport analysis is complex and will require consultation with a number of different business areas (although the LUP Team will remain the central point of contact).
- 4.7 The scoping document should set out the different areas to be assessed, including a brief discussion of how the assessment will be carried out, along with data sources, assumptions and methodology. A discussion of any mitigation measures may also be necessary.

- 4.8 The scoping exercise can help to evaluate the level of analysis that is needed. For example, for very large or complex developments, a Railplan (see glossary) model may be necessary to understand fully the interactions between land use and passenger transport networks. Advice should be sought from the Surface Development Planning Team, through LUP, on the extent of highway modelling required to be undertaken for the TA. TfL should be consulted as early as possible in the process.
- 4.9 The scoping process should be used to justify the level of analysis that is proposed. The analysis periods to be covered should also be set out for agreement. This will vary by land use – office uses are likely to require an analysis of the weekday peak period while for retail and leisure uses, evenings and weekends may also be significant.
- 4.10 The scoping document should outline the main details of the scheme for TfL and the transport aspects that will need to be examined as part of the TA. Any mitigation measures, such as planning obligations or section 278 heads of terms, should be flagged as potentially being required at this stage. This alerts TfL that a major TA is being prepared and also builds in time for the developer to undertake the TA in a way that is acceptable to TfL, so that there is no abortive work. This should assist later in the planning application process and reduce delays in determining the proposal by promoting a dialogue at an early stage.
- 4.11 In addition to the production of a scoping document for the TA, formal pre-application consultation is likely to be necessary, particularly if the development could have effects on several transport modes. Pre-application advice can be requested through the TfL website or by contacting the relevant LUP officer. They will arrange a formal meeting involving all relevant TfL business areas and the local planning authority and provide a co-ordinated response for the developer summarising the discussions at the meeting and highlighting the major transport issues.
- 4.12 Where impacts are likely to be significant and mitigation measures are key to the success of a development, discussions about the type and degree of mitigation need to be initiated with TfL as early as possible. This includes developing in more detail planning obligations and any section 278 measures identified initially at the pre application or scoping stage.
- 4.13 Early contact through a pre-application meeting with TfL will enable the data exchange necessary for accurate capacity and accessibility analysis. TfL can specify areas that analysis should focus on and give advice on specific analysis techniques.
- 4.14 The production of the TA should involve the consideration of all relevant modes and the use of a range of modelling and analytical techniques. This guidance should help to inform this process by setting out the expectations of TfL. TfL encourages the submission of drafts in advance of the submission of a planning application for discussion at the pre-application meeting. This enables refinements to be made; potentially reducing the need for supplementary information to be requested once the

application has been submitted.

- 4.15 Discussions with TfL at the pre-application stage will assist in amending the TA scope and influencing the final production of the TA itself. Early discussions on impact mitigation should also take place at this stage, particularly in relation to possible planning contributions or section 278 agreements to mitigate the effect on the transport network.

TABLE 4.1 TRANSPORT ASSESSMENT CHECKLIST

Section	Topic	Essential	Included (Y/N)
Introduction & Background	Site location	●	
	Planning designations	●	
	Full description of development proposals	●	
	Details of any previous applications		
	Design Statement		
Baseline Conditions – Land Uses	Existing land use with floor areas	●	
	Car parking (including utilisation and electric vehicle and disabled parking)	●	
	Cycle parking	●	
	Delivery and servicing (including water/rail transport)	●	
	Motorcycle parking	●	
Baseline Conditions – Local Area	Demographic information		
	Employment/economic information		
Baseline Conditions – Road Network	Traffic flows including operational traffic flows	●	
	Accident analysis		
	Pedestrian flows	●	
	Junction capacities	●	
	Footway capacities		
	On street loading provision	●	
	Proximity to Congestion Charging Zone (CCZ)		
	On-street parking controls and usage		
Baseline Conditions – Public Transport, Walking and Cycling	Bus Routes, frequencies , accessibility & stops	●	
	LU/DLR network – stations, lines & frequencies	●	

	LU/DLR passenger levels, train capacity & station capacity		
	National Rail network – stations, lines & frequencies	●	
	National Rail passenger levels, train capacity & station capacity		
	Pedestrian network – existing routes & facilities (PERS audit/ Pedestrian Comfort assessment)	●	
	Cycle network – existing routes & facilities	●	
	Trams – existing routes & facilities	●	
	Riverboat services – existing routes & facilities	●	
	Taxis – existing ranks	●	
Trip Generation	Existing trips – total generated	●	
	Existing trips – mode split	●	
	Existing trips – trip distribution	●	
	Existing trips – temporal breakdown	●	
	Future trips – source data & methodology	●	
	Future trips – mode, time, purpose & distribution	●	
	Future trips – delivery & servicing, trip distribution/timing	●	
Construction	Construction trips generated		
	Construction routes	●	
	Impacts on pedestrian routes/footway	●	
Impacts – Road Network	Traffic levels	●	
	Junction analysis (PICADY/ARCADY or other as appropriate)		
	Construction traffic		

Impacts Parking	–	Car parking including for electric vehicles	•	
		Loading and servicing	•	
		Cycle parking	•	
		Motorcycle parking	•	
Impacts – Bus Network		New demand by direction	•	
		Bus priority		
		Junction capacity on major bus routes (PICADY/ARCADY)		
Impacts – LU/DLR Network		Route capacity (RODS)	•	
		Train capacity & station capacity (LUL Station Planning Standard (1-371) & SPSPG – not applicable for DLR) (Pedroute and/or Legion where dynamic modelling is required)		
Impacts – National Rail Network		Route capacity (LTDS O&D data/PIXC data/Railplan)	•	
		Station capacity & train capacity		
Impacts Walking and Cycling	–	Footway capacity (Fruin)	•	
		Available footway width (Gehl)	•	
Impacts Trams	-	New demand by direction	•	
Impacts - Taxis		Capacity of taxi ranks		
Impacts – River Services	–	New demand by direction		
		Impacts on pier facilities		
Impacts – PTAL Accessibility		PTAL	•	
		CAPITAL		
		ATOS		
Cumulative Impacts		Local additional development impacts	•	
Mitigation		Road network improvement measures		

	Bus network improvement measures		
	LU/DLR network improvement measures		
	Rail network improvement measures		
	Cycling/walking facilities including cycle parking		
	Travel Plan	•	
	Delivery and Servicing Plan	•	
	Construction Logistics Plan	•	
	Planning obligations/278 discussions	•	

5. TRANSPORT ASSESSMENT STRUCTURE

Introduction

- 5.1 Scoping and pre-application advice should provide a sound basis for the transport assessment and identify the topics and issues to be included. The TA document itself needs to be organised and structured effectively if it is to convey the findings of the assessment clearly and concisely.
- 5.2 This chapter explains how the transport assessment should be organised. In particular, it provides a systematic process by which baseline data and other inputs flow into a series of sub-assessments and the full document. The process enables the contribution of proposed mitigation measures to be fully integrated into the assessment.

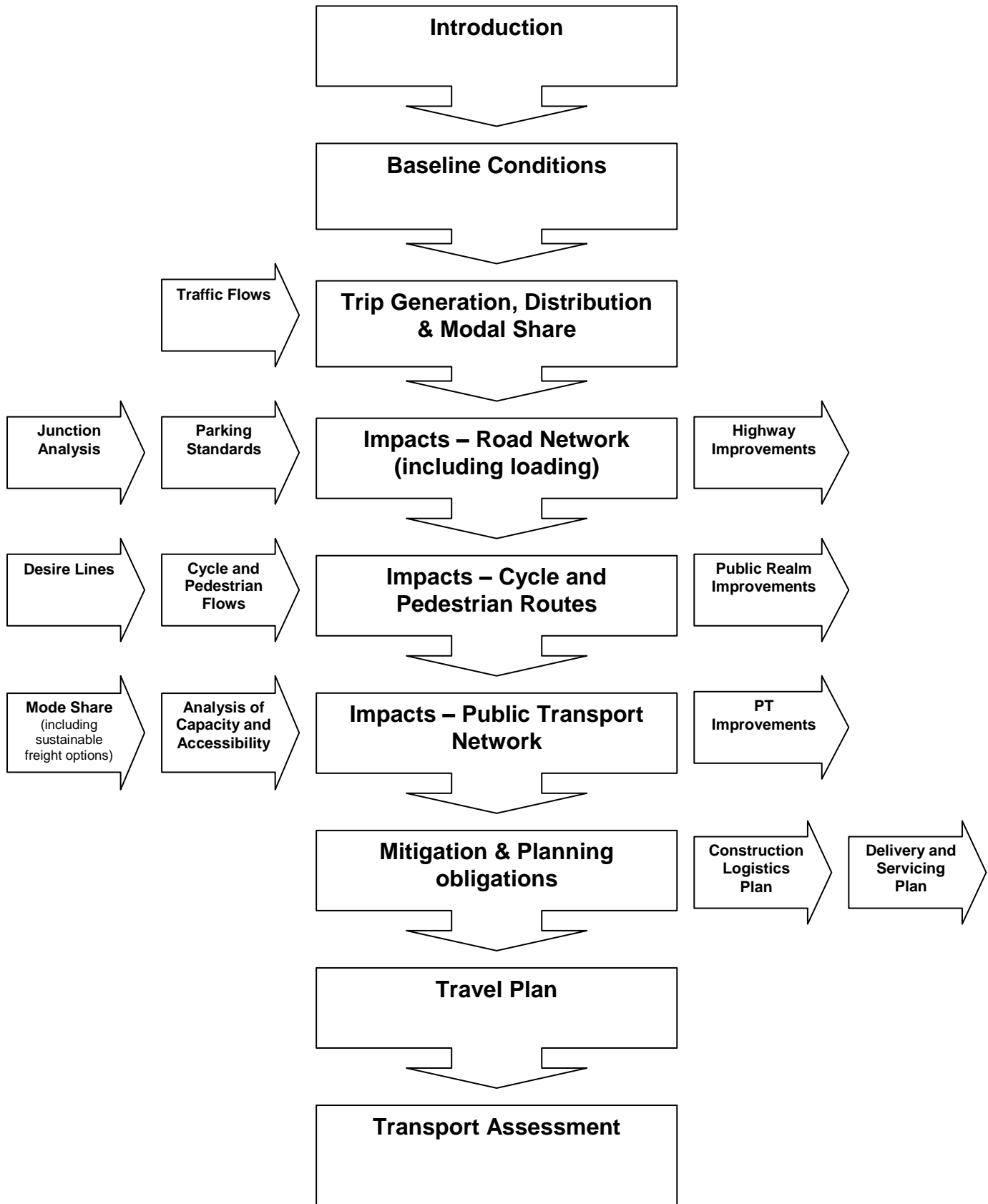
The TA Structure

- 5.3 The document as presented with an application should follow a clear and logical structure. Figure 5.1 illustrates the ‘high-level’ structure that should be followed. The structure should be expanded where necessary – in particular, sub-assessments should be added where a proposal creates potential conflicts with London Plan policies.
- 5.4 A full examination of baseline conditions should be set out in order to enable the effects of a development proposal to be adequately assessed. Baseline conditions should be examined for all modes serving the area over which the proposals could have an effect on transport operations.
- 5.5 The emphasis of the document should be on a logical and sequential flow from the baseline, through analytical techniques and outputs to an accurate forecast of future conditions on the transport network assuming the completion of the development. The document should follow a clear narrative that enables the lay reader to follow the logical progression from inputs to outputs to main findings and mitigation requirements. All information used in producing the assessment needs to be included in the document.
- 5.6 The TA should be written in a clear and concise style making use of plain English in order for it to be understood by professionals who are not experts in the transport field. Any acronyms used in the text should be fully explained with technical terminology. Resources for producing documents in plain English can be found at www.plainenglish.co.uk

Referencing and Assumptions

- 5.7 Referencing of data sources and input assumptions is essential. Data inputs or extracts used in analytical techniques or assessments should be provided in an appendix and summarised in the main text. The TA should justify their use and provide sufficient information to allow for independent analysis. It is not sufficient to append inputs without explaining fully how they are used in assessments.
- 5.8 Where particular assumptions have been made when manipulating or modelling data, then these should be clear and explicit.
- 5.9 It is useful to provide an Executive Summary of findings in all areas covered. This should give the reader a concise synopsis of the report's findings and flag up any major issues from the outset.

FIGURE 5.1 THE TA STRUCTURE



6. TRANSPORT ASSESSMENT INPUTS

Introduction

- 6.1 A transport assessment has a number of generic input requirements, as described below. The specific requirements appropriate to each assessment need to be determined by reference to the nature of the development proposals and the scope as agreed with TfL.
- 6.2 The assessment should also demonstrate how the development complies with the relevant policies described in Chapter 3 above, in particular with the London Plan. Policies relevant to the proposals and inputs required to enable an assessment of possible conflicts should be identified.
- 6.3 The checklist in Chapter 4 identifies the information that TfL regards as essential to facilitate an adequate appraisal of a TA. This includes a full assessment of trip generation, including how people (staff, visitors, shoppers etc.) and goods (servicing and deliveries) would access the development, full details of the proposed development and an examination of the impacts on all modes.
- 6.4 The location and context of the proposed development should be clearly illustrated. A site layout plan should be included with any extant uses clearly identified. Any relevant planning history pertaining to the site should be explained; for example, previous consents where planning obligations or conditions were agreed or imposed.
- 6.5 Optional requirements are also recommended for inclusion to improve the assessment and expedite the review process. This includes a broader review of the longer-term impacts of the development (if applicable), detailed modelling for more significant developments, and discussion of section 278 agreements and measures.

Development Details

- 6.6 It is essential that the details of the development are included in order to clearly place the site in context for those reviewing the application.
- 6.7 The size and nature of the development should be considered for each type of land use. Any previous proposals related to the development should be briefly outlined where relevant. All methodologies or techniques used and assumptions made should be included in the TA. Care should be taken in relating employee numbers to floorspace. For office employment density, 16 square metres per worker is referred to in the London Plan as marking the top of the density range with 13.9 square metres considered to be a more robust central assumption. However, these density figures relate to the net lettable area (NLA) of office space which is typically less than the

gross floor area (GFA) generally quoted as part of the transport assessment. Table 6.1 below lists the development details required for the more common land uses that have transport impacts.

TABLE 6.1 DEVELOPMENT DETAILS BY LAND USE

Land Use	Information to be included
A1 (retail), A3 (restaurants and cafes) A2 (financial and professional services) A4 (drinking establishments) A5 (hot food takeaways)	Gross Floor Area (m ²)
	Staff numbers
	Customer numbers
	Hours of operation
	Peak arrival times
	Peak departure times
	Car, motorcycle and cycle parking provision including for electric vehicles
	Delivery and servicing requirements/details
B1 (business) B2 (general industry) B8 (storage or distribution)	Gross Floor Area (m ²)
	Land use type
	Staff numbers
	Customer numbers
	Hours of operation
	Shift/occupation times
	Peak arrival times
	Peak departure times
	Car, motorcycle and cycle parking provision including for electric vehicles
	Delivery and servicing requirements/details
C1 (hotels)	Gross Floor Area (m ²)
	Number of rooms
	Additional facilities e.g. conference
	Staff numbers
	Guest numbers
	Visitor numbers
	Any postcode/catchment information on the above
	Peak arrival times
	Peak departure times
	Car, motorcycle and cycle parking provision including for electric vehicles
	Taxi/coach drop-off/collection
	Delivery and servicing requirements/details

C3 (residential)	Total number of units, type (i.e. flats, terraced, detached housing), and bedrooms per unit.
	Number of units which are affordable housing
	Peak arrival times
	Peak departure times
	Car, motorcycle and cycle parking provision including for electric vehicles
	Delivery and servicing requirements/details
D1 (non-residential education and training centres)	Gross Floor Area academic (m ²)
	Gross Floor Area student accommodation (m ²)
	Additional facilities e.g. conference
	Student numbers
	Staff numbers
	Visitor numbers
	All of the above separated where appropriate by department
	Catchment area and postcode origin data
	Peak arrival times
	Peak departure times
	Car, motorcycle and cycle parking provision including for electric vehicles
	Taxi/coach drop-off/collection
D1 (clinics, health centres, crèches, day nurseries, consulting rooms) and other D1 uses (museums, public halls, libraries, art galleries, exhibition halls, places of worship, church halls) D2 (assembly and leisure)	Delivery and servicing requirements/details
	Gross Floor Area (m ²)
	Staff numbers
	Patient numbers
	Visitor numbers
	All of the above separated where appropriate by department
	Visiting times
	Hours of operation by department
	Any postcode/catchment information
	Peak arrival times
	Peak departure times
	Car, motorcycle and cycle parking provision including for electric vehicles
	Taxi/coach drop-off/collection
	Delivery and servicing requirements/details

6.8 Details of the exact phasing of the development, including the start and finish dates of each phase and final completion, should be included.

- 6.9 A site plan showing the geographical location of the proposed development and a plan showing the proposed development should always be included showing access arrangements for people and goods.

Baseline Data

- 6.10 A description of the site location and current land use should be provided. This should include a full description of the existing transport infrastructure conditions. It should be noted when the baseline data was collected. It is very important for TfL to understand the baseline conditions and assumptions being made.
- 6.11 All modes of transport, both private vehicles and public transport, serving the site should be discussed. Table 6.2 sets out the main requirements:

TABLE 6.2 BASELINE INPUTS

Transport Mode	Main Requirements
Vehicle Traffic	Existing access arrangements, including in relation to TLRN and SRN
	Accidents data (including safety aspects)
	Road speed
	Existing road layout
	Weight, height or width restrictions
	Traffic surveys – should be 12 hourly during weekdays and weekends. Specify if manual and/or automatic counts are used.
Bus Services	Bus routes in vicinity and frequency
	Location and condition of bus stops, shelters, nearby crossings, cycle parking & walk distances within 400 metres of the proposed development (400m being the desired distance between bus stops)
	Planned service alterations/improvements
London Underground	Underground lines serving the stations
	Service frequencies
	Train capacity
	Station capacity including entrances, gatelines, platforms, stairways and internal circulation
	Station locations & walk distances and facilities provided including cycle parking
	Condition and location of bus interchange facilities
	Facilities for people with reduced mobility
Cycling	Planned service alterations/improvements
	Location & capacity of existing on-site cycle parking facilities

	<p>Existence and capacity of cycle parking facilities at public transport nodes including distances</p> <p>Existence of Cycle Hire scheme and proximity of docking station (only applicable in central London)</p> <p>Cycle routes in vicinity correctly mapped and with general destinations and directions, including Cycle Superhighway</p> <p>Cycle flows</p> <p>Location of other cycle facilities such as toucans and advanced stop lines in relation to site</p>
Walking, including people with reduced mobility	<p>Pedestrian routes to the site & existing level of permeability including details and maps, wayfinding and signage using the principles of Legible London</p> <p>Walking times and distances in addition to location of public transport nodes relative to the site</p> <p>Pedestrian facilities audit – footway condition and level of quality (re: carrying capacity), condition and location of street furniture, street lighting, visibility and sightlines, crossings, dropped kerbs and tactile paving , through the use of a PERS audit</p> <p>Pedestrian surveys and flows through the use of a Pedestrian Comfort assessment</p> <p>Streetscape or public realm areas close by in relation to site</p> <p>Assessment of accessibility of existing infrastructure for all including people with reduced mobility, to include crossing facilities and access to buildings as well as disabled parking</p>
National Rail Services	<p>Station locations & walk distances including times and facilities provided such as cycle parking</p> <p>Facilities for people with reduced mobility</p> <p>Routes serving station</p> <p>Service frequencies</p> <p>Train capacity</p> <p>Journey times and reliability</p> <p>Station capacity including entrances, gatelines, platforms, stairways and internal circulation</p> <p>Station facilities</p> <p>Planned service alterations/improvements</p>
Docklands Light Railway	<p>Station locations & walk distances including time and facilities provided such as cycle parking</p> <p>Facilities for people with reduced mobility</p> <p>Routes serving station</p> <p>Service frequencies</p> <p>Train capacity</p> <p>Station capacity including entrances, gatelines, platforms, stairways and internal circulation</p>

	Planned service alterations/improvements
Motorcycles	Location of on-site parking facilities and number of spaces
Taxis	Location, size and number of nearby ranks
Private Services	Details of any additional services such as coach or shuttle services
Car and other private vehicles	Location and level of existing on-site car parking (including for electric vehicles) within 400 metres walking distance of the development
	Existing Controlled Parking Zones and other parking restrictions on nearby roads
	Car park utilisation surveys
Trams	Tram routes in vicinity and frequency
	Location and condition of tram stops, shelters
	Planned service alterations/improvements
Riverboat Services	Riverboat piers in vicinity and frequency of services
	Travel times and ticket prices
	Planned service alterations/improvements
Freight	Existing delivery and servicing facilities, including the use of water/rail transport and trip distribution/timings

6.12 Baseline data is an input to the analysis of the effects of any new developments - it is essential that all elements listed in Table 6.2 are reviewed and where they would be material to or supportive of the assessment that data is collected or collated.

6.13 Photos, mapping and diagrams should be used. This will help to present the existing situation, including the illustration of catchment areas for sites by cycling, walking and, if possible, public transport.

6.14 The existing PTAL of the development site is vital for the assessment of the site. PTAL analysis is discussed further in Chapter 8.

Capacity

6.15 As well as the existing transport services available in the locality of the development site, for some modes an examination of the existing capacity of these services is also necessary. The base case in terms of capacity for each mode should be provided along with a discussion of the assumptions made and the calculations used. Further discussion of capacity analysis can be found in Chapter 8.

Vacant and Dormant Sites

6.16 Advice within DfT guidance is that where a site is vacant or partially vacant, the quantification of trips (and modal distribution) should be based upon any extant

planning permission or permitted uses, and this approach is supported by legal precedent. However, in cases where the substantial parts of an existing site have lain dormant for a significant period then this could lead to an over-estimation of existing impact and in turn an underestimation of net impact of any proposed development. Therefore where it is clear that an existing site has been dormant or substantially vacant (i.e. over 25%) for over a year then it is reasonable for the purposes of sensitivity testing to require the TA to adjust the existing scenario accordingly. This will then lead to a more realistic assessment of net impact.

Cumulative Impacts

- 6.17 A common area overlooked is the consideration of other potential developments within the vicinity of the development site. Where other development proposals exist in the area, background flows on transport networks may be higher than indicated by baseline data plus background growth.
- 6.18 All sites that have been granted planning permission together with submitted planning applications should be considered. Account will also need to be taken of commitments/emerging proposals in Opportunity Area Planning Frameworks and other master planning documents for identified growth areas such as the Lower Lea and the Thames Gateway.
- 6.19 A judgement needs to be made as to the extent of any influence that other proposals may have. This will depend on the size of site being considered and the conditions of the transport network in that area. Referred applications in the area should always be considered. Smaller non-referred applications may need to be considered individually depending on the specific impacts. A map should be provided identifying the location of these proposals. Agreement will need to be sought from TfL and the local planning authority as to which proposals should be included in the assessment.
- 6.20 Where a number of referred developments are planned in close proximity to each other, it may be that a more sophisticated approach to modelling impacts needs to be adopted in order to fully assess the cumulative effects. Discussions with both the local planning authority and TfL will enable an appropriate approach to be agreed.
- 6.21 Where major developments are located close to local planning authority boundaries, it is important that adjacent local planning authorities are consulted as part of the scoping process. This is to ensure that a complete schedule of pending developments is considered.

Concurrent Planning Applications

- 6.22 When it is known that there are concurrent planning applications that have yet to be submitted, it may be preferable to seek sensitivity testing to include any other known development that has not yet received approval.

Future Transport Schemes

- 6.23 As stated in Table 6.2, information about planned service alterations or improvements needs to be included in the assessment. A range of transport projects and improvements are planned or being implemented in London including Crossrail, the East London Line extensions and improvements to the Underground. Network Rail is also undertaking its largest ever investment programme and the DfT is additionally funding the National Station Improvement Programme at some stations. These all need to be considered when looking at future impacts.
- 6.24 For the purposes of the transport assessment, only committed transport schemes should be considered, that is schemes with powers or schemes within the TfL Business Plan. TfL should be consulted if other transport proposals are being taken into consideration. TfL also expects any impacts that a development may have on the delivery or operation of planned schemes to be considered including safeguarding (for example, Crossrail 2, transit schemes or LUL station upgrades). There may also be smaller-scale borough schemes that should be included in assessments.
- 6.25 Those schemes to include in any assessment should be discussed with TfL and the local planning authority to agree assumptions to be made about service provision.

7. TRANSPORT ASSESSMENT ORGANISATION

Introduction

- 7.1 The structure and content of the transport assessment have been described above and, subject to scoping agreement, will provide the basic building blocks of the document. All transport assessments will, however, comprise core elements around which the document will be structured.
- 7.2 This section details the core elements that will need to be included in a TA. This includes trip generation, servicing, construction impacts and proposed mitigation measures. The core elements will be augmented where necessary, but the document structure should indicate where the core elements can be located.

Assessment of Data

- 7.3 Referrable applications by definition are likely to cause significant impacts on the local and wider area. The examination and quantification of these impacts are therefore very important.
- 7.4 The use of the baseline data is essential in getting a clear idea of the existing conditions and therefore the impacts the development will have on each individual mode.

Trip Generation Analysis

- 7.5 It is essential to achieving an accurate assessment that a detailed trip generation analysis covering all modes, and split by mode is included. For referred applications, any assessment of specific modes should start from a person-based trip generation analysis with subsequent disaggregation by mode type.
- 7.6 In addition, a trip distribution analysis by time and origin should be included in order to fully assess the potential impacts on the transport infrastructure from all directions and during all hours. It may be reasonable to assume a daily occupancy of 80-85% due to absences for employment uses. Daily occupancy below this level should be substantiated. Typically the peak inbound trip generation will occur between 7am and 10am with approximately 55% occurring during the 8-9am peak (however, depending upon the development, both this percentage and the actual peak hour will vary). These adjustment factors should not be applied to trip rates derived from TRAVL or TRICS sites within London as they have already been accounted for within the base surveys.
- 7.7 Trip generation methodologies are described in Chapter 8. They should, wherever possible, involve the use of a range of appropriate survey data such as TRAVL or in

cases where there are insufficient sites, multi-modal TRICS data (for London sites), supplemented by observed survey data where available. Other data sources are available on travel characteristics and may be used where they are able to provide accurate and robust information (e.g. multi-modal TRICS sites from metropolitan areas) supported by an assessment of the source used.

- 7.8 All trip generation analyses should be based on information that is directly applicable to the site under consideration. Where data for comparable sites is used, the process by which trip rates and other assumptions are related to a site should be clear and fully referenced. TfL must be able to see and be able to replicate the process by which trip rates are derived.
- 7.9 Trip generation assumptions must be relevant to the development proposals in the application in terms of land use compatibility. Where, for example, an application includes specific housing tenure types, such as shared equity or sheltered housing, assumptions need to reflect their specific trip characteristics.
- 7.10 It may be appropriate where trip generation data is taken from sites or areas where there is not strict comparability with the application site, for sensitivity tests to be carried out. TfL should be consulted if there are any doubts that trip assumptions are directly applicable.
- 7.11 Information should also be included for the selected sites used in the assessment and their relevance to the proposed development site clearly stated.

Car Parking

- 7.12 The London Plan contains maximum car parking standards that should be adhered to for all referred schemes. Reference should also be made to Policy 6.13: *Parking* in the draft replacement London Plan (October 2009) which includes a requirement for the provision of electric vehicle charging points in new developments, in support of the Mayor's Electric Vehicle Delivery Plan for London (2009). Emphasis upon the use of more sustainable modes of transport and the need to reduce reliance on the private car is a key consideration for TfL and should be examined fully in any TA.
- 7.13 TfL will wish to see evidence in a TA to indicate that vehicle trips associated with a given level of parking are supportable by the highway network.
- 7.14 Where there is an existing car park as part of a retail/employment site, an assessment should be carried out on the utilisation of the car park to inform the TA.
- 7.15 In those instances where a PTAL value for the site is 5 or above, justification for any on-site parking should be made, since TfL wishes to encourage car-free or low-car developments in these locations.

- 7.16 Car parking for a development needs to comply with the London Plan. TfL also encourages a restraint-based approach to on-street parking close to proposed developments for referred schemes. Part of this process will involve TfL seeking reassurance that any potential overspill parking from developments will not unduly affect the operation of the TLRN, SRN, Congestion Charge Zone or tram/bus operations.
- 7.17 Highway impacts due to on-street parking can be avoided by measures such as excluding occupiers from eligibility for on-street parking permits in existing or future controlled parking zones; other parking restrictions within the vicinity of the site; encouraging the provision of car clubs as a means of reducing the need for car ownership/use; together with parking management plans, as part of travel plans, which include the monitoring of traffic and parking conditions on the surrounding highway network after the development becomes operational.

Cycle Parking and Motorcycle Provision

- 7.18 Cycle parking in referred schemes should conform with TfL's cycle parking guidelines which specify minimum requirements. These are identified in TfL's cycle parking guidance and in draft London Plan Policy 6.9 *Cycling*. Whilst TfL does not have standards for motorcycle parking, it would be beneficial to make provision on site for motorcycles.

Cycle Hire

- 7.19 A new cycle hire scheme is being introduced in central London in 2010. Initially cycles will be available for hire in an area approximately equivalent to Fare Zone 1 in central London, although the area may be enlarged and the number of cycle docking stations and cycles increased in the future. If the development falls within the cycle hire boundary or the location could be viable for cycle hire, then the implications of cycle hire should be considered in the TA.

Freight and Servicing

- 7.20 TfL is concerned with assessing the most appropriate methods of freight movement in London. Key concerns are reducing the levels of road freight, particularly during peak periods and making use of alternative modes of transport where possible – both with rail and water for larger consignments and with cycling and walking for local activity.
- 7.21 To assist with promoting the sustainable movement of goods alongside the sustainable movement of people, TfL has developed the concept of Delivery and Servicing Plans (DSP). The principle is that the DSP will provide a framework for proving the transport assessment has fully considered the freight implications of the development.

- 7.22 A DSP will provide the framework for understanding and managing commercial goods and vehicle activity into and out of proposed developments. A DSP will consist of a range of tools, actions and interventions aimed at reducing and retiming deliveries, redefining building operations and ensuring procurement activities also account for vehicle movement and emissions. It links to the travel plan process and is effectively a travel plan for freight.
- 7.23 The impacts of delivery and servicing of the development during construction and operation needs to be assessed and methods of mitigation, such as consolidation, and out of hours deliveries needs to be demonstrated. Issues that should be addressed include the expected number and types (with particular regard to length, width and height) of vehicles, time of day and week of operation, delivery provision in terms of safe and legal loading bays, drop-off areas etc, impact on the transport network/ highways including bus routes and cycle lanes, together with any potential detrimental noise/air quality issues and conflict with other vehicles/pedestrians. Output indicating swept vehicle paths should be provided to demonstrate that delivery vehicles can access/egress loading areas satisfactorily by entering and leaving in a forward direction (this requirement also applies to coaches). Concierge facilities and/or secure stores should be provided in the case of residential development, to avoid return visits if occupants are not available to accept deliveries.
- 7.24 Preferably deliveries will be made from ‘back of house’ facilities. Where deliveries are to be made from the road network, it should be demonstrated that any deliveries will be made from a legal loading location and do not disrupt the local road network, especially where there are bus routes in operation. Scope for the use of more sustainable modes for the transportation of goods (e.g. by rail or water for larger consignments and cycling and walking for local activity) should be considered from the outset of the transport assessment and incorporated in the DSP where feasible.

Construction

- 7.25 The construction phase of any development will have impacts on the transport network, sometimes for many months. This can vary in significance, but for those large developments that may take many months or years to construct, the construction phase can be as significant as the operational phase.
- 7.26 To assist with promoting the sustainable movement of construction materials alongside the sustainable movement of people TfL has developed the concept of Construction Logistics Plans (CLP). The principle being that the CLP will provide a framework for proving the transport assessment has fully considered the freight implications of the construction phase of the development. Scope for the use of more sustainable modes for the transportation of construction materials (e.g. by rail or water) should be considered from the outset of the transport assessment and incorporated in the CLP where feasible.

- 7.27 The CLP will provide the framework for understanding and managing construction vehicle activity into and out of proposed developments in co-ordination with other requirements such as Considerate Construction Codes of Practice and Site Waste Management Plans. A full assessment of the construction phase should be included detailing the levels of construction traffic generated along with the routes the traffic will use and any significant traffic management that may operate in order to construct the development. Particular attention should be paid to the need to identify routes for construction vehicles and abnormal loads that avoid weight, height and width restricted bridges and roads.
- 7.28 The CLP will identify a range of tools, actions and interventions aimed at reducing and retiming deliveries, maximising the use of more sustainable modes such as rail and water and construction consolidation and ensuring procurement activities also account for vehicle movement and emissions.
- 7.29 The construction of a development should be achievable without causing unnecessary reduction in network capacity. As part of the TMA process, works and schemes must be notified to TfL's Network Assurance Team.

Transport Infrastructure

- 7.30 A development may have an impact on existing and planned transport infrastructure, including, but not limited to, rail (provision for passenger and freight services and facilities), highways, footways, loading facilities, bus/tram lanes, bus/tram stops and bus stands. Such impacts may be direct, in the form of displacement or the need for reconstruction, or indirect, in the form of additional travel demands that necessitate new or improved services.
- 7.31 The transport assessment should consider and assess all potential direct and indirect impacts on transport infrastructure based on physical construction proposals and forecast travel demands. The assessment should consider any future transport infrastructure proposed by transport providers, including TfL and London boroughs.
- 7.32 Design details are required where a development would have a direct impact on any transport facilities. For example, where a bus stop, cycle path or highway needs to be moved or closed, details of alternative provisions should be submitted for consideration by TfL. The transport assessment should also consider the impacts on access and movement.
- 7.33 Where a development may have a detrimental impact on the operation of transport infrastructure, the transport assessment should include full details of any capacity constraints, effects on users and any impacts on third parties.
- 7.34 As a result of these assessments, it may be necessary to consider remedial works or upgrades to transport infrastructure. Minor works required to support a development

should be included in the transport assessment. Where more significant upgrades are required (for example, a new bus route or station upgrade), TfL should be consulted at an early stage and information included in the TA to enable the proposals to be fully assessed. Station improvements that may be required as a result of developments are particularly complex. Developers need to engage early with TfL to scope out this area of work.

Mitigation

- 7.35 Mitigation works should, where possible, be included in the planning application. Where agreements with third parties are necessary, such as for station upgrades, full details should be submitted with the application. In all cases where mitigation measures are proposed, the transport assessment should reflect their contribution to reducing the impacts of the development.
- 7.36 Where mitigation measures are to be secured by agreement (for example, section 278 agreement) or by planning obligation (section 106 agreement), full details of delivery mechanisms should be included. Where additional consents are required, such as traffic orders, these should be listed. TfL expects applicants to have discussed such measures with the relevant authorities and secured approval in principle prior to the submission of an application.
- 7.37 In cases where the transport assessment identifies residual impacts that are not proposed to be mitigated, full reasons should be given.
- 7.38 TfL may seek mitigating traffic calming or management measures where there are significant changes to traffic levels, or pedestrian/cycle improvements if additional movements are likely to be generated on or adjacent to a busy strategic road (either on the TLRN or SRN). Further discussion of mitigation and planning obligations is featured in Chapter 9.

Travel Plan

- 7.39 Travel plans are an integral part of the planning process and are a requirement under policy 3C.2 of the London Plan. Government guidance (PPG13: Transport and the accompanying DfT best practice guide) considers that a travel plan should be submitted alongside planning applications for major developments. All referred applications in London are deemed to fall into this category and early discussions with TfL are encouraged. TfL has published guidance that should be adhered to when producing a travel plan for new development. TfL has also developed ATTrBuTE, a travel plan building, evaluation and scoring tool which is available free online. Further discussion on the production of travel plans, including TfL's guidance and online help is featured in Chapter 9.

- 7.40 The production of a Construction Logistics Plan and a Delivery and Servicing Plan should be co-ordinated with travel plans to demonstrate the mitigation of the impact of freight activity during the construction and operational phases of the development. Further discussion of the production of these plans is featured in Chapter 9.

8. ANALYTICAL TECHNIQUES

Introduction

- 8.1 The TA analysis should be set out clearly in a way that allows for auditing by TfL or TfL's agents. This should include an explanation and justification of the methodology that has been used including assumptions, data and data sources.
- 8.2 Discussion of the methodology with TfL may be appropriate. The TfL LUP Team will co-ordinate such discussions through the pre-application advice service. The DfT web-based guidance on transport appraisal and analysis – WEBTAG, may also be helpful. Sub-regional modelling tools are currently being developed by TfL. There will be a need for area-wide or strategic models to be consistent with these sub-regional models.
- 8.3 All data sources should be clearly referenced and dated. Where there is no impact on a particular transport mode this should be explained, together with reasons given.
- 8.4 When, in the existing situation, the capacity of the system has been reached, the TA should examine how future impacts generated by the proposal can be mitigated.
- 8.5 Where standard software techniques are used, the modelling information and the results should be submitted electronically to allow for independent analysis. The results of software packages such as TRANSYT or LINSIG are critically dependent on the detailed assumptions that have been used. The easiest way of checking this is to have an electronic version of the model available so it can be run independently.

Transport and Traffic Modelling

Trip Generation and Modal Share

- 8.6 The trip generation analysis is one of the most important parts of the TA. It is therefore important that the analysis is comprehensive and all information is provided in order that the results can be thoroughly verified by TfL.
- 8.7 An assessment of the number of one-way person trips broken down by mode that the development will generate should be provided. These are:
- Bus
 - Underground
 - National rail

- Private car
- Cycling
- Walking
- Motorcycles
- DLR
- Taxis
- Trams
- Riverboat Services
- Freight/servicing

- 8.8 Where private car is used, car passenger and car driver trips should be specified. A modal share for all modes can then be derived.
- 8.9 Private and public transport trips should be provided for all land uses and for all types of trips (e.g. staff, visitors etc).
- 8.10 Delivery and servicing trips should be provided for all land use types with potential numbers of vehicle trips and trip distribution/timings to ensure capacity exists without impact on to the highway. Options to use sustainable modes for transporting freight (e.g. by rail/water) should be explored at an early stage.
- 8.11 Mixed-use developments with different land use elements will entail more complicated trip generation analysis with the individual elements examined separately, then combined to evaluate the overall impact, taking into account scope for linked trips on foot within the development site.
- 8.12 If the development is phased then the changing levels of trip generation should be described for each phase. Servicing and operational traffic flows should be included in the analysis. A plan for the development that will set out how the deliveries and servicing will be arranged may be necessary.

Data Selection

- 8.13 Trip rates should be obtained from up to date travel surveys. This can be in the form of observed quantitative data or sourced from a database. The use of “21st Century London Living” trip rate data is not acceptable to TfL as a robust test of traffic generated by major developments because TfL considers that the surveys were not comprehensive or representative for London, nor did they include a large survey size. As a result TfL does not consider them to be reliable or appropriate to use in TA work for referred applications in London.

- 8.14 The TRAVL database is recognised as the most common and often most useful source of travel survey data in London. Travel behaviour in London is very different to the rest of the UK, particularly in terms of mode of travel.
- 8.15 Additional data can be obtained from the TRICS database where there are insufficient sites on TRAVL, as long as the choice of site is appropriate and the survey data is multi-modal. The choice of site is critical to an effective trip generation exercise. The survey data should closely represent the proposal as much as possible. The TRICS website www.trics.org provides good practice guidance on using TRICS.
- 8.16 If observed survey data is available, either by monitoring the existing site or by surveying similar developments, this should be obtained as this will give the most up to date information. If the site's use is to change significantly as a result of the proposed development, such an approach may not be appropriate and surveys from similar developments should be used. A copy of the data used should be included in the TA.
- 8.17 For more unusual developments, the use of a number of data sources may be necessary to construct a trip model. TEMPRO software provides data on forecast growth rates in trips for particular areas based on planning assumptions. This can be used to model future trip levels by each mode compared with the current situation. It is important that this software is used in a way that is appropriate for the proposed development in a London context.
- 8.18 The Census 2001 Journey to Work data can be used to obtain a mode split for residential developments for journey to work trips. It can also be used to carry out a trip distribution analysis using origin and destination data. However, care should be taken, because the 2001 census data is increasingly out of date and does not reflect the impact of policy interventions such as congestion charging and bus priority measures. If used, 2001 Census data should be supplemented by relevant quantitative assessments such as origin and destination (OD) survey data and validated using data from TRAVL or where appropriate TRICS. If Census data is to be used then the TA should include an assessment of the data to ensure that it is representative of the site.
- 8.19 The London Travel Demand Survey (LTDS) supersedes the London Area Transportation Survey (LATS). LTDS data can be used to provide more accurate data than 2001 Census data relating to mode share and travel patterns in London. LTDS is a household survey carried out on behalf of TfL to monitor travel behaviour in London. This provides information on travel patterns with origins and destinations and can also link to census variables such as car ownership, household structure etc. The data is available at borough and LATS sub-zone levels.
- 8.20 Where a mixed-use development is being modelled, 'linked trips' should be taken into account. This is where a journey to the site may have more than one purpose so creating internal trips between land uses. Assessing these trips can be difficult without observed survey data, so assumptions need to be made about the proportion of these

trips. Any assumptions made should be clearly specified.

Sensitivity Testing

- 8.21 The need for sensitivity testing should be assessed on a site by site basis. When used, it adds the concept of risk assessment to the analysis of a development's impacts. For example, a freight warehouse with rail access might assume a certain uptake of rail haulage in calculating the road trip generation of the site. However, the uptake may be affected by rail market share issues and business sustainability. This could in turn result in unanticipated road traffic generation. Similarly, a development may generate a far higher bus mode share than is anticipated and so place increased pressure on the bus network. The probability of this happening and the impact on the network should be assessed.
- 8.22 TfL may therefore specify when sensitivity testing is appropriate. London Underground applies between 20% and 35% increases to the total average person trip rate when applying sensitivity tests. The application of sensitivity testing is very important as it gives a more robust assessment of the likely trips by testing for worst case scenarios.
- 8.23 Applying a percentage increase of between 15% and 20% on peak hour results may provide enough additional pressure to test for the most extreme situations, but the specific appropriate sensitivity tests need to be discussed with TfL on a case by case basis.

Temporal Analysis

- 8.24 Temporal analysis is the analysis of trip rates over time. The analysis should normally be related to the peak periods for the site as a whole. All TAs need to include all details of traffic attraction and generation to ensure that the correct peaks are used. These can be determined by inspection of traffic surveys or data from continuous count sites on the network. Seasonal variation can also be assessed in this way. Analysis should be based on a neutral traffic month. Some developments will however have unusual impact hours such as shift work patterns. A mixed-use retail/leisure development, for example, may have different peaks for the weekend compared with during the week. Transport impacts for such sites must also be considered at these times. In particular, consideration should be given to whether public transport services are adequate enough to support the development during inter-peak periods.
- 8.25 Trips should be separated by purpose for the full day, morning and evening peak and inter-peak weekend periods (and any other time period relevant to the nature of the development).

Future Year Scenarios

- 8.26 If future year scenarios are presented a full explanation of how the growth has been forecast should be provided, including the site's opening year and design year. The incorporation of any proposed transport improvements that may alter the mode split should be agreed with TfL beforehand. Overall, future year scenarios and their assumptions should be agreed with TfL.

Trip Distribution

- 8.27 The origin and destination of trips, including the direction of generated trips by each mode should be addressed. This gives a clearer indication of any capacity issues that may arise. The analysis should include how trips are spread according to the nature of the development and its surrounding area. Assignment of trips to the transport network will be informed by trip distribution assumptions.
- 8.28 The Census 2001 Journey to Work data can be useful as a source of trip distribution data both for residential and office developments although care should be taken as this is becoming increasingly out of date and may not be representative of trip patterns associated with new development.
- 8.29 For developments such as schools or hospitals where existing user data can be obtained, a trip distribution model should be built from home postcodes.

Accessibility Analysis

PTALs

- 8.30 PTALs (Public Transport Accessibility Levels) are the most widely recognised form of measuring accessibility to the public transport network in London. PTALs give an indication of the relative density of the public transport network at specific locations. It effectively measures a combination of how close public transport services are from a given point and the frequency of services (i.e. walking times plus waiting times). PTALs range from 1 to 6 where 6 represents a high level of accessibility and 1 a low level of accessibility. Levels 1 and 6 have been further subdivided into two sub-levels to provide greater clarity. PTAL maps of London boroughs have been produced to give an indication of the accessibility of areas across London to the TfL network. These act as a useful guide but for referred applications an individual site PTAL should generally be calculated. When calculating PTALs for site specific calculations, the TfL methodology should be followed; this is included in Appendix B. Details of the calculations should be included in the TA.

- 8.31 PTALs should be the first analysis carried out when looking at public transport for a site. They are used by London boroughs to assess parking and, for referred applications, they are used to assess a development against the London Plan. For some schemes it may be necessary to look at future PTAL scenarios or for weekend PTAL information depending on land use.

CAPITAL

- 8.32 The CAPITAL model uses the public transport network to measure the travel times across London from or to a particular point. This data can be mapped as isochrones to give an indication of how accessible a site is from anywhere in London. Combining these catchment areas with population data will give an indication of how many people could reach a site within a specific time period – for example, 30 minutes or an hour. CAPITAL can use both current and future transport networks which will demonstrate the impact new transport schemes and packages of schemes will have on the accessibility of a chosen location. The model will also help to identify areas that are less accessible and which may require public transport improvements.
- 8.33 This is a TfL model that compliments PTAL analysis so that a site can be analysed both in terms of access to the public transport network and access from other areas.

ATOS

- 8.34 Access to Opportunities and Services (ATOS) is a new indicator measuring access to opportunities and essential services and employment by public transport and/or walking/cycling across London. It has been developed by TfL and is being tested with a sample of local authorities in London. ATOS scores can be used alongside PTALs to provide a more in-depth understanding of accessibility in London. Areas in central and inner London, as well as town centres in outer London have a relatively high ATOS score. Some inner suburban areas in London have a relatively low PTAL score but a high ATOS score indicating that the density of local services in these areas is such that people can access them more readily by walking and cycling. ATOS scores range from A to E where A offers the best level of accessibility and E the worst.

GIS Analysis

- 8.35 The use of Geographical Information Systems (GIS) to illustrate the location of a development in the local and regional context is very useful as it provides a pictorial representation of the development and so makes description far easier.
- 8.36 Catchment areas can be used to illustrate walk distances to public transport connections. Cycle catchments can illustrate the benefits of using a bicycle to access a particular development.

- 8.37 GIS is also useful in aiding the description of a PTAL analysis or for displaying CAPITAL model data if applicable.

Accession

- 8.38 The Accession software was developed for the Department for Transport in preparation for the development of Local Transport Plans. It is a GIS application using Accmap Solus from Citilabs and public transport software from MVA. It is designed to analyse the accessibility of locations to local services such as doctors' surgeries and local schools.
- 8.39 It can incorporate local timetable information to model accurate catchment areas using both public and private transport. Although aimed primarily at areas with poor accessibility, it may still be a useful tool.

Capacity Analysis

- 8.40 The projected demand on the public transport infrastructure should be clearly set out in terms of both the existing situation and the implications of additional trips generated. This should be considered in terms of both the infrastructure itself (train line-loadings, junction analysis) and interchanges (station capacity, including an analysis of gates, escalators and passageways).
- 8.41 The cumulative impact of all nearby planned developments should be included. This can be done by referencing planning applications and using analysis from existing TAs.
- 8.42 The extent to which modelling analysis is carried out will depend on the size and significance of the development. TfL recommends a range of modelling tools and methodologies depending on the mode being assessed. Applicants should discuss what the modelling requirements are with TfL prior to submitting a TA so that agreement can be reached on what level of analysis is appropriate. This is particularly the case when unusual or complex modelling is used, as TfL may require sensitivity testing to be undertaken.
- 8.43 Where any modelling is carried out, the methodology and the justification for using it should be clearly set out. If unusual methods are used, a full justification should be given.

National Rail Capacity

- 8.44 For larger scale proposals, use should be made of Railplan together with national tools such as the rail industry's Passenger Demand Forecasting Handbook (PDFH) and the associated MOIRA demand forecasting model. The national rail network serving a potential development location should be assessed in terms of the capacity provided by relevant services and the availability of that capacity to provide for journeys to and from the proposed development at times when demand is at its highest. A service of eight trains per hour at a nearby station is of reduced value if 75% of those trains are full or near to capacity. If large numbers of passengers are involved, it may also be necessary to look at the capacity of the station to accommodate additional movements.
- 8.45 In respect of rail, there is no one measure of capacity that is used across the rail industry and in all circumstances. The DfT standard, above which carriages are judged to be crowded for the purpose of measuring PIXC (Passengers In Excess of Capacity) levels for peak hour services to and from London is 0.45 m² of space per standing passenger. PIXC data can be a useful tool in assessing the capacity available for additional passengers; however the points on the service to which data applies may not be relevant to the particular development location in question. TfL/London Rail's recommended maximum level of crowding in normal circumstances is 3 people per m² of standing space. Both DfT and TfL standards mean that the actual number of passengers that can be accommodated on a train varies with the configuration of the rolling stock. It is important to assess whether the peaks for journeys from proposed developments are at the same time as the 'normal' commuter peaks on the railway and also the direction of journeys, whether with or counter to the main flows.

London Underground Capacity

- 8.46 In terms of assessing the capacity on the London Underground (LU) trains, the line loadings need to be analysed. RODS (Rolling Origin and Destination Survey) data is collected by LU to model the levels of passengers on different sections of line. This can be obtained from LU and used to assess the impact of any additional trips generated. An analysis of the existing and predicted flows should be undertaken in line with the LU Station Demand Forecasting Guidelines.
- 8.47 The capacity levels of LU services should be based on a measure of the number of passengers standing in one square metre of the train's available floor space. LU guidelines indicate that using the maximum observed standing capacity of 4 passengers per m² should be the requirement although 5 passengers per m² can be used as a sensitivity test. The actual figures will alter for the relevant rolling stock affected.
- 8.48 LUL Station Planning Standard (1-371) – August 2009 should be used to assess the capacity of LU stations to accommodate expected numbers of passengers. This standard is preferred to Station Planning Standards and Guidelines (SPSG) as it is updated more frequently than SPSG. SPSG can however be used for understanding

how to apply requirements but the requirements themselves need to be taken from LUL Station Planning Standard (1-371).

- 8.49 LU uses two dynamic modelling systems (Pedroute and Legion) to analyse the performance of its stations and the impacts of increased demand and proposed capacity/operational enhancements. LU would expect the use of one of these tools for larger developments that are projected to have significant impacts on station operations. Where development proposals may warrant dynamic modelling, the approach should be agreed with LU.

DLR Capacity

- 8.50 For analysis relating to the Docklands Light Railway (DLR), two broad approaches apply. The first of these allows developers or applicants to produce their own forecasts. To assist in this, present-day passenger counts and sample origin-destination matrices are available from DLR, which may be used in conjunction with trip generation forecasts to assess the impact of new trips generated on the DLR network. However, independent forecasts will be checked against the outputs from DLR's own modelling tools. The DLR planning capacity is normally 360 passengers for a two-car train.
- 8.51 The second approach involves using DLR's own forecasts in transport assessments. The Docklands Public Transport Model (DPTM) is used by DLR to assess the impact of new developments on DLR line flows. The DPTM is informed by the Land Use Trip Ends (LUTE) database which can also model the number of trips generated by a development site. If a developer or applicant wishes to access such data prior to undertaking such assessments, an appropriate fee will need to be agreed with DLR for providing this information. DLR encourages the use of this information for assessments to ensure that the assumptions used are robust and consistent.

Effects on the Bus Network

- 8.52 Bus services to, from and around a development site are key in providing public transport links with a variety of destinations. Passenger demand from new development can affect the bus network in two main ways: by meaning new or extended bus services must be introduced to improve accessibility to the site; and by creating further demand on the existing network. These issues should be considered by transport assessments as set out below.
- 8.53 Transport assessments should consider accessibility to the site taking into account:
- PTAL accessibility criteria;
 - TfL's objective of providing a bus service within five minutes walk of most

homes (normally assumed to be 400m);

- TfL's objective of providing bus connections as close as possible to key passenger destinations (such as town centres and business locations) and interchanges, while avoiding indirect routeings;
- bus priority measures in the surrounding area;
- existing bus services in the vicinity and their frequencies;
- assessment of bus stops usually within an agreed distance from the site depending on development, to examine whether or not they meet Disability Discrimination Act guidance.

Interactive, searchable bus maps, timetables and frequencies for existing services are available at http://www.tfl.gov.uk/tfl/getting_around/maps/buses/default.aspx

8.54 Transport assessments should consider the extra demand on the tram/bus network, supplying information on:

- tram/bus trip numbers to be generated by the development;
- an assignment of the origin and destination of tram/bus trips;
- an hourly assignment of trip numbers during the day, especially the peak hours.

8.55 However, a base capacity assessment of the bus network in the area is not necessary when preparing a transport assessment for a development. The bus network is planned strategically in order to cater for complex patterns of passenger demand across a wide area. Although usage in the vicinity of the site is relevant, a variety of factors, such as length of ride, potential changes to the network before development is approved or completed, demand elsewhere on each route and developments already approved, mean that a single study of development is not usually able to accurately assess base capacity. In the event of any discussions regarding planning obligations for enhancing bus services, these issues would be set out by London Buses prior to the discussion.

8.56 On occasions where information on existing usage levels and demand patterns is necessary, for example when developing a business case for new transport infrastructure, TfL London Buses Network Development can provide access to and advice on data about bus loadings and usage patterns. Bus capacity standards can also be supplied and used for assessments. It may sometimes be necessary for new data to be obtained and format requirements will be supplied.

Pedestrian Modelling

- 8.57 Pedestrian movements along footways and within stations and interchanges should be assessed. Crossing movements to and from new developments will also need to be considered. The capacity of a station for handling the volume of passengers entering, leaving or interchanging is another important consideration.
- 8.58 Fruin is a robust and recognised method for assessing general footpath and station capacity and is appropriate in station and interchange environments, and is the standard method used by London Underground for this purpose. Where there are substantial pedestrian flows, conflicting flows and more complex movements particularly in a station or interchange environment a dynamic model such as Pedroute or Legion should be used. TfL may require alternative pedestrian modelling software to be adopted depending on the circumstances of a particular case.
- 8.59 When assessing footway capacity in the context of the hinterlands to stations or the street environment more generally it is recommended to consider user comfort in addition to carrying capacity (comfortable carrying capacity is estimated at 13 pedestrians per minute per metre width of footway – source: Gehl “Towards a fine City for People – Public Spaces & Public Life – London 2004”).
- 8.60 In terms of assessing provision for pedestrians and people with disabilities and the quality of the street environment the PERS (Pedestrian Environment Review System) audit tool is recommended. This is a street audit tool that allows users to identify quality gaps in terms of facilities provided, their effectiveness, the quality and upkeep of materials, general street ambience etc. Training on how to use this auditing tool and how best to provide for pedestrians is available through TfL and is free of charge.

Assessment of Cycling Facilities

- 8.61 An analysis of the current environment for cyclists should be provided, identifying any barriers to cycling and exploring opportunities to make the environment more conducive to cycling. Cycle routes should be assessed in terms of their relative importance based on the London Cycling Action Plan classification. The surrounding area should be reviewed in terms of how far it meets the London Cycling Design Standards identifying problems for cyclists that could be addressed. Assessment tools including a Pedestrian Environment Review System (PERS), Living Streets or Non Motorised User audit can be useful. Reference should also be made to guidance issued by the National Institute for Cycling Excellence and within the DfT Manual for Streets.

Road Traffic Modelling

- 8.62 The road network needs to be assessed in terms of the capacity of junctions at baseline and forecast levels to ensure that the existing road network can accommodate the additional vehicle trips. If any elements of the network are shown to be over capacity then mitigation measures may need to be proposed. This is important for TfL to ensure that the road network operates adequately and that additional traffic along bus routes will not increase congestion and disrupt services.
- 8.63 For developments on or close to the Congestion Charge boundary, consideration must be given to alternative routes for displaced vehicles. These routes may be limited without entering the Congestion Charge Zone and may result in significant alterations in journeys. These wider strategic impacts and proposed mitigation measures need to be addressed.
- 8.64 TfL Surface Transport's traffic modelling guidelines (TfL Surface Transport, DTO Modelling Guidelines: Traffic Schemes in London Urban Networks Version 2.0 July 2006) should be followed when building base and 'with development' models. This will help achieve the required level of accuracy in the model predictions for the impact of the proposal on the wider network. Guidance is also available on good practice on auditing traffic models (TfL Surface Transport, DTO Model Auditing Process: Traffic Schemes in London Urban Networks Version 1.0 July 2007). Both of these are available on the Streetworks website library (www.londonstreetworks.net).
- 8.65 Modelling packages can be roughly split into four categories:
- i. Isolated Junction (e.g. PICADY, ARCADY, OSCADY)
 - ii. Coordinated Junction (e.g. TRANSYT, LINSIG)
 - iii. Complex junction (e.g. VISSIM, Paramics)
 - iv. Strategic (e.g. SATURN, EMME/2)
- 8.66 The following paragraphs outline some of the software products recognised by TfL and the circumstances under which they should be used.
- 8.67 The simplest non-signalised junctions can be modelled using PICADY which can assess the capacity of simple junctions in terms of queue lengths, capacity and accidents.
- 8.68 Roundabouts can be modelled using ARCADY which forecasts the capacity of a roundabout and forecasts queue lengths, time delay and accident risk.
- 8.69 Individual signalised junctions can be modelled using LINSIG, which allows a signalised junction to be assessed against specified traffic flows. The signal timings can be changed to assess the capacity of the junction at different times. The software

OSCADY performs a similar function.

- 8.70 TRANSYT allows timing plans for closely spaced junctions to be developed with a view to achieve optimum use of road space. To do this TRANSYT is based on a simplistic traffic model. This model allows it to optimise cycle times, green splits and offsets reasonably accurately, provided there are no approaches to signals (links) that are saturated in excess of 90%.
- 8.71 VISSIM is a micro-simulation traffic modelling tool used for modelling complex traffic conditions beyond the scope of LINSIG or TRANSYT. VISSIM models can be used to simulate the precise impact of proposals on the wider area if significant reassignment or congestion is predicted. Congestion is generally expected if a significant number of approaches to signal controlled junctions operate near 100% saturation or above.
- 8.72 SATURN software can also be used for modelling complex road networks. It is a flexible network simulation application that can be used to model a range of different types of traffic network from individual junctions to major infrastructure. An area-wide model has been developed for use in the Thames Gateway. Similar area-wide models are being developed for other London sub-regions.
- 8.73 The selection of an appropriate package will depend on the level of impact and what facilities are likely to be changed as a result of the development. It is just as inappropriate to use micro-simulation for a simple junction as it is to try and model a complex junction with an isolated junction package. An appropriate tool should be selected relative to the analysis task required. Advice on the correct modelling can be obtained from TfL's Surface Development Planning Team (via the LUP Team).
- 8.74 In all cases, TfL's Surface Development Planning Team should be consulted (via the LUP Team) prior to modelling any proposed changes to traffic signals infrastructure, as the proposed changes must be achievable and able to be implemented 'in the real world'. TfL's Surface Development Planning Team can advise on possible problems and issues in this regard. Guidance on traffic signal design in London can be obtained from TfL Surface Transport DTO Guidelines for Signal Schemes in London – Specification SQA-0064 available on the Streetworks website (www.londonstreetworks.net).
- 8.75 The results of the analysis should be clearly represented in tabular format within the TA. Simulation packages can assist with modelling complex situations but time and effort must be spent extracting useful network performance statistics to enable assessment of the impacts. Although micro-simulation can be useful for visualisation, it is no substitute for the universally accepted statistics for traffic analysis.
- 8.76 Input/output text files should be appended to the TA to allow auditing to be undertaken. Illustrative turning movement diagrams showing all impacts at junctions

are the best way to present traffic surveys and proposed traffic volumes, and allow easy interpretation by the reader. Tables of survey data do not allow easy understanding of traffic patterns.

- 8.77 In addition, the TA will also need to contain all the information used to assess the base and future year models. If the development is being delivered on a phased approach then the modelling will need to replicate the phases of the development.
- 8.78 If the TA has included the impacts from cumulative development, then it may be recommended that the capacity modelling takes account of proposed improvements as part of sensitivity testing.

Freight Traffic Modelling

- 8.79 A review of delivery and servicing activity for all users needs to consider the activity levels, timing and vehicle size, swept path analysis and the steps that can be taken to adequately model the freight activity along with the broad traffic flows and the cycle and pedestrian outputs. The use of congestion maps or the identification of Freight Penalty Charge Notice (PCN) hotspots associated with delivery and servicing activity may highlight issues that may be worsened and therefore need to be addressed by the new development. PCN data should be obtainable from TfL (in the case of TLRN) and the local highway authority (in the case of borough roads).
- 8.80 Once modelling is carried out, conclusions should be drawn that are clear and succinct so that the analysis can be easily reviewed by TfL. The exact modelling to be used should be discussed with TfL at the scoping stage or during pre-application discussions.

9. MITIGATION AND TRAVEL PLANS

Introduction

- 9.1 This chapter examines the proposal of mitigation measures following the full assessment of the impact of a referred application.

Mitigation

- 9.2 The natural follow-up to the impact assessment is an examination of mitigation measures that can be put in place to deal with the effects of the development on the transport network and to improve access, particularly with more sustainable modes. These measures should be discussed with TfL and the local planning authority as part of pre-application discussions in order that they are designed to all parties' agreement and satisfaction.
- 9.3 Transport improvements that are required for a development will need to be discussed with TfL and the local planning authority and will generally be expected to be funded by the developer. Where improvements are required by either TfL or the local planning authority, payments via a planning obligation will be requested in line with Circular 05/05.
- 9.4 If no mitigation measures are proposed, a full justification for this should be included, especially for developments where significant impacts are expected.
- 9.5 In terms of individual modes, the capacity above which mitigation measures will be required may vary. For example, TfL may seek bus priority measures if traffic saturation is forecast to rise above 80%. Such measures could include bus lanes, signalised junctions, mini roundabouts etc, in order to protect journey times for bus services.
- 9.6 For traffic modelling, any roads operating over 85% saturation are generally considered to be suffering from congestion. Where development proposals increase the saturation significantly above this level, mitigating factors should be proposed and described, taking into account any existing plans to relieve congestion. If congestion has been reached it should not be assumed that mitigation measures will not be required. Pooled contributions to mitigate the effects on an area basis may also be sought. Operational guidance on means of mitigating congestion and assisting mode-specific measures through intelligent modelling and/or improved, dynamic, traffic signal controls can be obtained from TfL Surface Transport Development Planning Team (via LUP).

- 9.7 In addition to traffic capacity considerations and where suitably justified, TfL may seek physical improvements to assist buses, pedestrians and cyclists. These could include the dedication of land from the development to facilitate provision of new bus and/or cycle lanes, wider footways and improvements to nearby bus stops to ensure they meet TfL's accessibility guidelines.

Planning Obligations and Section 278 Agreements

- 9.8 As detailed in the Chapter 3, planning obligations (secured via section 106 agreements) and section 278 agreements are designed to enable highway and transport infrastructure and service improvements to be provided as a result of new developments through financial contributions from developers.
- 9.9 Planning obligations, also referred to as planning agreements or developer contributions, provide a mechanism to secure the provision of new infrastructure or direct financial contributions towards new works or improved transport services. The level of contribution required should reasonably reflect the scale and nature of the development and the ability of the transport network to serve the site. The Community Infrastructure Levy (CIL) will eventually provide a partial replacement for planning obligations but not section 278 agreements. Alongside other charging authorities, the Mayor has the ability to apply CIL, but only for transport facilities.
- 9.10 TfL seeks to secure funding to mitigate the impacts of developments on the transport network. For example, bus priority measures may be required to offset any increase in journey time on bus services; improvements to existing infrastructure such as upgrading stations or interchange facilities is a further example. Enhancements to bus services by increasing frequencies or capacity may also be required where TfL is unable to provide the enhancements within the usual criteria for developing the network. The Mayor has a specific requirement to secure planning obligations for Crossrail from new office, retail and hotel developments in central London, the Isle of Dogs and within 1km of Crossrail stations (if not already within the other contribution areas).
- 9.11 Discussion should occur at an early stage in order to ensure that any measures required are appropriate, can be delivered, and do not conflict with work already planned.

Travel Plans

- 9.12 As described in Chapter 7, a travel plan will be required for most referred applications and should be submitted alongside the TA with the planning application. A travel plan is a long-term management strategy for an organisation or site that seeks to deliver sustainable transport objectives through action and is set out in a document that is regularly reviewed. The travel plan should set targets, objectives and monitoring requirements. The travel plan should include a series of measures, management and funding details that aim to deliver the stated objectives and targets. The travel plan should be secured by a planning obligation, and ongoing management

such as targets, implementation, funding, monitoring and review should be detailed in the agreement.

- 9.13 A Travel Plan Co-ordinator (and a Sustainable Travel Manager where there are multiple occupiers) should be appointed, usually by the site operator, to be responsible for overseeing and implementing the various measures outlined in the travel plan once it becomes operational. The exact arrangements as to who will commission or undertake monitoring surveys and when this will occur should be determined at the submission stage and prior to the granting of planning permission. All legal agreements for travel plans should include an allowance for monitoring survey fees and for monitoring administration fees (payable to the local planning authority) which should account for the duration of the agreed monitoring period.
- 9.14 Although the travel plan is not specifically part of the TA, mention should be made at the scoping stage that provision is being made for a travel plan and should include the key elements of the document. Whereas the TA is concerned with assessing the effects of a development in order to inform the planning application process, the travel plan is concerned with the delivery of long term sustainable transport objectives by the users and occupiers of the development. Given the clear inter-relationship between the two, it is imperative that the travel plan be written in parallel with the TA in order to provide information on any mitigation measures planned.
- 9.15 The primary aim of travel plans is to reduce car travel to and from a proposed site and encourage the greater promotion of more sustainable forms of transport by increasing the awareness of travel options, and helping to identify potential barriers to using such modes. A variety of other objectives could also apply and may include reducing congestion and demand for parking spaces, increasing business or site efficiency, reducing congestion at public transport stations or stops, integrating development into the local community and meeting environmental standards.
- 9.16 The modal share of a development can be altered by a travel plan and this should be the basis of targets set out in the travel plan. The current and predicted modal share should be included in any analysis of capacity of the transport network within the TA. Other important aspects of travel plans include key objectives, targets, the monitoring and review of the plan after it becomes operational as well as identifying the need for a Travel Plan Co-ordinator. Travel plan data is now a feature of the TRAVL and TRICS databases and is becoming increasingly useful in the modelling of travel behaviour; the success of measures put in place by developers to influence travel behaviour of those using development is more easily understood.
- 9.17 The travel plan should contain a package of measures to reduce reliance on private cars for travel, encourage greater use of sustainable transport modes and reduce the need to travel to and from the development. There are a vast range of measures that can achieve modal shift away from less sustainable modes (these are detailed in the guidance published by TfL in March 2008 and referenced below).

- 9.18 In the case of larger, speculative developments, a framework travel plan will generally need to be produced. This will outline practical measures that can be implemented at certain stages: these will include the delivery of infrastructure, co-ordination of site-wide objectives, targets and monitoring and ensuring each development phase delivered produces individual travel plans in accordance with the framework.
- 9.19 TfL has published two guides that should be adhered to when producing a travel plan for new developments: *Guidance for residential travel planning in London* (March 2008) and *Guidance for workplace travel planning for development* (March 2008). This guidance is identified in policy 3C.2 of the London Plan, and includes the thresholds for when a travel plan is required in London; all travel plans will be assessed against these guides. TfL has developed ATTrBuTE, a travel plan building, evaluation and scoring tool which is available free online at www.attrbute.org.uk

Construction Logistics Plans and Delivery and Servicing Plans

- 9.20 As described in Chapter 7, a Construction Logistics Plan and Delivery and Servicing Plan will be required for most referred applications and should be submitted alongside the TA with the planning application. These plans are able to provide a mechanism for delivering desirable freight behaviour through active management and the application of appropriate measures and should contain targets, objectives and incentives. The plans should be initially secured by a planning obligation, however the Delivery and Servicing Plan will become an ongoing management tool to be implemented, monitored and reviewed by the developer, future owners and occupiers.
- 9.21 Although the Delivery and Servicing Plan is not specifically part of the TA, mention should be made at the scoping stage that provision is being made for a plan and the key elements of the document should be indicated. Whereas the TA is concerned with assessing the effects of a development in order to inform the planning application process, the Delivery and Servicing Plan is concerned with the delivery of long term sustainable transport objectives by the users and occupiers of the development. Given the clear inter-relationship between the two, it is imperative that the Delivery and Servicing Plan be written, at least in terms of its main themes, in parallel with the TA in order to provide information on any mitigation measures planned.
- 9.22 The primary aim of Construction Logistics and Delivery and Servicing Plans is to reduce the effect of road freight to and from a proposed site and encourage the greater promotion of more sustainable forms of transport by increasing the awareness of options such as mode switch, consolidation and responsible procurement and in helping to improve the efficiency of the road freight that is required. A variety of other objectives could also apply and may include reducing congestion and peak trips, encouraging legal delivery which is safe and secure, increasing business or site efficiency and meeting environmental standards of reduced CO2 emissions, improving air quality.

- 9.23 Other important aspects of these plans include key objectives, targets, the monitoring and review of the plan after it becomes operational. Delivery and servicing data is now a feature of the TRAVL database and is becoming increasingly useful in the modelling of freight behaviour; the success of measures put in place by developers to influence freight behaviour of those using the development is more easily understood.
- 9.24 The Delivery and Servicing Plan should contain a package of measures to reduce the impact of road freight activity to or from the development and encourage greater use of sustainable modes, consolidation or deliveries out of peak hours. Measures that could form part of the plan could include reviews of procurement that include freight activity and the implementation of a Vehicle Booking System to control activity and reduce the impact in peak periods.
- 9.25 In the case of larger, speculative developments, a Delivery and Servicing Plan strategy or framework will generally need to be produced. This will outline practical measures that can be implemented at certain stages, for example the use of site facilities management, establishing a site system of freight vehicle control and provision of freight controls for future occupiers. A strategy for rolling out specific initiatives by individual occupiers should also be established if applicable.
- 9.26 The Construction Logistics Plan needs to specifically address the construction process as it moves from demolition through to ground-works, shell and core to final fit-out. It needs to address the minimisation of the impact of construction transport activity and also be linked into other schemes that identify construction best practice.
- 9.27 TfL is producing complementary good practice guidance for Delivery and Servicing Plans and Construction Logistics Plans for development management purposes. The guidance will provide a clear process for what is required of each plan to accompany a planning application and should be used to expedite the application process.

10. SUMMARY

- 10.1 This document provides a recommended approach to producing transport assessments for referred applications in London. The main points of the guidance are summarised in this section.

The Referral Process

- 10.2 This section sets out the process for referred planning application with specific reference to transport requirements.
- The Town and Country Planning (Mayor of London) Order 2008 gives the Mayor influence over land use planning through planning applications that are referred to him;
 - All planning applications should be in general conformity with London Plan policies.
 - Consultation with TfL through pre-application discussions should begin as soon as an application has been established as being referable.
 - A completed TA should be submitted with the planning application to the local planning authority. A copy should also be sent to the Mayor. Electronic copies of the TA and other relevant documents should be provided directly to the Land Use Planning Team at TfL.
 - Following a pre-application meeting the TfL LUP Team will provide a written response specifying issues or additional requirements. This will form the basis of TfL's comments to the Mayor for incorporation to the Mayoral Stage 1 report.
 - A follow-up document in response to the Stage 1 report should be submitted directly to TfL LUP. This should include details of planning obligations and mitigation measures.
 - Normally a local planning authority's resolution to grant or refuse planning permission follows the Stage 1 report.
 - TfL LUP will provide a final response to the TA and follow-up issues raised in the additional submissions for incorporation to the Mayoral Stage 2 report. The Mayor then decides whether to allow the local planning authority's draft decision to proceed unchanged, or to direct refusal, or outside the Olympic Delivery Authority and London Thames Gateway Development Corporation areas, to apply the policy tests to see if he is justified in taking over the application, in effect becoming the local planning authority for the purposes of determining the application.

Scoping and Pre-Application

10.3 This section gives information on the preferred method of scoping a transport assessment and arranging pre-application consultation.

- The first stage should be the production of a scoping document guided by discussions with the local planning authority, GLA and TfL.
- A checklist is provided to inform this process.
- The scoping document can stimulate discussion at the pre-application meeting with TfL regarding areas covered, methods of analysis and assessment and arrangement of data exchange where necessary.
- A ‘**get in early**’ approach to consultation and negotiation is encouraged by taking advantage of the formal TfL pre-application advice service.

TA Structure

10.4 This section covers the preferred structure of a transport assessment document with importance given to clarity and consistency of presentation.

- The TA should follow a clear structure setting out the baseline conditions initially in order to allow for impacts to be fully assessed.
- References and assumptions made should be clearly stated.
- The document should be written in plain English in order for it to be understood by professionals who are not experts in the transport field.

TA Inputs

10.5 The required inputs to a transport assessment are varied and wide-ranging. This section sets out the likely requirements and the variation by land use type.

- For context, the TA should include details of the development that is being proposed. This should include plans and GIS information on the site location.
- As much baseline data relating to the existing transport conditions on the site should be included as is possible. This should include all relevant modes and the source of the data.
- Cumulative impacts of other planned developments in the vicinity should be considered.

TA Organisation

10.6 The organisation of the TA production process is important in terms of considering all the elements required.

- Trip generation analysis is key to achieving an accurate impact assessment. Trip distribution analysis by origin and time should be included.
- Maximum car parking standards as specified in the London Plan should be adhered to.
- The provision of cycle parking should conform to TfL's cycle parking guidelines. Motorcycle parking should also be considered.
- The TA should demonstrate that the delivery and servicing of the development will not disrupt the road network. 'Back of house' rather than on-street provision is encouraged. A Delivery and Servicing Plan should be included for major developments.
- The level of construction traffic generated by any development should be assessed. A Construction and Logistics Plan should be included for major developments.
- All discussion of the impacts of a development should be accompanied with mitigation proposals. This can include planning obligations or section 278 agreements where relevant.
- A travel plan is required for all developments. The predicted changes to the modal share should be included in the capacity analysis of the transport network in the TA.

Analytical Techniques

10.7 TfL has recognised analysis techniques for assessing impacts on individual transport modes. This covers trip generation and capacity as well as the use of TfL models such as CAPITAL and Railplan.

- The TA analysis should be transparent including explanation, justification of data sources, assumptions and analysis methodology. This will ensure comprehensive verification of the results by TfL.
- An assessment of the number of one-way person trips broken down by mode that the development will generate should be provided. A modal share for all modes can then be derived.
- TRAVL is recognised as the preferred source of travel survey data in London. Where insufficient sites are available from TRAVL, additional data may be obtained from sites with multi-modal data on the TRICS database. Observed quantitative data can provide more up to date information.
- TfL may request sensitivity testing. The appropriate methodology will need to be discussed with TfL on a case by case basis.
- Temporal analysis of trip rates over time should be included in the TA separated by purpose for the full day, morning and evening peak and inter-peak weekend periods (and any other time period relevant to the development).
- The origin and destination of trips should be provided to give a clear indication of any capacity issues.
- Public transport accessibility analysis of the site should be carried out, including a PTAL assessment. CAPITAL may also provide a useful tool to measure the public transport accessibility of a site. ATOS scores can also be used alongside

PTALs to provide a more in-depth understanding of accessibility by public transport and/or walking and cycling.

- Capacity analysis for all modes should set out the existing situation and the impact of any additional trips generated by the development.
- The cumulative impact of nearby planned developments should also be included in the analysis.
- Pre-application discussions with the relevant TfL mode may be necessary to agree modelling (arranged through the LUP Team).

Mitigation, Travel Plans and Construction Logistics Plans and Delivery and Servicing Plans

10.8 The follow up to the impact assessment is the presentation of mitigation measures to address the impacts.

- Any transport improvements should be discussed with TfL and the local planning authority. These will generally be expected to be funded by the developer.
- Full justification is needed if no mitigation measures are proposed.
- Planning obligations (secured via section 106 agreements) and section 278 agreements are designed to enable highway and transport infrastructure improvements to be provided as a result of new developments through financial contributions from developers.
- TfL seeks to secure funding from developments to mitigate all impacts on the transport network. The Mayor has a specific requirement to secure planning obligations for Crossrail.
- TfL has a Planning Obligations Team which oversees the implementation of high risk planning obligations in collaboration with TfL businesses.
- The Community Infrastructure Levy (CIL) will eventually provide a partial replacement for planning obligations. Alongside other charging authorities, the Mayor has the ability to apply CIL for transport facilities.
- A travel plan will be required for most referred applications and should be submitted alongside the TA with the planning application.
- The primary aim of travel plans is to reduce car travel to and from the proposed site and encourage the greater promotion of more sustainable forms of transport by increasing the awareness of travel options.
- A Construction Logistics Plan and Delivery and Servicing Plan will be required for most referred applications and should be submitted alongside the TA with the planning application.
- The plans should contain a package of measures that can be implemented and monitored at certain stages of the development. A strategy for rolling out specific initiatives by individual occupiers should also be established.
- Complementary good practice guidance for travel plans has been produced by TfL. This sets out what is required when preparing a travel plan to accompany a planning application and should be used to expedite the application process.

APPENDIX A

REFERRED PLANNING APPLICATIONS - CRITERIA

TABLE A.1 CATEGORY 1: LARGE SCALE DEVELOPMENT

Category	Criteria
1A	Development which comprises or includes the provision of more than 150 houses, flats, or houses and flats.
	Development which comprises or includes the erection of building(s):
	<ul style="list-style-type: none"> • in the City of London and with a total floorspace of more than 100,000 square metres; or
1B	<ul style="list-style-type: none"> • in Central London and with a total floorspace of more than 20,000 square metres; or • outside Central London and with a total floorspace of more than 15,000 square metres.
	Development which comprises or includes the erection of a building where one or more of the following conditions is met:
1C	<ul style="list-style-type: none"> • the building is more than 150 metres high and in the City of London; • the building is more than 30 metres high and outside the City of London; or • the building is more than 25 metres high and is adjacent to the River Thames.
	Development which comprises or includes the alteration of an existing building where:
1D	<ul style="list-style-type: none"> • the development would increase the height of the building by more than 15 metres; and • the building on completion would be higher than a relevant threshold as set out in 1C.

TABLE A.2 CATEGORY 2: MAJOR INFRASTRUCTURE

Category	Criteria
2A	Development that comprises or includes mining operations where the development occupies more than 10 hectares.
	Waste development with capacity for more than:
2B	<ul style="list-style-type: none"> • 5,000 tonnes per annum of hazardous waste; or • 50,000 tonnes per annum of waste
	Waste development where the development occupies more than one hectare.

2C	<p>Development to provide:</p> <ul style="list-style-type: none"> • an aircraft runway; • a heliport (including a floating heliport or helipad on a building); • an air passenger terminal at an airport; • a railway station or a tram station; • a tramway, an underground, surface or elevated railway, or a cable car; • a bus or coach station; • an installation for a use within Class B8 (storage or distribution) of the Schedule to the Use Classes Order where the development occupies more than 4 hectares; • a crossing over or under the River Thames; or • a passenger pier on the River Thames. <p>Development to alter an air passenger terminal to increase its capacity by more than 500,000 passengers per year.</p> <p>Development for a use which includes the keeping or storage of buses or coaches where:</p> <ul style="list-style-type: none"> • it is proposed to store 70 or more buses or coaches or buses and coaches; or • the part of the development that is to be used for keeping or storing buses or coaches or buses and coaches occupies more than 0.7 hectares (the area used for keeping or storing includes the area occupied by maintenance, administrative and staff facilities connected with such use).
2D	<p>Waste development which does not accord with one or more of the provisions of the development plan in force in the area in which the application site is situated and which falls into one or more of these sub-categories:</p> <ul style="list-style-type: none"> • it occupies more than 0.5 hectares • it is development to provide an installation with a capacity for a throughput of more than: <ul style="list-style-type: none"> (i) 2,000 tonnes per annum of hazardous waste; or (ii) 20,000 tonnes per annum of waste.

TABLE A.3 CATEGORY 3: DEVELOPMENT WHICH MAY AFFECT STRATEGIC POLICIES

Category	Criteria
	Development which is likely to:
3A	<ul style="list-style-type: none"> • result in the loss of more than 200 houses, flats or houses and flats; or • prejudice the residential use of land which exceeds 4 hectares and is used for residential use.

	Development which:
3B	<ul style="list-style-type: none"> occupies more than 4 hectares of land which is used for a use within Class B1 (business), B2 (general industrial) or B8 (storage or distribution) of the Use Classes Order; and is likely to prejudice the use of that land for any such use.
	Development which is likely to prejudice the use of a playing field of more than 2 hectares of land which:
3C	<ul style="list-style-type: none"> is used as a playing field at the time the relevant application for planning permission is made; or has at any time in the 5 years before the application been used as a playing field.
	Development:
3D	<ul style="list-style-type: none"> on land allocated as Green Belt or Metropolitan Open Land in the development plan, in proposals for such a plan, or in proposals for the alteration or replacement of such a plan; and which would involve the construction of a building with a floorspace of more than 1,000 square metres or a material change in the use of such a building.
	Development which:
3E	<ul style="list-style-type: none"> does not accord with one or more provisions of the development plan in force in the area in which the application site is situated; and compromises or includes the provision of more than 2,500 square metres of floorspace for a use falling within any of the following classes in the Use Classes Order: <ul style="list-style-type: none"> i. class A1 (retail) ii. class A2 (financial and professional) iii. class A3 (food and drink) iv. class A4 (drinking establishments) v. class A5 (hot foot takeaways) vi. class B1 (business) vii. class B2 (general industrial) viii. class B8 (storage and distribution) ix. class C1 (hotels) x. class C2 (residential institutions) xi. class D1 (non-residential institutions) xii. class D2 (assembly and leisure)
3F	Development for a use, other than residential use, which includes the provision of more than 200 car parking spaces in connection with that use.

3G	<p>Development which:</p> <ul style="list-style-type: none"> • involves a material change of use; • does not accord with one or more provisions of the development plan in force in the area in which the application site is situated; • where the application site is used or designed to be used wholly or mainly for the purpose of treating, keeping, processing, recovering or disposing of refuse or waste materials; and • the application site – <ul style="list-style-type: none"> (i) occupies more than 0.5 hectares; or (ii) contains an installation with a capacity for a throughput of more than 2,000 tonnes per annum of hazardous waste; or (iii) contains an installation with a capacity for a throughput of more than 20,000 tonnes per annum of waste.
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3H	<p>Development which:</p> <ul style="list-style-type: none"> • comprises or includes the provision of houses, flats or houses and flats; • does not accord with one or more provisions of the development plan in force in the area in which the application site is situated; and • is on a site that is adjacent to land used for treating, keeping, processing, recovering or disposing of refuse or waste materials with a capacity for a throughput of more than – <ul style="list-style-type: none"> (i) 2,000 tonnes per annum of hazardous waste; or (ii) 20,000 tonnes per annum of waste.
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3I	<p>Development which:</p> <ul style="list-style-type: none"> • involves a material change of use; • does not accord with one or more provisions of the development plan in force in the area in which the application site is situated; and • is either – <ul style="list-style-type: none"> (i) on a site that is used for keeping or storing 70 or more buses or coaches or buses and coaches; or (ii) on a site on which an area of over 0.7 hectares is used for keeping or storing buses or coaches or buses and coaches.
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**TABLE A.4 CATEGORY 4: DEVELOPMENT ON WHICH THE MAYOR MUST BE
CONSULTED BY VIRTUE OF A DIRECTION OF THE SECRETARY OF
STATE**

Category	Criteria
4	Development where the local planning authority is required to consult the Mayor because of direction by the Secretary of State.

APPENDIX B

PTAL METHODOLOGY

Measuring Public Transport Accessibility Levels

PTALs

Summary

Transport for London

April 2010

Measuring Public Transport Accessibility Levels

Overview

Public Transport Accessibility Levels (PTALS) are a detailed and accurate measure of the accessibility of a point to the public transport network, taking into account walk access time and service availability. The method is essentially a way of measuring the density of the public transport network at any location within Greater London.

The current methodology was developed in 1992, by the London Borough of Hammersmith and Fulham. The model has been thoroughly reviewed and tested, and has been agreed by the London Borough-led PTAL development group as the most appropriate for use across London.

Walk times are calculated from specified point(s) of interest to all public transport access points: bus stops, rail stations, light rail stations, underground stations and Tramlink halts, within pre-defined catchments. The PTAL then incorporates a measure of service frequency by calculating an average waiting time based on the frequency of services at each public transport access point. A reliability factor is added and the total access time is calculated. A measure known as an Equivalent Doorstep Frequency (EDF) is then produced for each point. These are summed for all routes within the catchment and the PTALs for the different modes (bus, rail, etc) are then added to give a single value. The PTAL is categorized in 6 levels, 1 to 6 where 6 represents a high level of accessibility and 1 a low level of accessibility. Levels 1 and 6 have been further subdivided into 2 sub-levels to provide greater clarity.

The measure therefore reflects:

- Walking time from the point-of interest to the public transport access points;
- The reliability of the service modes available;
- The number of services available within the catchment; and
- The level of service at the public transport access points - i.e. average waiting time.

It does not consider:

- The speed or utility of accessible services;
- Crowding, including the ability to board services; or,
- Ease of interchange.

The PTAL methodology was developed for London where a dense integrated public transport network means that nearly all destinations can be reached within a reasonable amount of time. Research using the ATOS (Access to Opportunities and Services) methodology shows that there is a strong correlation between PTALs and the time taken to reach key services – i.e. high PTAL areas generally have good access to services and low PTAL areas have poor access to services.

Components of the PTAL Method

The process can be broken down into a series of stages:

- Define the point of interest
- Calculate the walk access times from the Point of Interest (POI) to the service access points (SAPs)
- Identify valid routes at each SAP and calculate average wait time
- For each valid route at the SAPs calculate the minimum total access time
- Convert total access times to the Equivalent Doorstop Frequencies - to compare the benefits offered by routes at different distances,
- Sum all EDFs with a weighting factor in favour of the most dominant route for each mode
- PTALs are then determined using 6 banded levels.

Define the Points of Interest

The exact location of the point of interest may have a considerable bearing on the final PTAL score. The proximity of local public transport services and the nature of the local walk network will vary from point to point. If the PTAL is being calculated for a large development, for example a new supermarket, a number of points may be required to reflect different PTALs across the area.

Calculate the walk access times

Public transport access points

There are approximately 12,000 public transport network stops or access points within Greater London. Station locations are based on station entrances. Bus access points represent a pair or group of bus stops. For instance where there is a stop either side of the road for each service direction there would be one SAP. Similarly outside a rail station, where there may be two or more stops, a single SAP is generally used to represent this cluster of stops.

Walk access times

Walk access times are measured from the POI to the SAPs using the Ordnance Survey's representation of the road network - ITN (Integrated Transport Network). Distances between the POI and the SAPs are converted to a measure of time using an assumed average walk speed of 4.8 kph.

A number of parameters define the extent of the walk catchment area. For buses the maximum walk time is defined as 8 minutes or a distance of 640 metres. For rail, underground and light rail services the maximum walking time is defined as being 12 minutes or a walking distance of 960 metres. Any SAPs beyond these distances are rejected.

Table 1 below summarises the walk speed, maximum walk distances and reliability factors used in the calculations.

Table 1 Model Parameters

Parameter	Unit	Value
Walk Speed	Km/Hr	4.8
Walk Speed	Metres/Minute	80
Bus		
Reliability	Minutes	2
Maximum Walk Time	Minutes	8
Maximum Walk Distance	Metres	640
Rail		
Reliability	Minutes	0.75
Maximum Walk Time	Minutes	12
Maximum Walk Distance	Metres	960

Identify Valid Routes

Routes are identified for each valid SAP:

- The routes depend on the time period chosen. Generally service frequency data is selected from the morning peak period, specifically between 08.15 to 09.15;
- For each POI route information is only considered once. Where a route occurs twice or more - because it serves more than one SAP within the POI catchment area - the SAP that is nearest to the POI is used;
- Within each route (for example, the Victoria Underground line) different 'run' patterns are considered as separate entities with separate frequency patterns;
- At any SAP, routes will normally be bi-directional. In TfL's PTAL calculator it is the direction with the highest frequency that is considered in the model;
- For train services only those routes with at least 2 stops within the Greater London boundary (i.e. the origin stop and at least one other station) are considered. This is particularly significant for POIs where the SAPs include London major termini stations.

Bus frequency data is derived from TfL's BusNet system. This is a comprehensive database giving a global view of current bus and tram routes and their geographic routings and services. Service information is based on the contractual requirements agreed between the operators and TfL and is therefore regarded as the most reliable data source available within TfL for calculating PTALs. Timetables offer a range of bus time intervals and can give the impression that higher frequency levels are possible. These times though are designed to reflect local road and traffic conditions which can change from day to day.

Table 2 below shows how the Public Transport Accessibility Index is built up, for a point served by 4 bus services and an Underground station. Note that the Northern Line branches are treated as separate services.

Table 2 PTAL calculation for a single point

Parameters											
Walk Speed (metres/min)	80										
Bus reliability (mins)	2										
Rail reliability (mins)	0.75										
Peak hour services											

Site Details

New OfficesX 526919Y 189652

Site	Services	Stop	Route	Distance	Frequency	Weight	Walk Time	SWT	Access	EDF	Accessibility Index
New Offices	Bus Services	TX08	F12	303	4	0.5	3.79	9.50	13.29	2.26	1.13
		TW04	3A	408	6	0.5	5.10	7.00	12.10	2.48	1.24
		TW04	23	408	10	1	5.10	5.00	10.10	2.97	2.97
		TW03	125	511	6	0.5	6.39	7.00	13.39	2.24	1.12
	Rail/LUL/DLR	East Finchley	via CX	699	9	0.5	8.74	4.08	12.82	2.34	1.17
			via Bank	699	9	1	8.74	4.08	12.82	2.34	2.34
											9.97

Calculating Total Access Time

Total access time is made up of a combination of factors: combining the walk time from the POI to the SAP and the time spent waiting at the SAP for the desired service to arrive.

Total Access Time = Walk Time + Average Waiting Time

Average Waiting Time

Waiting time is the average time between when a passenger arrives at a stop or station, and the arrival of the desired service. In PTALs passengers are assumed to arrive at the SAP at random.

For each selected route the scheduled waiting time (SWT) is calculated. This is estimated as half the headway (i.e. the interval between services,) so $SWT = 0.5 * (60/\text{Frequency})$.

Thus a 10 minute service frequency (6 buses per hour) would give an SWT of 5 - on average a passenger would have to wait 5 minutes for a bus/train to appear.

To derive the Average Waiting Time, reliability factors are applied to the SWT according to the mode of transport used. The regularity of buses, underground and rail services are affected by a variety of factors, with bus services the worst affected. To allow for reliability additional wait times assumed are 2 minutes for buses and 0.75 minutes for rail services.

Calculating Equivalent Doorstep Frequency

The access time is converted to an Equivalent Doorstep Frequency (EDF) where:

$$\text{EDF} = 30 / \text{Total Access Time (minutes)}$$

This treats access time as a notional Average Waiting Time as though the route was available at the "doorstep" of the selected POI.

Calculating the Accessibility Index for the POI

Summation of the EDF values gives the accessibility index. There are a number of additional factors that should be considered:

- Routes often travel in parallel for some distance so the range and frequency of destinations are likely to be less than that suggested by the number of routes included in the calculation.
- Travellers often have to change routes in order to reach the desired destination - this can add significant delays to the journey

Halving the EDF values for all but the most accessible or dominant route for each transport mode compensates for these factors. Transport modes are divided into three groups:

- Buses
- National Rail
- LUL – all LUL services together with DLR and Tramlink services

Thus for a single transport mode the AIs can be calculated using the following formula:

$$\text{AI}_{\text{mode}} = \text{EDF}_{\text{max}} + (0.5 * \text{All other EDFs})$$









Calculating the overall accessibility index is a sum of the individual AIs over all modes:

$$\text{AI}_{\text{poi}} = \sum (\text{AI}_{\text{mode1}} + \text{AI}_{\text{mode1}} + \text{AI}_{\text{mode2}} + \text{AI}_{\text{mode3}} \dots \text{AI}_{\text{mode n}})$$

PTALs

The final formula given above calculates the PTAI - the Public Transport Accessibility Index. These indices can now be allocated to bands of Public Transport Accessibility Levels (PTALs) where band 1 (1a and 1b) represents a low level of accessibility and 6 (6a and 6b) a high level. The table below shows the relationship between PTAI scores and the final PTAL levels. A value of 0 would indicate no access to the public transport network within the parameters given.

Table 3 Public Transport Accessibility Levels

PTAL	Range of Index	Map Colour	Description
1a (Low)	0.01 – 2.50		Very poor
1b	2.51 – 5.00		Very poor
2	5.01 – 10.00		Poor
3	10.01 – 15.00		Moderate
4	15.01 – 20.00		Good
5	20.01 – 25.00		Very Good
6a	25.01 – 40.00		Excellent
6b (High)	40.01 +		Excellent

PTAL Web Site

A PTAL calculator is available on the web at the following address:

webpid.elgin.gov.uk

or via TfL's Borough Partnership's web page.

The site allows you to search for a specific location by street name, co-ordinates or postcode and then calculate the PTAL value for a selected location.

Further development of the PTALs methodology

PTALs were originally developed for the assessment of parking provision for commercial development proposals, and the related standards are based on the Monday-Friday am peak service levels. The PTALs development group, comprising representatives of the boroughs, TfL and GLA is considering a number of refinements of the PTAL methodology outline below.

PTALs for different time periods

It is already possible to calculate PTALs for any time period for specific sites. However, TfL is currently upgrading its PTALs calculator and underlying service databases, to enable borough and London wide PTALs to be calculated for other time periods. Although am peak PTALs give a good indication of maximum levels of public transport provision, in some areas, particularly those dependent on suburban rail services, there can be significant differences between am peak and off-peak service levels.

Once the borough level PTALs can be produced for additional time periods, there will need to be further dialogue within the working group as to how the related standards should be developed. For example, off-peak and evening PTALs will be particularly relevant to the assessment of leisure developments, but new standards for what constitutes good accessibility will have to be developed for these land-uses.

Using alternative parameters for different development purposes

The PTALs methodology imposes a maximum walk access time for bus, tube and rail services. However it is possible that this may need to be varied. For example, people may be willing to walk further to access a rail station served by a number of high frequency services, than one that is less well served. The maximum walk access time may also depend on the purpose of the journey or overall journey time. For example, people may be willing to walk further for commuting, or where the walk time is a relatively small proportion of the overall journey time, than they would be for a short leisure or shopping trip.

It is proposed to research how the maximum walk times vary by purpose and overall trip length, using the London Area Transport Survey 2001 data. Again, any set of PTAL values based on alternative parameters would have to be reviewed, in terms of how they should be applied to different development scenarios.

The contribution of each mode to the PTAI score

In the current methodology, each mode – rail, bus, tube – is given the same weight in the overall PTAI index. It may be appropriate to use different weights for each mode, for example to make rail or tube service provision more important, but this will very much depend on the nature of the development proposal and the characteristics of the area.

Building a more comprehensive measure of accessibility

A further area that is being developed is how PTALs can be used alongside other measures of public transport accessibility and assessments of capacity, to assess major development proposals.

List of Abbreviations

AI	Accessibility Index
ATOS	Access to Opportunities and Services
AWT	Average Waiting Time
BODS	Bus Origin and Destination Survey
EDF	Equivalent Doorstep Frequency
GIS	Geographic Information System
PDGIS	Planning and Development Geographic Information System - a GIS developed specifically for the Planning Department of London Transport, now being replaced.
POI	Point-of-Interest - the point for which the PTAL is being calculated. This can be an individual point or a grid of point.
PTAI	Public Transport Accessibility Indices
PTAL	Public Transport Accessibility Levels
RF	Reliability Factor
SAP	Service Access Point - bus stops, light rail stations, underground stations, tramlink halts etc. Points at which people have access to the public transport network.
SWT	Scheduled Waiting Time
TAT	Total Access Time
TfL	Transport for London

Further Information

If you have any queries concerning the PTAL model please contact Policy Analysis
Department of Transport for London:

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APPENDIX C

LAND USE PLANNING CONTACT DETAILS

C.1 LAND USE PLANNING CONTACT DETAILS

- C.1.1 Contact details for TfL's Land Use Planning Team are given overleaf. Key contacts and advice on the pre-application process can be found using the following link:

<http://www.tfl.gov.uk/businessandpartners/commercialopportunities/6010.aspx>

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S106 Planning Obligations

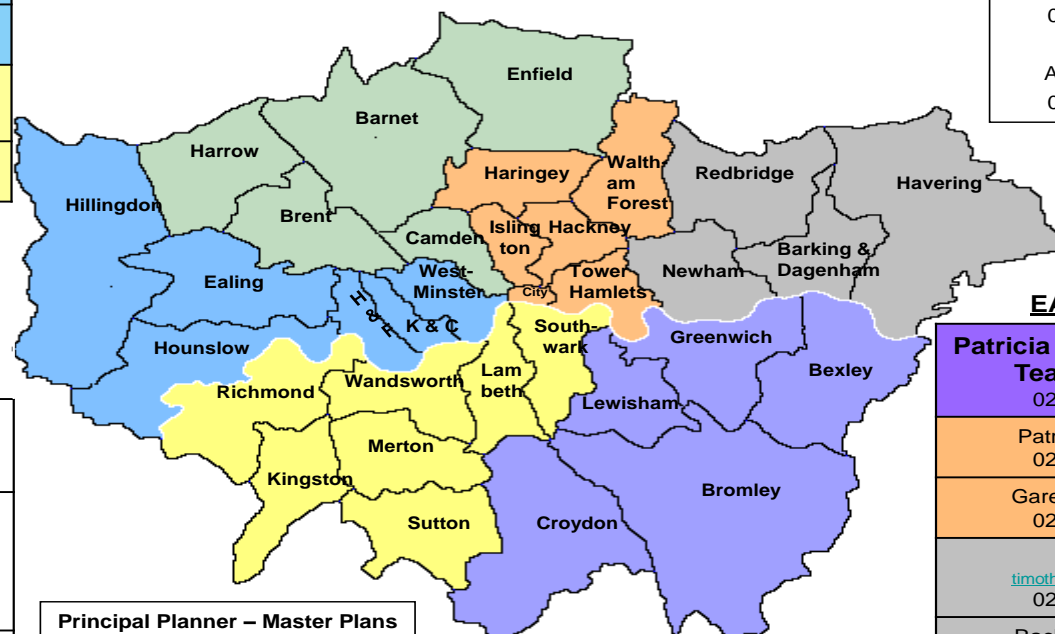
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Borough Partnerships – Land Use Planning

March 2010

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APPENDIX D

KEY REFERENCE DOCUMENTS

D.1 KEY REFERENCE DOCUMENTS

D.1.1 This Appendix lists some of the key reference documents, including a range of guidance documents produced by TfL. A more extensive list, along with links, will be available on TfL's website. This Appendix and the web-based list will be regularly updated.

D.1.2 At the outset of preparation of the TA, the applicants and their consultant teams should reconfirm with TfL which standards and guidelines will apply, as new documents are periodically issued which may supersede some of the information given below.

Legislation

The Town and Country Planning (Mayor of London) Order 2008

Traffic Management Act, 2004

Circular 5/05: Planning obligations, ODPM, 2005

The Community Infrastructure Levy Regulations, February 2010

London policy and strategy

The London Plan: The Mayor's Spatial Development Strategy Consolidated with Alterations since 2004, Mayor of London, February 2008 (note: includes London Plan car parking standards)

London Plan Crossrail Alterations, Mayor of London, 2010

Use of planning obligations in the funding of Crossrail, Supplementary Planning Guidance, Mayor of London, 2010

Draft Replacement London Plan, Mayor of London, October 2009 (note: includes London Plan car parking standards and TfL's minimum cycle parking standards)

Draft Mayor's Transport Strategy, Mayor of London, October 2009

An Electric Vehicle Delivery Plan for London, Mayor of London, May 2009

Guidance

Guidance for residential travel planning in London, TfL, March 2008

Guidance for workplace travel planning for development, TfL, March 2008

Interchange Best Practice Guidelines, TfL, 2009

Improving walkability: Good practice guidance on improving pedestrian conditions as part of development opportunities, TfL, 2005

Streetscape Guidance 2009: A guide to better London streets, TfL, 2009

APPENDIX E

GLOSSARY

E.1 GLOSSARY

Accession – a software tool for developing a model of accessibility. Designed to assist in the development of Local Transport Plans but can be used to assess the accessibility of individual sites to local infrastructure.

ARCADY – Assessment of Roundabout Capacity and Delay – software tool for assessing the capacity, traffic movement, accident risk and delay around traffic roundabouts.

ATOS – Access to Opportunities and Services is a new indicator measuring access to opportunities and services and employment by public transport and /or walking/cycling across London. It has been developed by TfL and is being tested with a sample of local authorities in London.

ATTrBuTE – A travel plan building, evaluation and scoring tool, developed by TfL.

BODS – Bus Origin and Destination Survey – Data collected by TfL measuring the levels of passengers along bus routes and at all stops along the route.

CAPITAL – A TfL model measuring the travel time from a specific location to the rest of London based on Census Output Areas. The model is linked to Railplan through the network use of a consistent public transport network.

CIL – Community Infrastructure Levy

CCZ- Congestion Charging Zone

‘Crush Capacity’ – This is the total capacity of train where the maximum number of people are standing. This is set at 7 people per square metre.

DAISY – Docklands Arrival Information System. This is a real time departure and arrival information system that may be requested as part of a travel plan for developments near to DLR stations.

EMME/2 – This is a complex software application that has been designed for modelling multimodal networks with all modes integrated into a consistent network and full interaction provided between transit and car nodes.

Fruin Levels – This is a measure of the capacity of pedestrian footways based on speed and the concentration of pedestrians.

GIS – Geographical Information Systems

LATS – London Area Travel Survey. A TfL travel survey collecting data on Londoners' weekly travel patterns. LATS has now been superseded by LTDS (see below).

Legion – Crowd simulation model/predictive pedestrian simulation software.

LINSIG – Software allowing the modelling of a signalised junction.

LTDS – London Travel Demand Survey. LTDS supersedes LATS (see above).

LUP – TfL Land Use Planning Team

OSCADY – Optimised Signal Capacity and Delay – a software package modelling capacity, queue length and delay at individual signal-controlled junctions.

O&D data/surveys: Origin and destination data/surveys.

Pedroute – A software package that models pedestrian movements in confined spaces such as stations.

PERS – Pedestrian Environment Review Software – a software package to model walk routes through an area.

PICADY – Priority Intersection Capacity and Delay – A software package that models the capacity, queue length and delays at non-signalised junctions.

PIXC – Rail passenger data indicating Passengers in Excess of Capacity.

'Practical Capacity' – This is a level of train capacity that should be used when assessing the maximum loadings. This is set at 5 people per square metre for individual train services and 4 people per square metre for a number of services over a period of time.

PTALs – Public Transport Accessibility Levels – A technique used by TfL to measure the accessibility of a particular location to the public transport network.

Railplan – This is a model that uses the software EMME/2 to model the public transport network in London and the Southeast. It simulates the route choices made

by public transport users and creates a model of the resulting travel times, passenger levels and number of services. This is a complex model used for very large developments to assess capacity across London. The use of such a model is only necessary for the most significant of referred applications.

RODS – Rail Origin and Destination Survey - data collected by TfL measuring the levels of passengers along sections of different LU or DLR lines.

SATURN – (Simulation & Assignment of Traffic to Urban Road Network) – this is a flexible network simulation application that can be used to model a range of different types of traffic network from individual junctions to major infrastructure.

SRN – Strategic Road Network

SPSG – Station Planning Standards and Guidelines

TA Addendum – This is a follow-up document to the transport assessment addressing any comments or additional data requests of TfL, generally as a result of a Stage 1 Mayoral report.

TEMPRO – Trip End Model Program – software package designed to allow access to the National Trip End Model projections of growth in travel demand. It is used to provide suitable growth factors for travel data.

TLRN – Transport for London Road Network

TRANSYT – Traffic Network Study Tool – software package allowing a network of linked signalised junctions to be modelled to determine optimum signal timings and junction capacities.

TRAVL – A software package allowing access to a range of travel surveys carried out for developments across London.

TRICS – A multi-modal database containing trip generation data for a range of developments across the UK and Ireland.

VISSIM – A simulation and modelling software package for modelling a complex interchanges and interactions between different transport modes.

WEBTAG – DfT web based guidance on transport appraisal and analysis.