MEASUREMENT OF THE SOCIO-ECONOMIC EFFECTS OF UPGRADING ROAD ACCESS TO A RURAL COMMUNITY

A Suggested Approach

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Upgrading of access roads to rural communities, generally using labour-intensive construction methods, has been taking place for a number of years. One of the advantages of the labour-intensive construction of such roads is that it brings direct benefits to the community through the creation of employment (Little 1987). However, the extent of on-going benefits to communities through the operation of such roads is largely unknown.

The purpose of this paper is to show that a change in travel patterns could be used as a quantitative indicator of the on-going socio-economic benefits of upgrading road access. It is deduced that vehicle trip generation would be the most appropriate indicator to use. However the lack of information on trip generation characteristics of rural communities requires that pilot studies using high sample rates be implemented so that a reliable procedure can be evolved that would be suitable for widespread use.

INTRODUCTION

The provision of a road facility, either a new road as such or the upgrading of an existing facility, is known to have a wide range of effects (Wohl and Martin 1967). Some of these effects may be positive, or beneficial, whilst others may be negative in that some disbenefit arises. (The term disbenefit is used rather than ‘cost’ because cost has monetary connotations and many disbenefits cannot be ascribed a monetary value – such as the pain and suffering incurred by people injured in road accidents.) In the evaluation of road schemes, transportation engineers usually concentrate on the costs of: construction, road maintenance, vehicle operation, accidents and user travel time (COBA 1981; Bester 1985). In the case of upgrading road access to a rural community, however, these ‘usual’ costs can be expected to be small in magnitude and of little relevance in assessing the worth of an upgrading
project. A further difficulty arises in that the transportation engineers’ approach to evaluation usually takes the savings in costs – typically of vehicle operation and travel time – to be benefits. In the case of an upgrading project for a rural community, it is possible that no vehicles actually travelled to the community in question prior to the upgrading and hence no savings could result. The questions to be addressed then are: what are the on-going benefits to a rural community and how can they be measured?

**EFFECT OF UPGRADE ON TRAVEL PATTERNS**

Examining the general situation logically, the upgrading of an access road in this context would permit normal road vehicles – as opposed to off-road vehicles – to gain direct access to the community in question. Such vehicular traffic could be either induced, i.e. making trips not made prior to the upgrading, or diverted (diverted traffic being that which was making trips to a different destination prior to the upgrading).

Induced traffic could arise because community residents now purchase vehicles for personal or business use (assuming that vehicle ownership was constrained by the difficulty of use prior to the upgrading). In the case of personal use, it may now be expected that the people in question would increase their rate of trip-making since vehicle ownership facilitates travel. It should be noted, however, that travelling in itself is not productive. Travelling is only a means of reaching an activity that is in another location – and hence the purpose of transport systems is to bridge the gap between activities. Consequently, travelling itself actually incurs disbenefits – such as time spent and disbursements on vehicle operating costs or fares paid. It is reasonable to suppose, however, that the benefit to be gained from the activities carried out at the end of a trip is perceived to be greater than or at least equal to the disbenefit of the trip itself otherwise the trip would not be made. Similar arguments would apply, of course, in respect of vehicles used by residents for business purposes.

Induced traffic could also arise due to non-residents (of the community in question) making trips to the community – for social purposes, deliveries, etc. From the above argument, these non-residents may be expected to receive a benefit greater than or equal to the disbenefit of the trip itself. In so far as the community is concerned, it is reasonable to suppose that the residents would generally gain some benefit from the trip being made to them.

Considering diverted traffic, a possible example of this could be a minibus taxi travelling on the upgraded access to take passengers (residents and/or non-residents) to the settlement. In this case, the passengers were making the trips in question prior to the upgrading of the access but they would have had to walk to the existing road network. Consequently, the