

Guidelines for  
**Traffic Impact  
Assessment**



The Institution of Highways & Transportation

## From the President...

Traffic growth has had a major impact on our urban areas and elsewhere. Much of this growth is associated with new and expanded developments. Traffic impact assessments are normally prepared by developers in support of planning applications relating to new or modified developments. They enable the highway authority to assess whether any highway improvements are likely to be required, and, if so, the nature of those improvements.

Two points of good practice are highlighted by the Guidelines. Firstly, attention is drawn to the advisability of developers discussing their proposals with highway authorities at an early stage in order to determine whether a traffic impact assessment is necessary and, if necessary, the scope of that assessment. Secondly, the desirability of developers providing planning and highway authorities with the information set out in the Guidelines with or prior to the submission of their planning applications is reviewed. If developers comply with these recommendations, authorities should be able to respond quickly and constructively to planning applications. This will benefit all concerned. These new Guidelines provide the basis for significant improvements to the way the traffic impact of development is assessed and presented. The result should be an improvement in the overall quality of planning decisions.

The Institution commends these Guidelines to all local authorities, developers and others involved in the development or in the provision of transport infrastructure and facilities.

Finally the Institution would like to thank all those who contributed (individuals and organisations) and to express special thanks to the members of the Working Party and Wendy Ingram-Smith, Executive Editor to the Institution.

Michael Clark  
President  
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### 3 TECHNICAL APPROACH

#### 3.1 Guidance on Size and Scope of TIA

- 3.1.1 The vast majority of planning applications have no impact, or at least, no significant impact on traffic levels and clearly the procedures set out in these Guidelines have no relevance. However, there are a number of proposals where the traffic impacts are likely to be so large that a Traffic Impact Assessment should be carried out. Between these extremes lies a grey area of what constitutes a material traffic impact.
- 3.1.2 Whether an impact is considered material will depend on the level of development traffic activity, the level of traffic already on the surrounding network, the level of traffic congestion in the area and the environmental setting within which the development and its associated traffic lies. The need for a TIA is often driven by both highway and environmental considerations and hence TIAs may be required for a wide range of developments, from the very small and apparently insignificant through to the largest forms of development.
- 3.1.3 In considering the threshold at which TIAs should, as a matter of course, be undertaken, the Guidelines have taken note of two traffic flow characteristics, namely :
- Traffic flow on any uncongested road frequently varies by up to 10% on a day to day basis. In congested conditions where flow variations are smaller it may be difficult, if at all possible, to distinguish these variations from traffic specifically related to a new development.
  - The environmental conditions on a road do not change significantly with changes of traffic of less than some 30% (see IEA Guidelines on the Environmental Impact of Road Traffic) unless there are major changes in the flow composition.
- 3.1.4 It should also be noted that any development which requires a new or enhanced access onto an existing public highway (road) will need to be subject to agreement with the Highway (Roads) Authority and some indication of the expected traffic flows will nearly always be an essential input to the design of such an access.
- 3.1.5 It is not possible to provide any hard and fast rules as to what constitutes a significant traffic impact and hence one for which a full traffic impact assessment should be undertaken. In the absence of alternative guidance from the highway (roads) authority in the form of approved or adopted policy, The Guidelines therefore recommend that a TIA should normally be produced where one or other of the following thresholds are exceeded :
- traffic to and from the development exceeds 10% of the existing two-way traffic flow on the *adjoining highway*
  - traffic to and from the development exceeds 5% of the existing two-way traffic flow on the *adjoining highway*, where traffic congestion exists or will exist within the assessment period or in other sensitive locations
- 3.1.6 In PPG13 the Department of Transport and the Welsh Office have indicated for the purposes of referral to the Department that they would regard an increase of the order of 5% as material in most cases, though where the capacity of the road is or is near to being exceeded, a smaller percentage increase may well be material. No such guidance document exists in Scotland.
- 3.1.7 As traffic problems normally relate to peak hours it is suggested that these thresholds should normally be applied to these specific periods. However, it may also be necessary to consider other time periods, for example, all day or development peak, if it is thought that the impact over or during these alternative periods is likely to be of concern.

3.1.8 There may also be circumstances where a TIA might be required even though the more conventional threshold tests did not apply. An example might be where the percentage vehicle increase may be small but where most, if not all, of the additional vehicles are heavy goods vehicles, e.g a landfill site or quarry.

3.1.9 Furthermore, there will be some developments that will be so significant in size that TIAs should be undertaken as a matter of course. As a guide, proposals exceeding any of the following parameters may attract sufficient additional traffic to warrant a TIA:

- residential development in excess of 200 units
- business (B1 and B2) GFA in excess of 5,000 sq.m.
- warehousing (B8) GFA in excess of 10,000 sq.m.
- retail GFA in excess of 1,000 sq.m.
- 100 trips in/out combined in the peak hour
- 100 on-site parking spaces

3.1.10 It is recommended that the threshold approach should also be used to establish the area of influence of the development. Hence the study area should include all links and associated junctions where traffic from the development will exceed 10% of the existing traffic (or 5% in congested or other sensitive locations) or such other threshold as may have been adopted by the highway (roads) or planning authority.

#### Planning Application Information

3.1.11 Some planning application forms already request information regarding the potential traffic generation from a site as well the level of car parking provision. It is recommended that the Planning Authority should expand on the information that it currently requests by means of a simple form which it will be able to pass directly to the relevant Highway (Roads) Authority. This approach has been successfully used by West Sussex County Council and a modification of their form is reproduced in **The Guidelines**. It will be noted that the level of detail required increases with the size and complexity of the development.



## Scoping Study

3.1.12 Prior to commencing a major technical exercise to produce a TIA it is recommended that the developer should undertake an initial *scoping study*. This is a simple examination of the likely effects of the development, consideration of how the TIA should be undertaken and the level of detail that should be included. It is suggested that the scoping study should be presented in a brief note, and should consider the following key points :

- Size and description of proposal.
- Description of existing uses of the land.
- Does the development involve relocation of an existing use ?
- Are traffic surveys of the existing condition required ?
- What is the potential modal split ?
- Potential traffic generation from the site (initial estimates can be obtained from one of the data-bases or, for relocation, from existing travel patterns). Are further traffic generation surveys required ?
- Will the site attract traffic from other adjacent sites ?
- When is the critical time period of assessment ?
- Is a new or modified highway access likely ?
- Will adjacent links or junctions become overloaded ?
- What will be the area of impact of the proposal ?
- When will the site become fully operational ?
- Are there significant phases to the project ?
- What are the assessment year(s) ?
- What level of car-parking provision is required ?
- Are there any special circumstances relevant to this proposal ?

3.1.13 The scoping study will provide a basis for assessing the level of resources required to undertake the TIA and should identify any specific data requirements. At this stage it is strongly recommended that the developer should seek a meeting with the relevant Planning and/or Highway (Roads) Authority at which the scope of the TIA can be agreed between the parties. This meeting could also be used to confirm the highway design and capacity standards being adopted by the Authority.

3.1.14 The developer is recommended to consult with the Highway (Roads) Authority at each key stage of the process and to let the Highway (Roads) Authority see a draft copy of the TIA report prior to its finalisation. Experience has indicated that this type of open approach has considerable benefits to all concerned and can frequently lead to issues being resolved early rather than waiting until they become confrontational or the subject of a lengthy and costly public inquiry.

#### Alternative Approach

3.1.15 Guidance on the requirement and scope of any TIA is currently, in the majority of cases, a subjective assessment made by the Highway (Roads) Authority personnel responsible for the affected area. History has demonstrated that this produces inconsistency in terms of both requirement and scope, and can often be a source of complaint from the applicant or developer.

3.1.16 Research has been undertaken at Napier University to try to estimate the scale of TIA which might be required based on a series of six key factors:

- trip generation
- development attractiveness
- level of congestion on the base network
- road provision in the vicinity of the development
- type of trip attracted to the development
- competition or relocation

3.1.17 A summary of the research and its findings are being published separately. They suggest a matrix scoring approach to carrying out a preliminary examination of the likely scope of the analysis which will be required. Responses to questions relating to the above six key factors allocate the analysis requirements into one of five TIA types, ranging from no operational evaluation through to an area-wide modelling assessment.

3.1.18 Whilst this approach has not been included at this time within the main Guidelines as a definitive method, some validation work on its application has been undertaken which has shown encouraging results. It is suggested that those involved in the TIA process try the matrix scoring approach in their own time and provide comments on its applicability to IHT in due course.

3.1.19 It should be emphasised however that whilst such an approach may provide greater consistency in the context of the major known factors, there could still be extraneous or special circumstances prevailing at a given site on which only the Highway (Roads) Authority could advise. The matrix framework is only a preparatory step in considering the extent of the analysis required, and contact should be made with the Planning and Highway (Roads) Authorities at an early stage in the process.

***Guidance on Size and Scope of TIA - Summary***

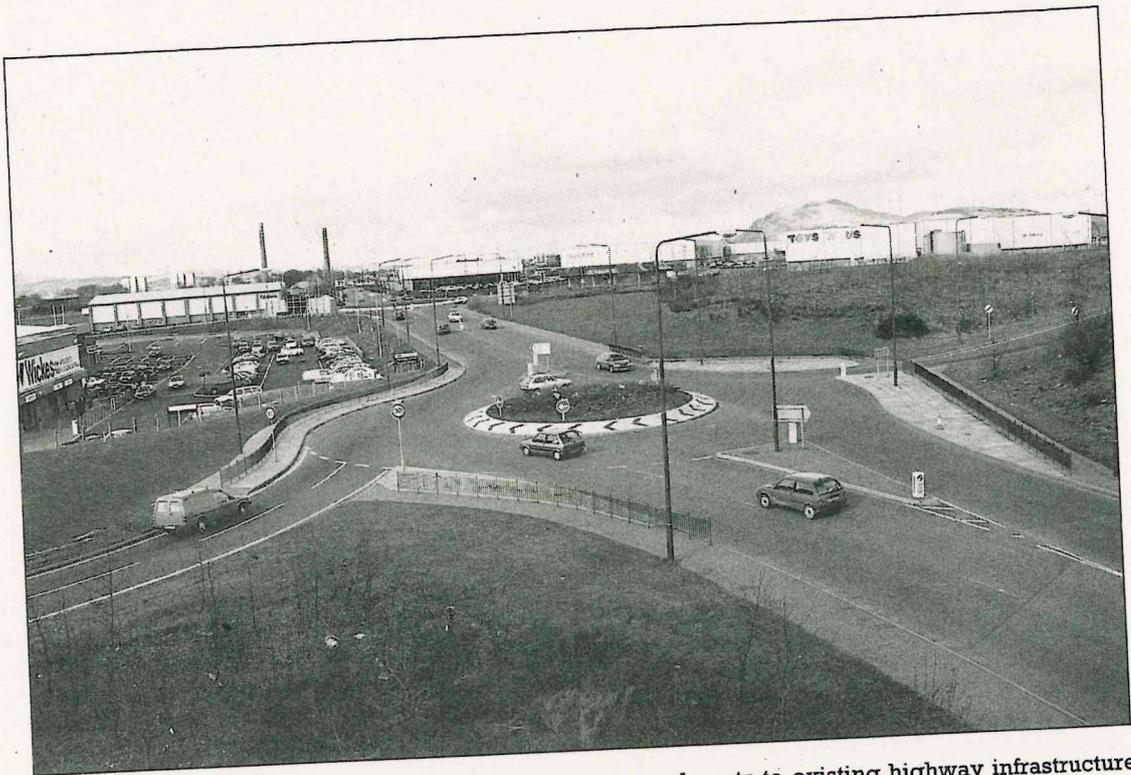
- **prepare initial scoping report**
- **discuss assessment parameters and procedures with Highway (Roads) Authority**
- **undertake TIA where development traffic exceeds 10% of existing traffic on the adjoining highway (or 5% in congested or sensitive areas) unless the Highway (Roads) Authority has adopted an alternative policy**
- **extend the area of influence to include all links and junctions that fall within these percentage change thresholds**
- **be aware that a TIA may be required for some developments even although threshold criteria not satisfied.**

### 3.10 Road Safety

- 3.10.1 Road accidents are relatively rare occurrences. Nevertheless, their number and their estimated cost to the community (235,800 Personal Injury Accidents in 1991, with 4568 persons killed and 51,605 seriously injured, costing in excess of £4800 million in 1991) indicate their importance. In this context, the current drive to meet the national target of reducing casualties by one-third by the year 2000 from a 1981-85 base has repercussions for all planning and design aspects.
- 3.10.2 The required scale of accident investigation and consideration of safety issues will be dependent on the scale of the development and its location, particularly when proposals are being promoted in the vicinity of known hazardous locations. Some consideration should be given to safety issues in all TIAs, the most common problem being the creation of new or more intensive conflicts between vehicles and vulnerable road users such as pedestrians, cyclists, children and the elderly.
- 3.10.3 Local authorities are generally aware of the many factors which contribute to the occurrence of accidents. Factors may include carriageway defects, signing, lighting and visibility, amongst others. Road layout features and inadequacies can also be contributory factors. With regard to road proposals the DOT, the Welsh Office and the Scottish Office introduced in 1990 a system for safety audits. This was aimed at identifying potential safety hazards and recommending ameliorating measures before the scheme is opened to traffic.
- 3.10.4 Many authorities now have specific road safety plans, some dealing with aspects of highway development control. During the consultation period on the Guidelines, one particular example was brought to the Working Party's attention by Kirklees Metropolitan Council. Their road safety planning considerations are enacted through the development control process under the following policy guidance:

"Highway Development Control is primarily concerned with the several road safety aspects of planning applications in the following areas.

- That the development is safe for the occupier in so far as the internal traffic circulation roads and loading/unloading areas are designed to an acceptable standard.
- That the development is safe for visitors in that car parking is satisfactory for the purpose and circulation roads are signed and set out in an acceptable manner.
- That the public at large are not endangered or inconvenienced by the development as follows:
  - that the access is of sufficient size and specification to allow all sizes of vehicle likely to visit the site to enter and leave in a safe manner;
  - that the capacity of the highway is sufficient, or has been increased, so that development traffic does not cause any additional congestion or detriment to existing road users;
  - that adequate car parking is provided so that overspill parking from the development does not occur to the detriment of adjacent residential or industrial areas."



- 3.10.5 Where development proposals involve amendments to existing highway infrastructure or indeed new infrastructure, the local authority has the responsibility to check the proposed infrastructure in the context of safety considerations. This now includes the road safety audit considerations. There are comprehensive IHT Guidelines (*Reference 14*) covering this subject. Safety audits promote the application of sound safety principles to the design and operation of a road scheme through a series of comprehensive and independent checks by experienced safety, design and construction professionals.
- 3.10.6 Some highway (roads) authorities will carry out a safety audit of developers' proposals while others will require the developers to organise the preparation of such a check. Safety Audits must be undertaken by suitably experienced personnel who are themselves independent of the original design team. The Highway (Roads) Authorities' requirements can be established at the time of the initial scoping study.
- 3.10.7 Some consideration may also be given to the effect of the development traffic impact on the prevailing level of road accidents over a wider study area. Due to the unpredictable nature of accidents, prediction of changes in road accidents across an area is difficult and uncertain. The junction analysis programs, ARCADY and PICADY, contain routines to estimate accident rates and OSCADY is likely to follow suit. These may be useful at the local level, assuming that appropriate base accident data is available for comparative purposes.

- 3.10.8 It is unlikely that these programs will be sensitive enough to **accurately** predict accident levels for alternative road layouts or junction arrangements. However, by modelling the relevant junctions before and after the road layout change and again before and after the development opens, the separate assessment of differences due to layout changes and development traffic can be made. Where modelling and other predictive measures are used, the accident assessment should use average accident rates calculated from the latest three years of data.
- 3.10.9 One of the key factors in the creation of additional accident risk is the introduction of a new junction (or access). It is for this reason that highway authorities, backed by PPG13, frequently object to new accesses onto Trunk or principal roads. The developer, in considering the layout of his site, needs to give careful attention to the number and position of access junctions.

***Road Safety - Summary***

- **examination of historical data for accident factors, trends and groups; for example, regular occurrence of one type of accident or involvement of one type of road user**
- **preparation of a safety audit on any proposed change to the highway layout**