

City Rebuilding Is Tomorrow's Business
Development of Thoroughfares

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So much has been said and written about traffic congestion in cities and the development of thoroughfares to relieve the congestion, that it may seem to you just a bother to have to listen to it all over again. But, although it is scarcely possible that the existence of a serious problem can have escaped your attention, and although most of this audience probably shares with nearly every one else the feeling, that something should be done about it, the fact is that precious little has been done about it.

The situation reminds one of the story about the man who complained that his wife was always asking him for money. When asked how much he had had to give her, he said he hadn't given her any, yet.

It is a matter of money that gives me such excuse as I may need to renew the question with you today. For, today there is a substantial sum of money waiting to be spent for the development of city thoroughfares; waiting to be spent for that purpose and for that purpose only; and still waiting to be spent.

It is money earmarked for improvement of Federal-aid routes in urban areas and authorized for expenditure in the current and two succeeding fiscal years by the Federal-Aid Highway Act of 1944. Urban areas in the language of the Act are areas defined about and including all municipalities of 5,000 and more population. The Federal-aid

routes, by the logic of their selection, are the principal thoroughfares of the areas they traverse.

For the improvement of such principal routes in such urban areas the Federal Act authorizes the allotment of \$375,000,000 from the Federal Treasury in equal annual instalments of \$125,000,000 over a period of three fiscal years, and requires these sums generally to be doubled by addition of State or municipal matching contributions, the combined sums to be spent with joint approval of the State highway departments and the Public Roads Administration. To assure an equitable sharing of the Federal contribution the law directs apportionment of the authorized funds among the several States in proportion to their populations resident in cities of 5,000 persons and more.

Although the Act referred to was one of the more important measures enacted by the Congress in preparation for what at the time it was the fashion to call the post-war period, it was not intended and should not now be regarded as a mere palliative of temporary post-war ills. While the construction work for which it provides will afford a substantial volume of employment, its primary purpose is not the increase of employment opportunity. Rather, it was intended to effect the beginning of what should prove to be a sustained program directed to the modernization of the country's existing obsolescent system of roads and streets. Such a program, in respect to the system as a whole overlong deferred, is for no part of the system more needful than for that part which is comprised of the main arteries of cities. Relief of the congestion that clogs these

arteries is widely recognized as one of the most difficult of city problems - a problem so difficult that few cities have dared to tackle it with their own resources alone. Indeed, they should not have to tackle it alone, because the root causes of the congestion which constitutes the problem lie in part in the mounting tide of traffic poured into their principal thoroughfares from beyond the municipal limits.

To cities thus beset the Act of 1944 brings promise of a large measure of Federal aid. For the first three years the promise is explicit. Divided equally among all eligible urban areas, the sum authorized for each year would amount to a dollar and a half per capita - a Federal contribution equalling or exceeding the total of street revenue raised by local taxes in many cities. For the longer future the promise of continued aid is implicit in the steadfastness of Federal purpose demonstrated through a long history of cooperation with the States under the basic Federal Highway Act of 1921, of which the 1944 Act is the latest amendment.

Intended as aid for the relief of an intolerable congestion of city arteries, the desirable specific uses of the proffered Federal funds will be better understood if we consider for a moment the causes of the congestion it is their purpose to relieve.

The basic cause, of course, is the phenomenal increase of motor vehicle usage, resulting in a general increase of all highway traffic. More particularly, it is caused by the inherent tendency of traffic to collect from many feeder streets into arterial streams on a few streets. On these few streets the heavy collected arterial movement

is intermingled with, and its free flow impeded by, a slower, starting-and-stopping movement of local traffic; and at numerous intersecting streets it is piled up by the complete stoppage necessary to permit safe passage of crossing traffic.

The streets, which by election of the traffic itself, are thus required to take on an arterial function are usually not distinguished by especial physical fitness to perform their role. They are chosen as arteries generally because of the directions in which they run and the advantage of their location as the direct lines between origins and destinations of large volumes of movement within the city. They are often less adequate in capacity to the traffic load imposed upon them than other streets. Their lines - even their widths - are often the lines and widths of one-time rural highways leading to the city when it was smaller, now engulfed in the growth of the city. Often in remarkable inversion of need, their width increases outward from the center of the city, which was the older town, partaking of the greater width to which the highways were established at later and still later periods.

While these same streets have generally a long history of arterial usage, the demand of that usage far exceeds that of earlier years in consequence of the phenomenal increase of the arterial movement of motor vehicles. Forty years ago their arterial movement may have been conveyed largely in street cars. Street cars may still be operated; if so, the problem of accommodating the heavy motor vehicle movement is complicated by their presence. Or the tracks may have been removed and busses substituted, or mass transit abandoned

entirely, as is often the case in smaller cities. But, however, their arterial movement may now be conveyed, in numbers of vehicles it is constituted largely of motor vehicles, and it is generally an all-too-obvious fact that these streets are inadequate in dimension and design to the discharge of the heavy traffic that presses through them. Result - congestion.

Often these arterial streets, especially in their more central reaches, are business streets. This is a natural consequence of their evolution from earlier highways and "main streets" of the older town. Generally - and this is a significant fact in view of the provision now made for Federal aid - they are the streets that most directly connect the principal modern highways approaching the city with the city center. As previously suggested, they occupy often the actual locations of these same highways, now incorporated in the city street plan. The more important highways generally are already included in the Federal-aid system for which, both in and out of the cities, funds are provided by the recent Act. If, especially in the cities, some of the more important arteries are not included, opportunity to include them may now be afforded by the pending designation of terminal distributing connections of the new interstate highway system. Such connections will automatically be added to the Federal-aid system and thus become eligible for improvement with Federal assistance.

What is the traffic that uses these arteries in and near the cities? What are its sources and its destinations? Suppose we begin with the connecting rural highways outside the city limits. The idea

once widely held that much of the traffic on these main rural routes is a movement that can be by-passed around the city has been completely dispelled by the highway planning surveys. At large cities 90 percent or more of it is bound to or from the city itself. The percentage of city-bound and originated traffic diminishes somewhat with size of the city, but even at towns of 2,500 population a full 50 percent of the approach highway traffic is often found to be destined to, or originated in the town. Moreover, the points of origin and destination in the cities, both large and small, are found to lie in very large part in the central business area, the very heart of the city.

The city streets which connect at the municipal limits with these main rural highways are thus even at the very edges of the city already impressed with an arterial function. As they lead inward, generally by courses as direct as possible toward the city center, they pick up internal arterial movement, their traffic volume rapidly mounting to congesting peaks toward the city center.

Reaching the center these streets usually pass directly through the heart of the business section and on through the other half of the city to connection with a principal rural highway at the farther perimeter, marked in this other half of their traverse of the city by the same arterial traffic characteristics. Since they afford the more direct channels of movement for traffic, both external and internal, bound from one side of the city to the other, they are used by such traffic in preference to other less direct routes, and so conduct directly through the busiest section of the city a substantial volume

of movement, which neither in origin nor destination is concerned with that section. In the City of Providence, Rhode Island, for example, a recent survey has shown that no less than 48 percent of all vehicles entering the downtown business section enter it only to pass through to other parts of the city.

This is the problem. Now, what can be done about it? As I have already said, the Federal Government offers its aid toward a solution, directed and confined to improvement of the very arteries on which the problem exists. There is nothing in the past experience to suggest that the aid now offered will not be continued until the problem is licked, if the States and their cities evidence that they desire it.

The existence of serious city traffic congestion and a general realization of the need for its relief were most prominently cited to the Congress as reasons for the earmarking of special funds for urban-area expenditure. The Congress will doubtless expect a substantial measure of congestion relief to follow from the authorized expenditure. To assure such a result the Public Roads Administration is asking that every project undertaken shall result in some substantial enlargement of the traffic capacity of the existing street facility.

Mere repaving of streets will not accomplish this end. Street widening, insufficient to provide at least an additional traffic lane in each direction will not accomplish it; and widening, even when it results in added lanes, will not surely end congestion. It may simply invite the diversion of traffic from other streets and end in congestion of a larger volume. Such was the lesson expensively learned by Detroit from its widening of Woodward Avenue some years ago.

In the smaller cities, where the volume of potentially divertible traffic is not great enough to recongest the widened street, widening which results in additional lanes may be effective for a term of years. In large cities it fails to touch one of the most potent causes of congestion - the interference of heavy cross-street traffic.

Effective widening of an existing street functioning as a main artery is often highly expensive in property damage - the more so the greater the need. As instance again there is the Woodward Avenue experience in which property damage and right-of-way accounted for nearly 10 million of the \$11,128,000 total cost. Faced with this dilemma, there have been instances in some of the smaller cities in which relief of the congestion of an existing artery has been sought in the improvement of a nearby parallel street on which widening has been more feasible. In some instances this has resulted in such a transfer of business advantage from the old to the newer main street as to force the actual removal of established business and a heavy depreciation of property values on the older thoroughfare - a consequence greatly to be deplored from every point of view.

Because widening alone cannot reach, and may even exaggerate the effects of cross-street interference as one of the principal causes of thoroughfare congestion, and because where most needed it can be accomplished only at the expense of great damage or the virtual destruction of valuable abutting property and other interests, the weight of authoritative opinion has been thrown more and more in recent years toward a solution involving the creation of an entirely new type

of thoroughfare - the limited - or controlled access highway. A few such highways have been built - notably the Westside and Gowanus Elevated Highways and Henry Hudson Parkway in New York, the Davison Limited Expressway in Detroit, the Arroya Seco and other expressways in Los Angeles and an early development of the same type in St. Louis. Numerous facilities of similar character are now projected in these and many other cities.

In its purest form the controlled-access highway or expressway is designed to perform an arterial function only. Local usage is excluded by the lengthening of intervals between points at which ingress and egress is permitted and by barrier strips of land separating the expressway proper from all marginal property. All street intersection at grade is eliminated by depression or elevation, either of the expressway or cross streets. Construction of such a facility within the right of way of an existing street is practically impossible. Feasible location must generally be found on a line approximately parallel to, and not far removed from the existing street or streets which previously have served the arterial movement to be accommodated. Attraction of the arterial movement from these streets to the new free-flowing artery enables them better to serve their remaining local traffic; and the limitation of direct access to the new facility prevents the transfer of property locational advantage previously cited as a consequence of simple widening.

Such complete application of the principles of limited access is perhaps needed only in the larger cities, and in these in many cases may be feasible of attainment only by a process of planned stage

development. In smaller cities the volumes of arterial movement and cross traffic flows may not be large enough to justify immediately the expensive feature of intersection grade separation. The smaller cities, however, have an advantage that should not be lightly discarded to plan now for the gradual evolution of full expressway facilities as the need matures.

Such an evolutionary plan may be developed in several stages in something like this fashion:

- Stage 1. Locate lines of the future expressway to be developed on a block-wide right of way. Acquire the right to limit improvement and use of property in the included block and convert the existing bordering streets to one-way usage.

- Stage 2. Acquire the fee of included property, raze buildings and construct a divided arterial highway without grade separation or closure of existing cross streets. In some cases construction of the arterial lanes may be deferred for a period during which the acquired land may be converted by appropriate landscape treatment into a central park.

- Stage 3. Block minor cross streets by closure of the barrier strip across them, diverting their traffic by way of the bordering streets to nearby major cross streets intersecting the arterial lanes at grade. At this stage the bordering streets assume fully their ultimate role as local frontage streets only.

Stage 4. Separate intersection grades at major cross-streets as necessary by elevation or, preferably, depression of the arterial lanes.

In most cities eventual need will be found for at least two, and generally more such thoroughfares, their approximate lines determined by the necessity of connection with major rural highways at the city limits and appropriate approach to the business center at their inward ends. A system of thoroughfares so located resembles the spokes of a wheel.

At the city perimeter there is generally a fortunate existence of wedges of undeveloped land between the main highways in which the new internal arteries can be located with least property damage and right of way expense. Inside the city it commonly occurs that residence property in a zone adjacent to the existing arterial street is somewhat depreciated and available at moderate cost for right of way. Approaching the business section, the new routes, instead of continuing into the central area, would be terminated at a center-girdling inner-loop highway, in its ultimate development also a limited-access thoroughfare. The function of this loop is to distribute traffic from and to the several radiating thoroughfares to and from points in the central area. It will also serve to divert around the business section the "passing-through" traffic that now adds so heavily to the congestion of downtown streets.

To determine the need for such a plan and provide a factual basis for decisions on priority of improvements within it, and for the detailed design of such improvements, are the purposes of origin-and-destination surveys thus far undertaken by 41 cities in cooperation with State highway departments and the Public Roads Administration. The O & D survey does not alone supply a complete answer to the problem; it is rather a needed additional instrument toward the desired solution. For the proper location of thoroughfares three major classes of facts must be available:

- 1st. Facts regarding the city's topography, generally depicted on existing topographic maps.
- 2nd. Facts concerning the present kind and degree of land usage and property values, generally available in property plats and tax assessment records.
- 3rd. Facts concerning the volume and direction of major traffic movements within the city. These are the facts developed by O & D surveys. They are usually depicted on a new kind of map, differing materially from the familiar form of street traffic map, which we may call a motographic map - a map of movement.

Such a motographic map shows clearly the directions and volume of the principal arterial movements, indicates the desirable general direction of new thoroughfares, and permits a determination to be made of the volume of arterial movement that can be attracted to thoroughfare lines located in detail in consideration of known topographic and property conditions.

Funds authorized by the recent Federal Act are available now, both for construction of city thoroughfares and for essential planning purposes, including O & D surveys, as a generally absent, but essential basis for planning.

In the immediate expenditures for construction we are attempting as best we can to be sure that what is now done will be measurably effective in relief of present congestion and will conform to a future plan developed in accordance with the principles enunciated.

Unfortunately such plans are not now at hand in most cities, and we cannot delay all construction awaiting their development. We are urging the undertaking of origin-and-destination surveys as essential to the preparation of satisfactory plans, and as one of the best means of supplying information needed to answer many of the questions that inevitably arise concerning the effects and benefits of plans proposed, for want of which planning effort heretofore has so often been frustrated by irreconcilable division of public opinion.

In dwelling upon the need of better thoroughfares for the accommodation of motor traffic, I have not intended to suggest that the facilitation of that mode of internal movement will provide the complete answer to a city's internal transportation problems. Mass transportation, which at one time served almost the totality of arterial movement, is still a large factor in terms of the number of persons moved. Its facilities should be improved both in routing and vehicular design and operation, in order to reattract as much as possible of the lost patronage.

Means to this end should be considered in connection with all plans for expressway development.

The construction of expressways without provision for parking of the vehicles more expeditiously moved to the business section will afford only a partial solution to the city traffic problem. Without adequate parking provision the benefits of new expressways may be largely nullified, and existing ills of congestion in some cases magnified. With this brief reference it is appropriate that I leave the discussion of parking to a following speaker.

In closing, I should not fail to emphasize that the development of better thoroughfares is only one objective of the larger task of city rebuilding which the theme of this session recognizes as Tomorrow's Business. Plans for thoroughfare improvement must be consistent with plans for modernization of other elements of the composite city structure. I mention especially the need of a close correlation between thoroughfare and housing plans and plans for parking and mass transportation facilities. Planning for improved thoroughfares should therefore be advanced as a consistent and integral part of a well considered overall plan, encompassing all of the facilities necessary for better living in the City of Tomorrow.