

HIGHWAY NEEDS OF EXPANDING URBAN AREAS

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It is no new thing for cities to expand. Down the ages, in all lands, cities have been expanding. In no land, and in no time has their expansion been more rapid and constant than in the United States within the relatively brief period of our national existence.

We have boasted of the growth of our cities. Repeatedly, established municipal limits have been moved outward to include more and more of surrounding area in process of change from rural to urban character. If, recently, we have come to doubt the occasion for pride in the fact of this growth, our doubts have yet resulted in no alteration of the fact. Our cities are still expanding.

The population statistics strongly evidence the continuing trend. Pausing only during the depression years, the residence classification of the national population changed from 60.3 percent rural and 39.7 percent urban in 1900 to 43.5 percent rural and 56.5 percent urban in 1940. For the current decade the statistics are not yet compiled; but we have the evidence of common observation to tell us that the same trend has continued, probably with renewed impetus.

In the case of the larger metropolitan areas the statistical evidence of expanding size is particularly marked. For whereas in the decade 1900-1910, 75 percent of the population increase of areas classed as metropolitan districts occurred in the central cities of such districts, in the decade 1930-1940, only 42 percent of the increase occurred in the central cities, while 22 percent occurred in satellite urban communities and 36 percent in satellite rural areas within the district boundaries. And, whereas, in the last decade of record the population of central cities increased only 4 percent, the population of urban satellites increased 7 percent and that of satellite rural area 29 percent. Although, again, there are as yet no statistics of the change that has occurred during the current decennial period, every observation indicates a continuance of the trend of recent decades.

All evidence points to the continuance of two major movements of our population: A movement toward the cities from the remoter rural area; and a movement out of the more densely populated centers of urban aggregations into their less densely populated satellite towns and rural environs. Urban areas are expanding. They are tending also to become less densely populated.

To the extent that the first of these tendencies is fed by the movement of rural population toward the larger cities, there are some who deplore it. If it were possible to do so by artificial control they would set a limit upon the population of any urban area.

Generally, however, these are persons who regard with favor the tendency of urban population to "de-densify." If, then, this favored tendency is to be encouraged, there is no possibility of halting the further expansion of urban areas short of the arbitrary reduction of existing population aggregations. Apart from any consideration of the desirability of such artificial action to limit or reduce the population of cities, the feasibility of it is highly speculative. The fact remains. Our cities are continuing, they will longer continue, to expand in area.

The consequences of this undesirable tendency are regarded with mixed emotion. Depending upon the inclination of the individual, some of the consequences are regarded with apprehension, some with approbation. Some favor what others fear, and vice versa. Decentralization is embraced as desirable by some, is dreaded as dire by others. What connotation the word holds for each who uses it may be somewhat obscure.

But, whatever meaning any individual may attach to the word, and whatever emotion its use may arouse, all who use it agree that what they mean by "decentralization" is in some measure abetted by highways and motor vehicles. Of centralization - the opposite tendency - though less often discussed nowadays, there would doubtless be a similar difference of conception and view, but there could also be a like agreement upon highways and motor vehicles as contributing causes. For, as all knew, highways run both from and

to, and motor vehicles run both ways upon them, with consequences conceivably equal and opposite.

So, in a consideration of the highway requirements of expanding cities we need not stop to debate the causes of the expansion or whether, in their results, they are good or bad; for the highway, being the servant and not the source of human desires, is primarily responsible for neither the good nor the bad; nor can it, against the resultant force of human desire, turn a tide of human movement either one way or the other.

As highway and traffic engineers, our ruling concern is to read aright the manifestation of human desires in respect to highway movement, and design and regulate highway facilities accordingly. The appraisal of human desires is the purpose of every traffic count we make, of every origin-and-destination survey, of every parking study. Informed by past and current records of city growth, we must, I believe, interpret what we read from such surveys in cities in a manner consistent with the probability of continued expansion of the urban areas. With the continued expansion to be expected we should not fail to take into account also other associated tendencies, evidences of which now appear more clearly almost from day to day. To wit: A general reduction of density of population in the urban area, and fission of the past essentially unicellular structure of cities into more complex organizations of plural cells.

To this audience certain facts that have emerged from recent traffic surveys in urban areas are well known. The fact that a relatively small part of traffic approaching an urban area from outside its boundaries can be directed around the area to other destinations; the fact that of the larger part of the externally originated traffic that must enter the urban area a large part is destined to the central business section; the fact that the avenues by which this center-bound external traffic reaches its destination are invariably identical with the routes of large movements of internally generated traffic likewise center-bound; the fact that substantial portions of the swollen traffic streams reaching the central business section have no missions there, but enter it only to pass through to other destinations; the fact that there is usually a potentiality of annular traffic interchange that is substantial, if less voluminous, than the generally radial movements; these are facts that require no elaboration before an audience of traffic engineers.

Nor, is it necessary in addressing this audience to expand upon the merits of controlled access and expressway design as means to provide the utmost of capacity, and freedom and safety of traffic movement in designed improvements of major arteries.

These facts, clearly established by the surveys and researches of traffic engineers, are understood, and their certain implications are fully appreciated by informed highway engineers. They were stated with emphasis in the report of the National

Interregional Highway Committee, and formed the basis of recommendations by that committee for the ultimate solution of the grave traffic problems of the cities. The recommended solution involves the construction of a system of major highways, located to serve the larger masses of arterial movement within the city and designed to permit essential freedom of flow. In typical form, the system consists of a number of radial routes extending inward from important external highways and converging toward the central business section on the edges of which they are intercepted by, and terminated in an inner belt highway encircling the business section, to which are added a requisite number of annular routes, the outermost forming a by-pass around the presently developed urban area.

Convinced by the report of the Interregional Highway Committee, the Congress authorized the appropriation of substantial Federal funds earmarked for expenditure on Federal-aid highways in urban areas. It further directed the designation of an interstate highway system to connect the principal cities of the country, with the implicit understanding that the city terminals of such a system would have the typical form described by the committee, and would be included in the Federal-aid System to which the earmarked urban funds were dedicated.

The Public Roads Administration has called upon the State highway departments and city authorities to join in the designation of such urban Federal-aid systems. Origin-and-destination traffic

surveys have been made. In the light of the facts determined, the composition of arterial systems has been recommended after careful study in some cities. Some substantial and well designed improvements are in process of execution.

The fact remains, deplorable though it may be, that progress in the planning of city arterial systems and in the expected employment of Federal-aid urban funds to advance the improvement of such systems is seriously delayed. There are some immediately insurmountable hindrances which time will correct. But, these apart, the program is delayed by grave indecisions, by lack of accord in principle, and most seriously by a deficient public understanding of the facts of the problems and the efficacy of the proposed solutions.

It is increasingly evident that facts clearly seen by traffic engineers are not apparent to the public eye. Evident also it is that solutions deemed appropriate and essential by students of traffic are not fully supported by general city planning authorities. It seems to me that at bottom of these misunderstandings and disagreements is a difference of perception or of acceptance of the certainty of further city expansion.

I recall an instance in which it was the stipulation of a city planning authority that if a city expressway was to be built it must terminate at its outer end well within the established municipal limits, lest it serve further to extend an undesirable development of suburban area.

Is it proposed to build a new free-flowing arterial highway to the central business section? Then, whether or not there will be agreement to the proposal depends upon whether it will enhance or diminish the attractiveness of that area as a place of business, whether it will preserve or adversely affect present property values, whether it will discourage or promote so-called "decentralization." There is apparent utter blindness to the fact that the dreaded "decentralization" is already far advanced, in the uprising of many outer subsidiary shopping and business centers. The fact that seems so clear to the traffic engineer - that a center-bound traffic stream, now, and certain to remain of great volume, come what may, is congested in its present channels and needs a channel of greater capacity, less resistant to flow - that fact seems to make little impression.

Look at the cities! They have expanded; they have expanded from areas no larger than their present central business sections. And written all over their present street plans is the admission that at no time during the course of the past expansion was there an adequate provision of the street needs of the city at its present size. How else can we interpret center-directed streets that diminish in width as they run inward? How else explain the street discontinuity that exists where continuity is the obvious present need, than by the accretions and engulfings of past stages of expansion that took no account of the future that is now the present?

Is it not time, in this present, to begin to repair the errors of the past? May we not in this present at least try to avoid repetition of the more obvious errors of the past? And is any error of the past of our cities more obvious than its utter failure to anticipate and plan for the city expansion that has occurred? We shall repeat that error now if we fail to heed the portents all about us that the process of city expansion has not ended; if we indulge the hope, or permit the persuasion that by any arbitrary act it will be ended. At this very moment, to cities all over the land new accretions are being added, accretions of residence and business and industry, that aggregate in themselves the proportions of substantial cities. Sharing the general ignorance of potentialities of the atomic future, I yet venture the belief that it holds the probability of greater, not less expansion of city areas, and the need of quicker, not slower communication between parts of the larger areas. And the size of these areas? Well, lest we err again, let us plan for no less than the doubling of present areas; and lest reality too soon overtake the dream, let us in our dreams envision cities twenty, thirty - shall we say, forty miles across!

The system of free-flowing arterial highways that the traffic engineer sees as a manifest need of today's city will be recognized by all as the vital necessity of tomorrow's greatly expanded city. Vital necessity then merely to hold in bond the wider fling of interdependent, yet locally sufficient parts, it is needed now in

evolution as the progressive solution of increasing traffic congestion, and in accepted plan as the frame of future city growth.

Instantly of first importance, is the recognition and agreed establishment of the general lines of such arterial systems to be developed. We must start with the determinable needs of present cities. In this determination traffic engineers have, and are responding to an important duty. With the best advice procurable, future change should be anticipated. There will be division in such counsel and no certainty of the better choice. Let us recognize the inherent uncertainty and establish agreed general lines of the intended systems. Precisely, that is the requirement of the Federal-aid procedure.

Then let us set to work, building upon the agreed lines when, where, and as we can. The logic of demonstrable prior need may have to yield momentarily to the possibilities of practical accomplishment. If, as between two lines of the agreed system, the greater need of improvement lies on one, we may yet by improving the other first accomplish sooner the improvement of both. If within one line the need of improved facility is greatest at its inward end, where hindrances would delay beginning, practical beginning at the outer end may be the better alternative to no beginning at all.

However strong the conviction of their need, the cutting of new and adequate arterial routes through the older central portions of cities is a task beset with prodigious difficulties - difficulties

that must have time for their overcoming. The appreciation of these difficulties should be our warning of the advisability of cutting extensions of the same routes now through never outlying sections before these also with time and the cities' expansion become similarly difficult of penetration.

If only the ultimate form of desired improvement be clearly envisioned and held as a goal, there are many expedients of development by which that form can be approached by practicable stages. Outright improvement to full plan, if possible; progressive development by stages where necessary. This will be a good rule to follow.

It might even be a good plan to mix the two measures. Public demonstration of the benefits of full-scale arterial street facility is a present need, to convince the doubters. It can be had only by the construction of at least one full-scale prototype of substantial length. For such a demonstration it may not be too difficult to answer the question: "Where is the money coming from?" Beyond this, for a time, the employment of current revenue upon calculated stages of the full development of other arteries may postpone the need of further answer to the intended poser until it answers itself.

The answer could be given at once, of course, were it not seemingly so incredible. To say that money for the needed arterial highways of cities will come from the pockets of satisfied users would seem almost as incredible, perhaps, as to say that anyone would pay the equivalent of a gasoline tax of 15 cents or more a

gallon to ride on one of our increasing number of turnpikes. To suggest that a people that has found the means to provide itself with some 40 millions of motor vehicles will not find it too difficult to buy less than half as many thousands of miles of city arterial highways it has come to want, might also at the moment be less than convincing. Better to wait, as we have waited to answer the similar question that doubtless was asked many times when first there was begun the improvement of State and Federal-aid highways out in the country - until it answers itself.

Had we stopped, ere we began, to count the cost of what has been done in the past thirty years to improve the condition of the rural arterial highways, the odds against a beginning would have been great indeed.

Now, as we contemplate the beginning of a similarly needed improvement of the arterial highways of our expanding cities, let us not puzzle ourselves too much with riddles that only time and its many timely decisions can unravel.

But just as a hint of the probable answer, it might be useful to know that the Arroyo Seco expressway into Los Angeles from Pasadena now is reported to be carrying 75,000 vehicles daily. It was earning annually in user revenue over 9 percent of its cost when it carried 25,000 vehicles a day.