SOME FALLACIES IN URBAN GOODS MOVEMENT

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ABRIDGMENT

•INTEREST in urban goods movement has grown rapidly in recent years, probably at a faster rate than the growth of factual knowledge. As a result, some misconceptions and fallacies are arising, particularly among those new to the subject. The purpose of this paper is to explore a few of these fallacies.

All trucks are used to move goods.

Statistics for 1970 show 108.4 million motor vehicles registered in the 50 states; 18.7 million of these were designated as trucks. The figures for California for the same year are 11.9 million and 2.0 million respectively (1). Of the 2 million trucks in this state, however, 1.3 million or about ⅔ are 2-axle, 4-wheel pickups used mainly as personal vehicles, reflecting the owner's preference for the pickup body style over the van or station wagon, not his need for a goods movement vehicle (2). This conclusion is borne out by interviews conducted recently by the California Department of Motor Vehicles, which showed that more than 70 percent of the pickup trucks intercepted were not moving goods at all but were used for trips between home and work or for personal business and recreational purposes (3). The pickup's popularity used to be centered in rural areas; in recent years, and particularly with the advent of the camper, it has spread to urban areas as well.

Among the other, nonpickup trucks, there is an additional group not really engaged in the movement of goods: those that perform what is called the transportation of services. This refers to a vehicle carrying one or several workers and a substantial amount of tools, equipment, and supplies moving to a job site where crew and equipment perform maintenance, repair, or some other service. Specialized equipment used for work on utility lines is an example. Upon completion of the job, the vehicle, load, and crew proceed to the next job or return to their home base. The weight of parts and supplies used at the job site is generally small in relation to vehicle gross weight. To call this type of operation transportation of a service may appear redundant inasmuch as transportation itself is a service; the key element here is that the demand for transportation is derived primarily from a demand for some other service, not from a demand for goods. An additional percentage of the total registered trucks belongs to the service category. Thus, more than 50 percent of the vehicles described as trucks in California motor vehicle statistics are not engaged primarily in the movement of goods.

Goods movement-generated congestion in the CBD is on the increase.

Metropolitan areas are growing, and so are the CBDs of many cities, particularly in the West. It would seem to follow that urban goods movement in the CBD is growing also and with it the congestion it generates. There is some evidence that this is not so. A comparison of cordon counts of trucks entering the San Francisco CBD on a weekday between 10 a.m. and 6 p.m. shows, in fact, a decline over an 18-year period from about 31,000 to 13,000 trucks (4). Here truck refers to units with at least two axles and six wheels and to combinations of power and trailing units. The CBD boundaries are generous and include a support area that is in transition from light industry and warehousing to office buildings.

Similar data for the Chicago CBD, based on a 12-hour day, show that the number of service vehicles (motor vehicles other than cars, taxis, and buses) during the same

18-year period fluctuated between 24,000 and 16,000 and declined gradually (5).

The volume of vehicles entering the CBD is only a rough indication of the congestion caused by goods movement vehicles. A more precise evaluation would require knowledge of other factors, such as the distribution of the entering vehicles by time of day, length of stay, size of vehicles, number of stops, location of stops, and type of parking (curb, angle, or off-street). But the trends in volume of vehicles can serve as a warning against the assumption that truck congestion varies directly with such indicators of CBD size as land area, floor space, or employment.

Both person movement and goods movement into the CBDs of western cities appear to be changing in magnitude as well as in kind. White-collar employment is rising as blue-collar employment and shopping are shifting outward. As more goods are produced and consumed away from the CBD, the need for massive goods movement in the center of the city may decline. There may be benefits both to the CBD and to goods movement resulting from this gradual separation.

Consolidation of urban goods movement will produce major benefits to all concerned.

The dominant image of the urban goods movement problem in the minds of many observers is that of a string of trucks, each loaded to only a fraction of its capacity, winding their way through congested streets and alleys, competing with other vehicles for movement space and with each other for curb and dock space. In this setting, the idea of some sort of consolidation of goods movement has a powerful appeal, much like that of mass transit as a reliever of person movement congestion. Consequently, most proposals for improvement of urban goods movement contain some aspect of consolidation.

1. Platform operations for intercity less-than-truckload shipments consolidated at a union terminal,
2. Pickup and delivery services in a given sector of the urban area performed by a single carrier, and
3. Strict control of entry into the field of urban common carriage, accompanied by restrictions on private carriage.

There is little doubt about potential benefits from consolidation, but there is some doubt whether the associated disbenefits and costs are fully recognized. Solid quantitative evidence is difficult to obtain, but the following listing contains some of the less positive aspects of consolidation.

1. Decreased frequency of pickup and delivery service—If the urban area is served by a number of competing common carriers, the shipper is likely to be served by several regular pickups spread over a period of time as well as by the occasional late call for a "hot" shipment. Consolidation is likely to result in once-a-day pickup or delivery stops, and these stops may occur at a time that is inconvenient for the shipper or receiver of freight. Decreased frequency is also bound to increase total time in transit for some shipments.
2. Dock space requirements—A likely consequence of consolidation is change in the traffic pattern across the shipper's or receiver's dock. Sudden surges of freight will replace the more evenly distributed flow he experiences under present arrangements. He may need less space for trucks on the street side of the dock but more space for freight on the plant side.
3. Terminal size and location—Terminals seem to be getting bigger each year. Somewhere along the line, we will reach maximum economic size; perhaps we have passed it already. Though we may not know precisely what the optimal size is, it appears safe to state that no major urban area could be served economically by one vast, consolidated terminal. This means that we shall have to go to multiple terminals, perhaps one or more at each gateway. But this implies either a large volume of transfers between terminals or overlapping pickup and delivery routes, or both—in any event a less-than-ideal system that will cancel some of the potential gains of single-terminal consolidation and that may end up looking not too different from the status quo.
4. Management problems—An analysis of consolidation may make allowances for the foregoing points but still come up with appreciable paper savings. We should keep in

mind, however, that there are numerous recent examples in both public and private sectors where consolidations have been effected but have fallen short of delivering the economies of scale that seemed so convincing when the consolidation proposal was first considered. We have seen it at the federal level in the Departments of Transportation and Defense, at the local level in school district unification, and in the private sector in rail mergers. There is an art to managing large, complex systems; it must be learned, and the learning period appears to be long and costly. After many years and even with considerably enlarged managerial freedom, the Postal Service is still struggling to master its giant system. It is safe to predict that any attempt to consolidate urban goods movement will encounter its share of managerial and technical problems and that these will take time to resolve.

These points do not invalidate the inherent logic of consolidation, but they should point to the need of scaling down our expectations of net benefits to a realistic level.

Consolidation of urban goods movement will relieve downtown congestion.

Assume, for the moment, that we have conducted a complete analysis of the benefits and costs of consolidation of urban goods movement, that the benefits clearly outweigh the costs, that we have effective cooperation from all concerned, and that we are able to implement a consolidation program successfully—and these are big assumptions indeed. All incoming less-than-truckload freight is intercepted at gateway terminals and distributed by a joint venture of common carriers so that there is no overlap of delivery routes at all; pickups are handled similarly. Will we have alleviated CBD congestion?

There are little actual experience and even fewer data for an answer to this question. Certain basic factors, however, are readily apparent. Although we may reduce the number of common carrier vehicles dispatched into the downtown area, we also face the possibility, noted earlier, of an increase in total elapsed time for local and intercity movements. For some shippers and consignees, that increase may be intolerable, and they may decide to shift to proprietary operation, thus adding to CBD traffic volumes. More significant yet, there is a seemingly inexhaustible reservoir of automobile drivers who are conditioned to a certain level of congestion and who abhor a vacuum. They stand ready to take advantage of any apparent easing of traffic until it again reaches that level of congestion to which they have become accustomed. Consolidation of one segment of downtown vehicle traffic does not assure an absolute decrease in traffic volume. Permanent relief of CBD congestion is unlikely.

Urban goods movement can be improved by using rail rapid transit facilities during off-peak hours.

With some regularity, we hear and read proposals to use rapid transit systems for goods movement, especially to serve the CBD during nighttime hours. One motivation for such proposals is readily apparent: Capital costs and operating expenses of rapid transit systems are governed by the need to accommodate two very sharp peaks during the daily rush hours; ridership is low between the peaks and during nighttime hours; thus, the system is underutilized. Just as a backhaul is attractive to the trucker even if it pays only for fuel and oil, any form of off-peak utilization is inviting to the transit operator. The operational problems, however, are enormous. Even without cost analysis, a review of the steps involved indicates the obstacles. Movements by truck only and by truck-transit combination are compared in Table 1. If we add to this comparison the fact that at night, when transit facilities are available, surface streets are also free of congestion, the benefit of transit use then becomes even more dubious.

Some decades ago, integrated rail systems transported persons and goods in both short- and long-haul operations. Profound changes have occurred since, and we now have two entirely different systems: privately owned railroads transporting goods over long distances and publicly owned rapid transit systems transporting passengers over short distances in metropolitan areas. To retrofit existing rapid transit systems for goods movement appears futile. Even the design of future systems for dual use of persons and goods appears to be a mismatch for our motor-vehicle-oriented metropolitan areas.

Table 1. Comparison of urban goods movements from an off-transit origin to an off-transit destination.

Factor	Percentage of GNP				Change in Relative Share 1959-1970 (percent)
	1959	1964	1969	1970	
Passenger bill	10.79	10.36	10.64	10.19	-5.6
Freight bill					
All intercity freight	6.96	6.38	5.69	5.71	-18.0
Local trucking	2.83	3.21	3.27	3.65	+29.0
Total freight	9.79	9.59	8.96	9.36	-5.4

So much for some of the more widespread fallacies. If there is one central theme here, it is this: The obvious and simple answer to a question or problem is not necessarily the correct one. Whereas this is hardly news to planners, engineers, and analysts, it bears reiterating in the context of urban goods movement.

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