

The benefit/cost analysis
was performed in 1997



JTRP/INDOT RESEARCH PROGRAM

Research Pays Off

Guidelines for Traffic Impact Analysis of Development Along State Highways

Interdependency is one of the fundamental aspects between land use and transportation that must be considered in transportation planning. It has been reported that the pattern of land use is affected by the level of accessibility provided by the existing transportation system, and any new development along a specific road will create trips and new travel demands. As a result, an improvement of the existing transportation facilities will be needed either in the form of building new roads or in the form of improving operational conditions. Such improvements, in turn, may create or attract more trips and spur new development. This process continues until some kind of equilibrium is obtained.

Traffic impact analysis is a specialized study of the impact that a given type and size of new land use has on the transportation. The purposes of traffic impact analysis are to determine the operational conditions on the adjacent road-

way network when a proposed development is accomplished, to identify transportation improvements needed to maintain the existing operational conditions, to predict present and future transportation system deficiencies, and to help planning agencies make decisions. In addition, traffic impact analysis will provide a basis for estimating the cost incurred due to an improvement.

This project, completed in July 1994, was intended to establish a standard approach for reviewing traffic impact analysis and to promote consistency in study requests, preparation and review. The proposed guidelines provide a step-by-step procedure and enable traffic engineers to present study findings and recommendations in a systematic manner, and enable reviewers to review the study in a systematic manner.

Research Findings and Implementation

It was found that if the analysis reveals that the projected traffic volumes on the horizon year roadway network operates in a safe and efficient manner at an acceptable level of service, then no improvements are needed. If deficiencies are detected, however, mitigating measures have to be recommended, including installation of traffic signals, traffic control signs, addition of lanes and restriction of turn movements. Some transportation demand management techniques can reduce peak hour traffic demand. If reasonable mitigating measures cannot make the traf-

fic operate in an efficient way, a more detailed analysis will be required.

The proposed guidelines have been employed by the INDOT planning personnel and the department's six districts when evaluating driveway permits and requiring impact studies for some of the larger developments. The Greenfield District Development Office and the Legal Division are pursuing promulgation of rules to require developers to conduct these impact studies.

Benefits

The proposed guidelines provide uniform applications for driveway permits and a uniform procedure that can be used by applicants and by INDOT personnel. This results in a quicker turnaround time when applying for permits and reviewing applications. The guidelines further help identify roadway improvements

that can be built at the time that permit work is done, and reduce the review time required by District Permit and traffic staff on major development permit applications.

*Cost of
Research
\$45,832*

Estimated Economic Value Over 20 Years At 5% Discount Rate

Number of Annual Major Development Permit	Savings per Project	Annual Savings	Discounted Savings (20 years)	Benefit/Cost Ratio
30	\$10,000	\$300,000	\$7,500,000	81.6

Note: Assume that the average project cost is \$100,000, and the saving is 10% of the project cost.

Contact

- Jon D. Fricker, School of Civil Engineering, Purdue University