

CAN REGIONAL PLANNING IMPROVE TRUCK TRANSPORTATION?

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ABRIDGMENT

●IN RECENT YEARS, urban and regional transportation planning agencies have significantly increased the priority attached to studying freight transportation. Whereas a few years ago it was rare to see commodity movements afforded more than passing mention in reports, now urban transportation agencies are considered derelict unless actively engaged in the study of freight. Given the importance of freight transportation in the overall urban system, this trend is commendable.

It is difficult to generalize the varied approaches taken in the study of freight transportation. However, the literature presents widespread acceptance of certain common assumptions, including the following principles:

1. The main role of regional transportation planning agencies is to develop and evaluate large-scale alternatives for expediting freight movements and to eliminate conflicts in the joint transport of people and goods (1, 2, 3, 4, 7).

2. Great emphasis is properly placed on the development of an adequate truck travel model that will permit forecasting future truck trips associated with various planning alternatives (4, 5, 6, 7).

3. The workhorse of data base development is the truck survey, in which the information collected describes daily itineraries of a representative sample of trucks (8).

An objective review of these assumptions leads to a very basic question: Are the resources of regional transportation planning agencies being employed most effectively to help solve urban freight problems? The conclusion is that they are not because there is too much mimicking of people movement studies and too little emphasis on the actual nature of freight transportation problems.

To support this contention, we shall review the three principles listed. In each case we shall ask why. Does careful examination of the problem suggest that the principle is justified? If it is not, how should the resources of planning agencies be reallocated to increase the likelihood of solving some of these freight transportation problems?

WHY STUDY LARGE-SCALE ALTERNATIVES?

Urban and regional transportation studies were created in response to the difficulties inherent in project planning. It was recognized, correctly, that major arterials, expressways, and transit lines in an urban area are an indivisible system and that proposed changes to any single facility potentially affect some others. This led to the concept of the network alternative, a single proposal containing a combination of the options available for individual facilities. Analyzing network alternatives is useful because sufficient resources are not available to test system response to all combinations of the many individual options and because it provides a suitable framework within which to test major highway and transit policy alternatives.

If for a moment we ignore the issue of freight traffic on the regional transportation system, there are still a number of large-scale issues that can be studied. For example, suppose that public regional truck terminals were to be established for transshipment. Or suppose that carriers were somehow made to consolidate less than truckload

pickups and deliveries. How would these and other possible large-scale innovations affect system efficiency?

These are definitely interesting questions, but are they really relevant? How many cities are likely to have regional terminals in the foreseeable future, even if the transportation planning agency decides that it is a good idea? Probably very few. Politically, how feasible is any plan that shows the private trucking industry how to consolidate its operations? Probably not very. It seems that in most cities the probable payoff from studying such grand schemes is questionable. While the theoretical benefits may be large, the likelihood of obtaining them is small, and, consequently, the justification for using resources to study such questions is questionable.

It seems more desirable to concentrate on issues of which the potential benefit to freight transportation, both theoretically and practically, is large. The less practical alternatives should not be forgotten, but they should receive attention in proportion to their likely payoff. Other issues with larger likely payoffs should receive proportionally more attention.

HOW NECESSARY IS A TRUCK TRAVEL MODEL?

In discussing large-scale analysis, we cannot ignore the backbone of transportation study activity, the analysis of traffic flow on the regional transportation system. Since their inception, studies have attempted to forecast personal travel on regional transportation systems. It seems logical to extend this capability to commercial movements through the development of truck travel models.

Or is it? After all, why do studies engage in these forecasting activities in the first place? In the case of traffic, the reason is that there is no other way to predict likely capacity bottlenecks in future systems, which can be prevented by controlling current investments. Studies have proved that bottleneck-causing traffic levels occur mostly in the daily commuting period and, in some places, during the Sunday night recreation rush (4, 9). By and large, these are not the times that commercial trucks constitute a major component of the traffic. It has been shown that the percentage of trucks in peak-period traffic volumes is fairly small, probably not even so great as the percentage of accuracy of traffic forecasting procedures themselves.

Ideally, the rather costly activities performed by regional transportation studies are undertaken to permit more informed decisions on transportation system investments. At the point that further analysis contributes little additional help in the selection among available options, the analysis should be curtailed. In my estimation, the contribution of truck travel models falls into this category except in a few atypical urban areas.

On the other hand, almost all sizeable cities have a significant truck congestion problem. The problem occurs in high-density commercial areas where the size and poor maneuverability of trucks in the traffic stream cause bottlenecks as do loading and unloading operations. This seems, in most cities, to be the truck traffic problem, and urban transportation studies seem to be in an excellent position to do something about it.

ARE TRUCK SURVEYS USEFUL?

The truck traffic problem must be recognized for what it is, a local not a regional phenomenon. For this reason, we find it hard to justify the cost and considerable aggravation of undertaking regional truck surveys. Except in those few urban areas where a regional truck travel model would contribute significant insight into the differences among reasonable transportation investment options, the effort is better spent collecting data more pertinent to the problems at hand.

But what data are helpful in analysis of truck traffic problems? This, of course, depends on the problems. In areas where the major problem is traffic congestion caused by loading and unloading operations, the most pertinent modeling analysis probably would be a trip generation study oriented to the different land uses in the area. Because the emphasis here is on the stops rather than on the trips, the most suitable data collection technique would be to survey the comings and goings of trucks at selected establishments, ignoring the remaining itineraries of the trucks. From these data, one could determine the ability of different schemes to accommodate deliveries, without having to forecast

truck travel on transportation networks.

On the other hand, in cities where adequate off-street loading facilities are available, the critical problem may be traffic congestion caused by truck trips. In these cases, both trips and stops are important, and a truck travel model is not needed to estimate network flows. However, the flows of interest are those on the city street network of the problem area, not those on the regional transportation network (10). The appropriate data collection approach would be similar to the traditional truck survey, but the sample would include only the trucks traveling in the problem area.

ROLE OF THE REGIONAL PLANNING AGENCY

One may reasonably ask why a regional planning agency would become involved in small area studies that are the domain of city traffic engineers. This is a difficult and controversial issue; regional agencies should not unnecessarily usurp local functions. In this case, however, it seems that the importance of these types of problems and the unique capabilities at the regional level combine to indicate that some regional involvement is appropriate.

All issues considered, the most productive role for regional planning agencies in dealing with most truck congestion problems appears to be the following:

1. Technically, regional planning agencies should act as consultants in designing local traffic studies and in undertaking suitable data collection. Because of its nature, the regional agency would be able to staff experts in freight traffic problems who could help local officials determine how to approach truck traffic problems. In addition, the regional agency is the most logical repository for land use and commercial activities data needed by the local studies. This is because the regional agencies have facilities for ongoing data base management.
2. Politically, regional planning agencies can use fiscal persuasion to convince local agencies to recognize the actual priority of their freight transportation problems and to take appropriate action to find solutions. Of those concerned, the regional agency is usually in the best position to open dialogue when regional priorities for efficient freight movements conflict with local interests.
3. Financially, regional planning agencies should subsidize local freight studies insofar as these studies help to alleviate regional problems. In general, regional planning funds should be allocated in proportion to the expected payoff in improved conditions. If this criterion requires that some regional planning funds be shifted voluntarily to local planning agencies, so be it.

OTHER AREAS OF INVESTIGATION

As a final topic, several other issues seem to be valid areas of concern for regional transportation planning agencies. These topics are included to broaden perspectives on what may be considered appropriate and useful activities at this level. No attempt is made to assess the relative priorities of these ideas. It is sufficient if they suggest that the full potential of regional planning agencies is not being realized.

COST ALLOCATION

The question of what are fair-share payments for public transportation facilities is perpetually controversial. Traditionally it has been up to state government to devise a formula for splitting road costs among the various beneficiaries, and numerous reasons suggest that this assignment of responsibility is proper. Nevertheless, there may be an active but yet unemphasized role to be played by regional transportation planning agencies.

For example, vehicle fees for trucks are generally assessed (11) on the basis of miles driven (fuel tax) and weight (registration fees). This scheme is an equitable compromise between trucking and automobile interests, statewide, but perhaps it introduces some inequities when evaluated in terms of the urban-rural split. First impressions suggest that intraurban trucks, which are light but somewhat bulky and which travel few

miles compared to their interurban counterparts, possibly do not generate public revenue in proportion to their use of the roads, much of which involves parking.

It seems desirable for regional transportation planning agencies to participate in seeing that possible inequities along these lines be rectified. Of all institutions, these agencies seem the most appropriate and capable to represent urban transportation interests in this regard. Although cost allocation questions are settled at the state level, it seems that urban studies should take the lead to promote consideration of these types of issues.

ANALYSIS OF EXTERNAL COSTS

Another potential area of concern for urban and regional planning agencies is the potential impact of internalizing some of the so-called external costs of transportation and, in particular, of freight transportation. Of current interest is the effect on the economics of freight transportation of mandatory reductions in air and noise pollution. Along similar lines, we need to know the impact on trucking of a rise in running costs due to fuel shortages.

Clearly, these occurrences would raise the costs of trucking, but how would they affect the final costs of transported goods? Would consolidation of companies and other similar effects eliminate some of the added costs through increased efficiency, or would all of the cost be passed on to shippers and, ultimately, to consumers?

Such questions would seem to be of importance to regional studies inasmuch as pollution abatement and, to some extent, energy shortages are regional issues; however, it is likely that few studies have the resources to explore these questions alone. These are really questions for national-level research. However, the regional agencies can and should play a major role in encouraging, sponsoring, and monitoring such investigations to ensure that the knowledge gained is applied at the urban planning level.

INNOVATIONS IN FREIGHT HANDLING

Encouraging innovation is another useful function of regional planning agencies. In this country, private enterprise has traditionally performed well in developing and advertising new concepts in hardware technology. However, the private sector is not particularly efficient at spreading word of nonhardware developments, such as new structures of coordination and cost sharing among freight handlers, innovations in work scheduling to reduce congestion delays, and so on. It seems desirable for regional transportation planning agencies to keep abreast of such breakthroughs throughout the world and, through seminars, newsletters, and the like, to inform industry and, in certain cases, to encourage similar local experimentation.

CONCLUSION

The purpose of this paper is to promote a reevaluation of the activities of urban and regional transportation studies in dealing with freight transportation. These agencies are now preoccupied with elaborate analyses of schemes to improve freight movements at the regional level at the expense of ignoring other often more important problems at other levels.

In this discussion, we have looked at some problem areas that could be improved through the involvement of regional transportation planning agencies. Interestingly, most are not, by their nature, regional problems. Truck congestion is basically a localized phenomenon, most suitably analyzed within a framework far more detailed than that provided by a regional-level study. Other issues, such as equitable cost allocation and the impacts of pollution abatements, are general economic and policy issues most suitably analyzed at the state or national level. Regional agencies should recognize this and design their program of activities accordingly. In this way, the valuable resources of these organizations can be allocated to pursuits that hold the most promise for meaningful accomplishment.

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