

ISSUES WITH TRAFFIC IMPACT ASSESSMENTS

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ABSTRACT

As part of the process of managing transportation infrastructure, traffic impact assessments are undertaken to establish the impact of development on traffic operations on the road or street network. In many instances, traffic impact assessments are also used to establish the extent of mitigating measures that may be required to address such impact. Developers are often requested to bear the full cost or contribute towards such measures.

Traffic impact assessments are undertaken based on the guideline document published by the National Department of Transport or the guidelines prepared by the erstwhile City Council of Pretoria. Although these guidelines are considered quite comprehensive and useful, a number of issues with traffic impact assessments have been identified and an urgent need exists to address these issues.

Amongst others the issues include the following:

- The legal framework for traffic impact assessments is currently not very clear and should be clarified.
- Developer's responsibility for network upgrading should be clarified together with the role of traffic impact assessments in establishing such responsibility.
- Inter-authority co-operation and cross-border issues is currently not satisfactory. There is an urgent need for a uniform approach and a greater degree of co-operation.
- The professional standard of both officials and consultants is a matter of concern and steps are required to improve the standard and integrity of traffic impact assessments.
- A variety of technical issues have been identified. Current assessments are primarily aimed at private transport, while very little attention is often given to the needs of other modes of traffic, such as walking, cycling, public transport and freight. Inadequate attention is also often given to impacts such as road safety and mobility needs.

In addition to the above issues, there are various other issues that also need to be addressed. The above, however, is sufficient to indicate that the traffic impact assessment methodology should be urgently revisited. The purpose of this paper is to describe some of these issues and to discuss some proposed changes to the methodology.

1. INTRODUCTION

As part of the process of managing transportation infrastructure, traffic impact assessments are undertaken to establish the impact of development on traffic operations on the road or street network. In many instances, traffic impact assessments are also used to establish the extent of mitigating measures that may be required to address such impact. Developers are often requested to bear the full cost or contribute towards such measures.

In the City of Tshwane, traffic impact assessments are undertaken according to guidelines developed for the erstwhile City Council of Pretoria in 1998. These guidelines were based on the *Manual for traffic impact studies* of the National Department of Transport (1997), but included a number of additional requirements and refinements. These guidelines greatly assisted in clarifying the requirements of assessments in Pretoria and surrounding areas and establishing some uniformity in the way traffic impact assessments are undertaken.

The Pretoria guidelines have now been applied for the past five years. During this time, a number of potential shortcomings in the guidelines have been identified. Many practitioners involved with traffic impact assessments, which include municipal officials as well as consultants, have often expressed a concern that the current traffic impact assessment methodology is not adequate and that revisions are urgently required. A workshop held in Pretoria during January 2004 which was attended by various officials from provincial government, metro governments and consultants, concluded that a variety of issues with the traffic impact assessments exist, and that these should be addressed as a matter of urgency.

The purpose of this paper is to touch on some of the issues that have been identified and to discuss some of the proposed changes to the methodology. The primary aim of the paper is to create an awareness of the issues and to start a process of dialog in which professionals can contribute towards improving the traffic impact assessment methodology.

2. ISSUES WITH TRAFFIC IMPACT ASSESSMENTS

A preliminary investigation of the problems experienced with traffic impact assessments has indicated that the issues mainly consist of the following:

- The legal framework for traffic impact assessments is currently not very clear and should be clarified.
- Developer's responsibility for network upgrading should be clarified together with the role of traffic impact assessments in establishing such responsibility.
- Inter-authority co-operation and cross-border issues is currently not satisfactory. There is an urgent need for a uniform approach and a greater degree of co-operation.
- The professional standard of both officials and consultants is a matter of concern and steps are required to improve the standard and integrity of traffic impact assessments.
- A variety of technical issues have been identified. Current assessments are primarily aimed at private transport, while very little attention is often given to the needs of other modes of traffic, such as walking, cycling, public transport and freight. Inadequate attention is also often given to impacts such as road safety and mobility needs. Other, more detail aspects include trip generation, modal split, access management, road safety and mobility needs, etc.

A more detailed list of issues is summarised in Tables 1 to 7. The list contains most of the issues identified to date. It is likely that more aspects will be added to the list as further investigations are undertaken. Some issues identified seem relatively minor and can be easily resolved (but might be neglected and not be resolved if not included in the process). Many of issues are however complex and will be difficult to resolve. Some complex issues would even require a new approach to conclude.

Some of the most vexing problems relate to the legal framework and developer's responsibility towards the road network. One of the basic questions that need to be addressed is who is responsible for the cost of infrastructure improvements required to mitigate the impact of a development on the transportation system. Another question is whether traffic impact assessments should be used for the establishment of developer contributions.

Another important issue is the question of inter-authority co-operation and cross-border issues in situations where more than one authority is impacted by a development. The sharing of developer contributions is a major aspect that needs to be addressed. The provisioning of services by one local authority, which are consumed by a development in a neighbouring municipal area, and how these 'cross-border' traffic impact assessments are undertaken needs attention.

Great concern has been expressed regarding the standard of some studies submitted to and undertaken by authorities. It is clear that this problem should be addressed, not only amongst consultants but also within authorities, i.e. the officials. One interesting proposal that has been made is that standards should not only be set for professionals undertaking traffic impact studies, but also for officials who are involved with the adjudication process.

One of the most important technical issues is that the current guidelines only address the private transport system. A need has been expressed to include requirements for other modes of transport such as public transport and non-motorised transport, e.g. walking and cycling. In certain European countries impact assessments are done by a developer to show to an authority what will or should be done to discourage the use of private transport while stimulating public transport usage.

Operational impacts are often the only consideration when evaluating proposed new developments, while safety and mobility requirements are ignored. The possibility of including road access management requirements as part of traffic impact assessments should be investigated.

Little is currently known on certain information or data on which traffic impact assessments are based. Some data, like trip generation rates, are based on older studies or are not available. Land use proposals are often defined very specifically while the data available is very broad and general. This leads to conflict between those undertaking the traffic impact assessment, those for whom it is done and adjudication of the submission. Work needs to be done to determine the need for definition and categorisation of land uses, and further investigations are required on aspects such as trip generation and parking demand.

3. PROPOSED PROCESS OF ADDRESSING ISSUES

A process has been initiated by the City of Tshwane Metropolitan Municipality to co-operate with other authorities in Gauteng and other authorities in the country, with the purpose of establishing uniform approaches to the above issues, if not all then at least those with a common cause. A number of discussions have been held with authorities in Gauteng, and the intention is to extend these discussions to authorities in other provinces and the National Department of Transport.

At the time of the writing of this paper, the process for addressing the identified issues has not been finalised. This process will be developed in co-operation with other authorities.

The following aspects regarding the process need to be agreed on:

- Identification of the client(s) of the project. The City of Tshwane Metropolitan Municipality will be one of the clients, but other authorities can also be included as clients.
- Identification of project(s) and workgroup(s) responsible to address individual issues or 'packages' of issues. It is likely that two such projects will be identified related to the legal and engineering aspects of traffic impact assessments.
- Funding of different projects. The City of Tshwane Metropolitan Municipality has already committed some funds for the project, but it is hoped that other authorities can also contribute to the cost of this very important project.

- Identification of issues and establishment of policies for each of the identified issues. Experts in the field of traffic impact assessments will be involved with this process. These policies will form the basis for the new traffic impact guidelines.
- New guidelines must be developed once all the issues have been addressed and policies are developed.

Some of the issues that were identified are serious, and it is urgent that the new and uniform policies must be put in place. The development of the new guidelines should then proceed as a matter of urgency. It is therefore important that everyone involved should be geared towards an outcome-based project.

4. CONCLUSIONS AND RECOMMENDATIONS

A number of issues with traffic impact assessments have been identified, some of which are serious and which requires urgent attention. A process has therefore been initiated by the City of Tshwane Metropolitan Municipality to address these issues. It is envisaged that this be done in co-operation with other authorities. It is particularly important that authorities in Gauteng should co-operate, but co-operation with other authorities in the country would also be highly beneficial.

The primary aim of the paper was to create an awareness of the issues and to start a process of dialog in which professionals can contribute towards improving the traffic assessment methodology. Interested persons are requested to contact the project team with any possible suggestions regarding the issues and the proposed process. Comments, from authorities that have not yet been approached, would be particularly welcomed.

5. REFERENCES

- [1] City Council of Pretoria, 1998, *Guidelines for traffic impact studies*, BKS (Pty) Ltd, Pretoria.
- [2] Department of Transport, 1997, *Manual for traffic impact studies*, BKS (Pty) Ltd, Pretoria.

APPENDIX A

LIST OF ISSUES WITH TRAFFIC IMPACT ASSESSMENTS (1 OF 2)

Table 1. Legal framework for traffic impact assessments.

The legal framework for traffic impact assessments should be clarified.
Some professionals (officials and consultants) do not have adequate knowledge of the legal framework for traffic impact assessments.
A summary of the legal framework should be included in the guideline document.

Table 2. Developer responsibility to network upgrading.

The basic question is who should pay for infrastructure improvements? Developer responsibility regarding network upgrading should be clarified.
It is important that each developer should be treated fairly.
Bulk contributions and developer contributions must be integrated. Bulk contributions must be taken into account when establishing developer contributions. Such contributions may have to be offset against bulk contributions.
At what point is a required service an internal or an external service? When can an external service be internalised?
The purpose of the project is not to address the methodology for establishing bulk contributions, but such contributions should be taken into account.
The guidelines should provide guidance on the above issues.

Table 3. Inter-authority co-ordination and cross-border issues.

Inter-authority co-ordination is an important issue. Such co-ordination should include all levels of government.
The co-ordination should be dealt with by the TCC. However, not all authorities attend TCC meetings and difficulties are being experienced in spite of TCC.
Sharing of developer contributions between different authorities should be addressed. There may, however, be legislation that prevents such sharing.
It is important that uniform standards should be applied consistently by all authorities throughout the province.
It is important that authorities should apply the standards.

Table 4. Professional standards.

Some traffic impact assessments are inadequate and of poor quality. Assessments are not always fully objective and therefore do not address all impacts. Some assessments may even conceal some impacts.
Training is an important issue, particularly for new entrants to the profession. The guidelines should provide adequate background information, also on legal aspects.
A problem is that the guideline document makes it possible for anybody to attempt undertaking a traffic impact assessment (the so-called "can do engineers"). Improving the guidelines would probably increase this problem.
Competent officials are required to evaluate traffic impact studies. Where an authority lacks such officials, use can be made of consulting engineers to provide such a service. Guideline document should prescribe the type of expertise and experience required of officials.
Traffic impact assessments should be compiled by competent consultants. The document should prescribe the type of expertise and experience required of consultants. Consideration can be given to have a recommended panel of consultants.
A possible problem is that authorities may be required to assume that a professional submission is fact.
Consideration should be given to prescribing the fees that can be charged by consultants for traffic impact assessments.

LIST OF ISSUES WITH TRAFFIC IMPACT ASSESSMENTS (2 OF 2)

Table 5. Technical aspects.

The main goal of traffic impact assessments is to enable sustainable development, rather than to hinder such development.
Guidance is required on when traffic impact assessments are required.
Guidance is also required on the duration a traffic impact assessment is valid.
Should latent or potential rights be taken into account and how? Transportation models may be required for taking such rights into account.
How should simultaneous developments in an area be handled? How should costs be shared by different developers?
A problem is that transportation demand models are not readily available in many areas. There are many problems in developing such models.
A database is required to address approved/not exercise/not proclaimed rights.
Current guidelines only focus on private transport, while other modes of transport should also be addressed (public transport, pedestrians and cyclists).
Road access management requirements should be a major consideration.
Road safety should be specifically addressed as a separate issue, even if other requirements aimed at improving safety are provided.
The capacity analysis methodology should be addressed and acceptable norms established. When should more complicated methodologies be applied? Capacity analysis is one of the aspects that are often abused.
Road improvements should take future road network upgrading into account.
Research is required to expand basic parameters such as trip generation, modal split and parking requirements. A system may be required whereby such parameters can continuously be updated.

Table 6. Additional technical issues.
Consideration should be given to provide information on the preferred format of assessment reports. Such format can even be prescribed.
Consideration should be given to dropping the differentiation between Traffic Impact Statements and Traffic Impact Studies. The only differentiation that should be made between different development size is the extent of the study area.
The need for undertaking assessments for the base year should be reconsidered. Consideration should be given to requesting such assessments only for the future year.
The future year analysis is only required to provide a "background" for a traffic impact assessment, and developers should not be requested to contribute to the cost of providing facilities for the growth in background traffic.
Consideration should be given to the selection of a standardised set of peak hours. This would simplify the development of a database of approved but not yet implemented developments.
A methodology is required to take Peak Hour Factors (PHF) into account. The peak 15-minute period for a development may not correspond with the period in which background traffic is at a peak. Different types of developments may also have different PHF's.
The guidelines should make it clear that it is only the conclusions and recommendations of the assessment that would be supported. The conclusions and recommendations should therefore provide a concise summary of items that require such support.

Table 7. Development of guidelines.
Co-ordination between authorities is needed to develop new guidelines, as well as sharing of costs. All authorities should be involved in the process.
Other authorities in South Africa should be consulted. This includes other metropolitan and provincial authorities, the National Department of Transport as well as SANRAL.
Discussions with other authorities are required to set up a process for the development of the traffic impact assessment guidelines. The involvement of the TCC should be clarified.
The process forward should include the identification of clients, establishment of workgroup(s), the identification and prioritisation of projects and the funding of such projects.

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BIOGRAPHY

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